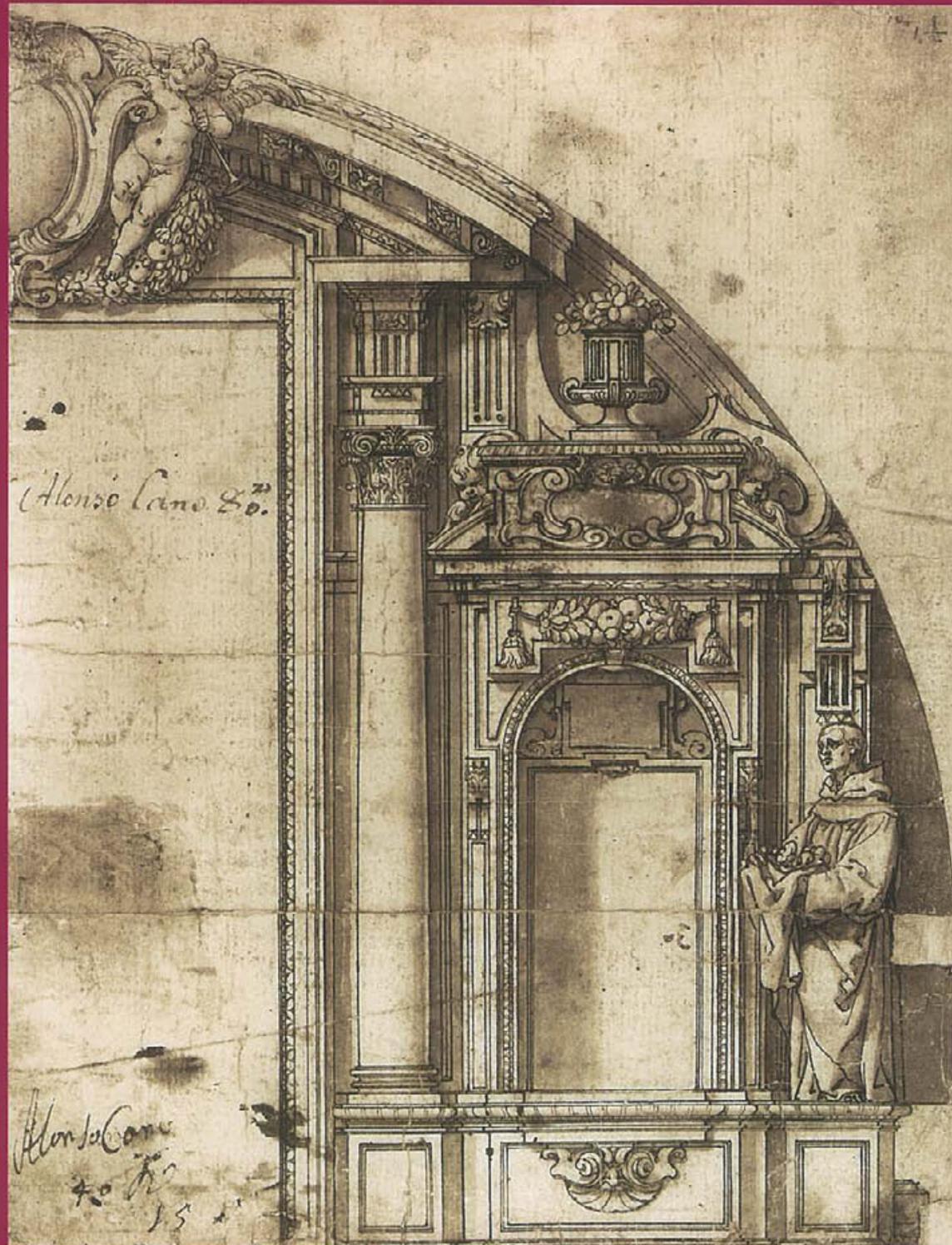


METHODOLOGY FOR THE CONSERVATION OF POLYCHROMED WOODEN ALTARPIECES



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CONSERVATION OF POLYCHROMED
WOODEN ALTARPIECES



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Cover

Center *Drawing of Ornamental Top*, Alonso Cano. Hamburger Kunsthalle. Photographs by Elke Walford, Hamburg (Copyright © Bildarchiv Preußischer Kulturbesitz/Art Resource, NY)
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Published by: Junta de Andalucía. Consejería de Cultura
The J. Paul Getty Trust

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ISBN

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METHODOLOGY FOR THE
CONSERVATION OF POLYCHROMED
WOODEN ALTARPIECES

An International
Conference
Organized by the
Getty Conservation
Institute and the
Instituto Andaluz
del Patrimonio
Histórico
Seville May 2002

THE GETTY CONSERVATION
INSTITUTE

JUNTA DE ANDALUCÍA
CONSEJERÍA DE CULTURA

Table of contents

	6	About the institutions
<i>Timothy P. Whalen, Román Fernández-Baca Casares</i>	7	Foreword
<i>Jeanne Marie Teutonico, Lorenzo Pérez del Campo</i>	10	Preface
<i>Jaime Cama Villafranca</i>	14	A living cultural heritage. The theory of restoration as a reference framework for defining intervention methodology for polychromed altarpieces
<i>Myriam Serck-Dewaide</i>	20	Sixteenth-century Antwerp-style altarpieces of the Church of St Nicolas at Enghien and the Church of St Lambert at Bouvignes, Belgium
<i>Carlos M. Rúa Landa</i>	34	Main altarpiece of the Basilica Menor de San Francisco, La Paz, Bolivia
<i>Susana Cardoso Fernández</i>	48	Main altarpiece of the Church of Santo Antonio de los Ángeles, Laguna, Santa Catarina, Brazil
<i>Adriano Reis Ramos</i>	54	Main altarpiece of the Cathedral of Santo Antonio in Santa Barbara, Minas Gerais, Brazil
<i>Héctor Oswaldo Prieto Gordillo</i>	66	Main altarpiece of the Church of the Conception, Bogotá, Colombia
<i>Eugenia Serpa Isaza</i>	78	Altarpiece of San José, Tubará, Colombia
<i>Diego Santander Gallardo</i>	94	Restoration of the altarpiece of San Francisco Javier, the Church of the Company of Jesus of Quito, Ecuador

<i>Ana Carrassón López de Letona</i>	110	Altarpiece of Our Lady of Assumption, Colmenar Viejo, Madrid, Spain
<i>Rosaura García Ramos</i>	126	Altarpiece of Santa Eulalia, Parish Church of Marquínez and San Bartolomé, Parish Church of Olano, Álava, Spain
<i>María José González López</i>	136	The main altarpiece of the Royal Chapel of Granada: A research methodology for altarpiece intervention
<i>Franco Del Zotto, Francesca Tonini</i>	162	Main altarpiece of Santa Maria del Giglio, Tarcento, Udine, Italy
<i>Françoise Descamps, Blanca Noval Vilar, Irene Sen</i>	187	A methodological approach to the conservation project for the main altarpiece of Santo Domingo de Guzmán, Yanhuitlán, State of Oaxaca, Mexico
<i>Fanny Unikel Santoncini</i>	198	Building system of the altarpiece of San Cayetano, Guanajuato, Mexico: Research and teaching
<i>Carmen Fortunata Huanay Herrera</i>	210	Main altarpiece of the government palace, Lima, Peru
<i>Agnès Le Gac</i>	216	Altarpiece of the sacristy of the Our Lady of Lapa Sanctuary, Quintela da Lapa, Sernancelhe, Portugal
<i>Francesca Tonini</i>	224	Summary of the debates
	231	Document on retablos 2002
	235	Contributor biographies
		References (CD-Rom insert)

IAPH

The Instituto Andaluz del Patrimonio Histórico (IAPH) is a scientific institution of the Comunidad Autónoma de Andalucía, an entity of the Consejería de Cultura. Its objectives are the study, research, documentation and conservation of Andalusian cultural heritage, as well as specialized training in the protection of that heritage. Its responsibilities also include the dissemination of all things related to heritage research, and collaboration with distinct public and private organizations and institutions.

Viewing heritage as a community of action where diverse disciplines collaborate with the aim of perpetuating the memory of the future, the IAPH acts in an interdisciplinary manner, paying special attention to the methodology of study, research, and implementation in cultural heritage. Likewise, it supports a permanent updating of heritage thought, integrating a variety of policies into distinct programs of applied research – among them, the conservation and restoration of cultural heritage – and provides an active link between cultural heritage professionals and institutions and the Andalusian community.

GCI

The Getty Conservation Institute (GCI) is a program of The J. Paul Getty Trust, a cultural and philanthropic organization dedicated to the visual arts and the humanities, including an art museum, and programs of education, research and of conservation.

At the international level, the GCI works to advance conservation practice and education, and to strengthen and promote conservation, understanding and interpretation of the visual arts in all its dimensions: objects, collections, architecture and sites. To this end, the Institute develops scientific research, education and training, and field projects, and diffuses its results through a website, publications, conferences and workshops.

The Institute has developed experience in the field of preventive conservation, the management and conservation of archaeological sites, the conservation of building materials, the preservation of collections, and the adaptation of conservation technologies.

Each project is unique but varied in size, complexity and topic. Nevertheless, each one is considered within an inter-disciplinary field and looks for new ways to generate methodologies and to promote the application of the highest possible principles to strengthen cultural heritage preservation.

It is our pleasure to present this publication, *Methodology for the Conservation of Polychromed Wooden Altarpieces*, which represents a collaborative effort of the Instituto Andaluz del Patrimonio Histórico (IAPH) and the Getty Conservation Institute (GCI), as well as the involvement of a number of our colleagues working in conservation. This publication is part of a series of monographs published by the IAPH, and is one of the many ways that both institutions seek to advance the conservation field by disseminating information to a broad audience of professionals.

Methodology for the Conservation of Polychromed Wooden Altarpieces contains the proceedings of a May 2002 seminar on the conservation of wooden polychromed retablos that was attended by professionals from the Americas and Europe specializing in the conservation of altarpieces. The meeting – held in Seville, Spain, and jointly organized by Françoise Descamps of the GCI and Lorenzo Perez del Campo of the IAPH – focused on issues related to altarpiece conservation and the need for a conservation methodology adapted to these works of art.

At the Seville meeting, scientific representatives from the field shared their experiences with an international audience, with particular emphasis on Latin America. Conservation specialists from Bolivia, Brazil, Colombia, Ecuador, Mexico, and Peru attended, as well as individuals from conservation-related institutions in Belgium, Italy, Portugal, and Spain. The results of the seminar, presented in this publication, include the principles and considerations agreed to by the participants during the event – the *Documento de Retablos 2002*.

During the seminar, participants recognized the need to better disseminate knowledge related to the field and to provide a series of tools that could contribute to altarpiece conservation. Following the event, a bibliography and a multilingual glossary were compiled in collaboration with workshop participants. The bibliography covers the construction, building materials, and conservation of altarpieces, while the glossary describes altarpieces in their design, building systems, and materials composition. These documents, available on CD-ROM, will also be accessible on the web pages of both institutions.

It is our hope that this multifaceted effort will provide a variety of useful tools for individuals and organizations charged with the responsibility for caring for retablos.

As is typically the case with such events, the Seville workshop was made possible by the dedicated work of professionals from the organizing institutions, as well as the collaboration of its participants, and required the intelligence, talent, and enthusiasm of a great many people. First and foremost, thanks are due to the participants for their contributions. From the outset, they embraced the aims of the workshop and offered their time and ideas to the preparation of the documents and articles presented in this volume. The event itself and this publication would not have been possible without them.

We are also grateful to the advisory committee, which included Manuel Jiménez Carrera and Francesca Tonini, experienced private conservators, and Teresita Loera Cabeza de Vaca, head of the Coordinación Nacional de Restauración del Patrimonio Cultural, Instituto Nacional de Antropología e Historia, Mexico, for their support in this ambitious undertaking.

These proceedings, published in Spanish and English, were edited by Françoise Descamps, with considerable editorial and translation assistance from Jennifer Carballo and Irene Sen, and the collaboration of Maria José González Lopez, who directed the compilation of the bibliography.

We would particularly like to acknowledge the invaluable contributions of several workshop participants who assisted with the preparation of many of the materials that resulted from the meeting. These individuals include Franco Del Zotto, Agnès Le Gac, Francesca Tonini, Fanny Unikel Santoncini, and Myriam Serck and her colleagues at the Institut Royal du Patrimoine Artistique, Belgium.

Recognition should also be given to the staff at each institution that worked hard on this project over a long period. Our appreciation goes to Jeanne Marie Teutonico, associate director of programs at the GCI, who supported this project and provided helpful guidance; Valerie Dorge, a former GCI project member; and our assistants, Virginia Horton and Consuelo Leon of the GCI, and Maria Campoy of the IAPH.

In terms of logistics, the team was ably assisted by Fatima Marin, who faced numerous administrative and organizational challenges with exceptional grace and efficiency.

Additionally, we are indebted to translators Cris Bain-Borrego and Alessandra Bonatti, copy editor Kate Macdonald and the company PENTA Traducciones, and graphic designer Marcelo Martin.

Finally, this work would not have been possible without the experience acquired while developing a conservation project related to the main altarpiece of the Church of Santo Domingo in Yanhuitlán, Mexico, and a conservation project for the Retablo Mayor of Capilla Real in Granada, Spain. Special thanks are due to the GCI's colleagues at Mexico's Instituto Nacional de Antropología e Historia, the Yanhuitlán community, and the individuals involved in the conservation of the Retablo Mayor of Capilla Real.

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Preface

Polychromed wooden altarpieces are unique artifacts that combine a wide range of artistic, technical and material expression. Given their composition, function, and the nature of the physical and cultural contexts in which they are found, altarpieces comprise a very distinct category of cultural heritage. Created to transmit a religious message and cherished by churchgoers, these objects of devotion are now seen to embody a multiplicity of values. Their artistic and historic values have long been acknowledged. However, altarpieces are not only historic objects and works of art, but also important components of the religious and social life of a community and, potentially, focal points for social and economic development.

Given the physical complexity of polychromed wooden altarpieces and the rich socio-cultural environments in which they are found, the conservation of these unique objects presents considerable challenges. These challenges can only be met through the adoption of a sound methodological approach that considers the object in all its aspects, including its built environment and social context. Such an approach must be guided by established principles of conservation and take into consideration available resources, both financial and human. It should ensure the transmittal of the object to future generations but also allow for its continued use.

In order to address these issues and promote a broad exchange of ideas, the Instituto Andaluz del Patrimonio Histórico (IAPH) and the Getty Conservation Institute (GCI) joined forces to convene a meeting of conservation professionals from Europe and Latin America in Seville in May 2002. The overall objective of the workshop was to define a clear methodology in the form of a reference document or guidelines that would assist in developing a conservation strategy for any altarpiece, from the very simple to the most complex.

Objectives and structure of the workshop

The workshop entitled “Methodology for the Conservation of Polychromed Wooden Altarpieces” built upon each of the coordinating institutions' experiences in the study and conservation of retablos. The idea was to bring together a broad cross-section of participants from Europe and Latin America who could share experiences and approaches from different historical, social and

cultural contexts. Ultimately, a diverse group of professionals from Belgium, Bolivia, Brazil, Colombia, Ecuador, Italy, Mexico, Peru, Portugal, Spain and the United States participated in the workshop. Representing both public institutions and the private sector, the group included architects, conservator-restorers and art historians. Each participant was asked to present a case study based on personal experience that highlighted the issues involved and the approach taken to the conservation and management of a significant altarpiece.

Prior to the meeting, each case study was documented according to a standardized format to facilitate comparison of experiences and identification of both common and specific issues. This documentation, prepared by each participant, provided fundamental information on the respective altarpiece, its physical and cultural context, the values ascribed to it and the approach taken to its conservation and management. Particular attention was paid to the management process and the methodology followed that is, the sequence and interplay of activities in both the study and implementation phases as well as the criteria used to justify the chosen conservation approach. Emphasis was placed on describing the process rather than the intervention per se. Finally, space was reserved in the conclusions of each case for the author's own reflections. All the case studies were then compiled into a "notebook" that served as the reference document for the event.

Once assembled in Seville for the three-day workshop, the twenty-five participants exchanged ideas through their case study presentations, through visits to various retablos in the region, and through organized discussions of three previously defined topics.

Clearly, the conservation of wooden polychromed altarpieces involves decision-making processes of some complexity. In general, the case studies reflect strong, well-established processes for addressing the conservation of objects, as well as structures. They give importance to defining the object being studied and its context, to an understanding and assessment of condition and, finally, to establishing a strategy for conservation, management and continued use. Many case studies emphasize the importance of undertaking appropriate conservation work that ensures the integrity and survival of the work of art while, at the same time, confronting and respecting the expectations, fears and sometimes unexpressed desires of the community. Related to this issue is the

actual role of heritage conservation as a tool for promoting continuity of community life and social development, again without compromising the conservation of the object itself.

In addition to these general over-riding concerns, the case studies also raise a number of more specific questions. How do we support the need for in-depth documentation? How do we justify intensive and often expensive preliminary studies? How can we promote a critical approach to assessment and treatment as opposed to ad hoc actions? Considering limited human and financial resources, how do we define the most appropriate tools for documentation, analysis and intervention, and balance use of the most sophisticated technology with low-tech alternatives? These questions reflect the reality that professionals face on a daily basis and formed an important part of the debate.

As a result of these intensive days of exchange and discussion, a representative group of participants drafted the Documento de Retablos 2002. This document constitutes a guideline for the conservation of polychromed wooden altarpieces that considers these objects in all their complexity: their morphology and intimate relationship to their architectural environment, as well as the religious, social and cultural contexts in which they are found. Based on established conservation principles, the Documento de Retablos 2002 advocates an integrated methodological approach that should form the basis for sustainable conservation and continued use of these remarkable works of art and devotion.

About this publication

Of course, it is extremely difficult to capture the richness and subtlety of exchange and discussion that occurred during the workshop. However, an attempt has been made to present the most important ideas and issues to emerge from the event through various components of the proceedings.

The bulk of the publication is devoted to the case studies presented by each participant. Though still largely in the format developed for the workshop "notebook", some of these cases have been further elaborated to emphasize particular issues and concerns. The cases are presented in the order in which they were given at the workshop and represent a great diversity of material expression, cultural context and conservation approach. All illustrate the ever-present challenge of reconciling theory with practice in complex physical and cultural environments.

As noted earlier, the workshop also included organized discussion sessions centered around three previously identified topics. The most salient points to emerge from these discussions have been synthesized into a chapter titled "Summary of the Debates". Emphasis is placed on the issues that had most resonance among participants, including the multiplicity of values represented by any altarpiece, the need for collaboration between conservation professionals and local communities in making decisions about the care and conservation of retablos, and the importance of an approach that considers not just the object but its physical, social and cultural context.

Following this summary, the publication includes the entire text of the guideline document entitled Documento de Retablos 2002 that sets out an agreed approach to the conservation and management of polychromed wooden altarpieces. Obviously, this document is not the last word on the subject. However, it is our hope that it will provide a useful starting point for both conservation professionals and communities charged with the stewardship of these extraordinary objects.

Finally, the publication includes a CD-Rom containing a bibliography of selected references useful for understanding the history and construction of altarpieces, the choice of appropriate research tools, causes of deterioration and relevant intervention techniques.

On many levels, this workshop provided an exceptional opportunity to exchange ideas and develop shared approaches to issues of common concern. It is our hope that the dissemination of these proceedings will contribute to a better understanding of the significance of polychromed wooden altarpieces, and a more integrated and sustainable approach to their conservation and continued use.

Lorenzo Perez del Campo

Jeanne Marie Teutonico

A living cultural heritage. The theory of restoration as a reference framework for defining intervention methodology for polychromed altarpieces

Jaime Cama Villafranca

Theoretical framework

The theory of conservation has evolved over time in response to the social, political and cultural circumstances of each era, generating the concepts and theoretical axioms which drive intervention proposals and approaches. Since the 1960s, the focus of conservation work has been redefined, moving beyond merely addressing monuments or works of art, to encompass the notion of heritage, which addresses a myriad of tangible and intangible cultural expressions. Today, the theoretical framework for conservation, which reflects the particular processes of each nation, serves as an essential reference, a filter of thought for understanding cultural objects, for determining conservation goals and developing intervention proposals.

In 1963, Brandi stated that “restoration is the methodological moment in which a work of art is appreciated in its material form and its historical and aesthetic duality with a view of transmitting it to the future” (231). Since the 1980s, the function of a work of art has been added to that definition, as a dimension giving us more specific insights. The functional aspect contributes to our understanding that cultural objects fulfill a need of the society in which they are created and help us understand the dynamics of their usage, as well as the associative and symbolic values that social groups attribute to them. It has been recognized that a restoration process should never aim to restore the state of a work of art to the moment of its creation. Rather, the evolution of the item since that time should be carefully considered, so as to reach a desirable equilibrium between what the work originally was and what its potential is now.

As part of the process of analyzing the evolution of the object over time, particular emphasis needs to be placed on the concept of patina. Brandi (1963), adopting the viewpoint of Baldinucci (1681), defines patina as “being that general darkness which time causes to appear on paintings and which often enhances them” (381) and which, upon treatment, should remain subordinated to the image. Therefore, “from an aesthetic point of view, patina is that imperceptible muting placed on the materials that are compelled to remain subdued within the image” (378).

For Philippot (1966) “patina is the normal effect that time has on the materials over time” (373). If both these concepts are considered, patina should also be analyzed from an art critic's point of view, given that “no restoration could ever hope to re-establish the original state of a painting. It can only reveal the

present state of the original materials. Even if restoration could determine the original state, it would still be impossible to abolish the second historicity of the work, the span of time it has crossed to appear before us" (373).

After almost forty years of restoration as a modern discipline, it is worth revising its initial definition to better adapt it to the present, with an emphasis on Latin American societies, possibly as follows: restoration is a social science that makes it possible to intervene on cultural property, based on knowledge gathered through the scientific study of objects' material make-up; history; aesthetic, scientific, historic, and social values; the intangible elements that record the cultural property's origin; and the function for which it was created. Once documented, researched, cataloged, conserved and restored, this heritage can be enjoyed and transmitted to future generations in the fullest state of integrity and authenticity attainable in our times.

Using the above definition, this article develops an initial proposal in hopes of reinforcing theoretical foundations, considering both the values and the functions of altarpieces as fundamental elements for pre-intervention analyses.

As mentioned above, intervention on cultural property must take its values and functions into account. For example, when working with musical instruments, if one were to ignore the function for which a particular instrument was created, action might be taken that would not only destroy the function but also the aesthetics, of that instrument. An object is not only a matter of form, as was once argued. The beauty of a musical instrument rests in the sound that comes from it, and that music harmoniously joins history, function and aesthetics. Similarly, the aesthetic effect of an altarpiece is not confined to an appreciation of its design as shaped by its creators. It is also experienced when a worshipper perceives that intimate, silent melody arising from the soul's longing for an explanation and a release from doubt.

Altarpieces bring together the most significant expressions of the plastic arts, embodied in a structure of carved and gilded wood, whose forms reflect a moment in time of the society in which they were created. The structure is designed so that in the altarpiece worshippers can find and interpret the intangible aspects of their identity as part of a given social group in a specific time.

Complete understanding of a work of art is only possible when we understand all its tangible and intangible attributes, and in which worshippers find synthesis of their religion. The altarpiece is the framework for the liturgy that the monks and priests recite during mass. During private prayer, in the shadows of the church, the spiritual exercises of each individual become personalized in the worshippers' prayer for the image to carry their heartfelt thoughts to their God. Each altarpiece has a specific attraction and evokes a silent dialogue from the believer. Indeed, the altarpiece is the product of religious celebration, the artist's understanding and the context in which the altarpiece is housed.

However, altarpieces are not objects created for individual use, and their host communities attribute a series of uses and values to them that transcend the

Altarpieces: values and cultural significance

private realm. A particular aspect is symbolized by the religious figure to whom an altarpiece was originally dedicated. In many cases this person gives their name or identity to the town or neighborhood where the altarpiece is located, and to the most important festival of that society, reaching beyond particular ideologies or preferences of individual community members. An altarpiece is a cultural asset belonging to a social group that keeps it active, used by the community for a cultural practice completely independent of the values we might assign to it when studying it as a work from a nation's cultural heritage. Each day, the altarpiece's function is made active by the community that uses it and by the community's individual members, in their search for spiritual satisfaction. Therefore, to intervene on an altarpiece without analyzing how the parishioners see, relate to and use an altarpiece, is to fail to understand the purpose for which that monument was built, and for whom.

Thus, before making proposals for action, it is essential to assimilate the various aspects of the altarpiece's usage with the restorer's analysis, to guide their work and understanding of its current social function.

Some elements for a methodological proposal

Conservation and restoration are necessary interventions to conserve and enhance the values of a cultural object and recover lapsed functions through the process. When defining a methodology for the intervention, one must "evaluate the alterations present, determining whether they consist of a simple patina or true disfigurements or destruction. This diagnosis must be based both on an objective knowledge of the evolution of the materials and upon an idea we form about their original appearance, which in turn rests upon experience of works of art in their material and aesthetic reality" (Philippot 1966: 374).

When it comes to specific interventions on altarpieces, restoration theory provides a framework of reference for decision-making. Restoration theory is applied from the start of the intervention project in order to prevent actions that could be detrimental to the objects.

Philippot (1966) argues that restoration interventions should be considered as critical decisions, for which technical considerations should serve as a tool but not be determinant. Brandi (1963) suggests that only the physical material of the cultural object is restored, and that an epiphany experienced from the image can be interpreted as values and significance emanating from the physical elements.

Based on these considerations, the restoration of an altarpiece to enhance its values and uses should be the result of a critical analysis bringing together diverse elements in an all-encompassing unit that cannot be disaggregated during intervention. Accordingly, restoration must be considered to be an interdisciplinary exercise, mutually enriching the participants' contributions. It is necessary to get beyond the position that restoration merely complements other areas of expertise, as opposed to being a discipline with scientific characteristics of its own. Differing positions across related disciplines in this field need to be brought in line with current understanding, so that the act of con-

serving altarpieces becomes a source of information based on research, disseminating knowledge of techniques and constitutive materials in an effort to achieve the best conservation and restoration practices and results.

The methodology for intervening on altarpieces starts by analyzing the altarpiece in its context, to understand the place it occupies within the religious complex that contains it. This makes it possible to comprehend its hierarchical standing in the community and in the liturgy, as well as to identify those responsible for the administration of the church, who are essential participants in future decisions on the altarpiece.

The specificities of altarpieces, including their size and the complexity of their make-up, demand extensive and detailed documentation. This sometimes makes it necessary to use additional resources, which in themselves could place restraints on the intervention.

The material elements of an altarpiece create a dichotomy between image and structure. Accordingly, intense research is required. This places extensive demands on time and resources, for preparing the historic documentation and in surveying deterioration of the altarpiece's ornamental front and supporting structure.

In addition to conducting an analysis of the altarpiece's physical condition, in analyzing the work's historic evolution, the life of the altarpiece should be treated as two discrete periods. The first historical period would be that of its creation. Consideration should be given to all the known elements associated with the work and the altarpiece's creation belonging to that time. This calls for meticulous research on the society in which the work was created, and on the community for which it was designed and constructed. Research should involve art historians to determine the importance and scope of the work, the religious figure to whom it was dedicated and the work's relationship to the building in which it is housed. The second historical period of focus would cover the time elapsing between the creation of the object and the point at which it came before the restorers. This means that, during the documentation process, all the information related to events associated with the altarpiece must be gathered together. That information will generally be found in archives and in the memory of the community where the altarpiece is located.

In order to document the aesthetic values embodied in the altarpiece's creation, research should be coordinated with other disciplines. Such an approach yields the most complete version of the prevailing aesthetic values that guided the altarpiece's builders and the process that led to its placement in that geographic region. The altarpiece's functionality should also be documented using an interdisciplinary approach, so as to better understand the information required for identifying how and for what purposes the altarpiece was built in that community. Understanding the needs behind an altarpiece being dedicated to a particular religious figure is insufficient. Documentation indicating what role the altarpiece played in fulfilling the aspirations and religious needs of the community with which it is associated during its second historical period is also needed.

The factors referred to above are necessary in restoration analysis, since our subject is a very complex representation of ritual structures, conceived as the most important element of worship within a religious setting.

An analysis of the testimonies and documents collected will generate a base of knowledge to support decision-making, to fully respect and properly conserve each of the altarpiece's aspects and values, in accordance with their importance in the altarpiece's creation and subsequent life, and in the eyes of the society for which the altarpiece holds significance today.

All these considerations mean that a conservation strategy, consisting of a statement of the altarpiece's present history and condition, and protocols and guidelines for its subsequent treatment, based on all the factors identified so far, needs to exist before any restoration processes can be begun. If this is carried out, then adequate preparations for the restoration can be made. This conservation strategy should closely follow an outline like the one detailed below.

- introduction
- description of the work of art
- historic, aesthetic and functional antecedents
- techniques of manufacture
- state of conservation
- previous interventions
- mechanisms and causes of alteration
- intervention proposal and development of the process
- theoretical justification of the intervention
- treatment of patina, missing elements and losses
- reintegrations, integration, protective layers, etc
- presentation of the work of art
- maintenance recommendations
- budget: economic, human, technological resources, etc
- schedule or work plan
- bibliography.

Final considerations

This article does not intend to set a universal methodology for technical interventions, but simply to point out certain general aspects to bear in mind for decision-making processes, so that decisions will be meaningful and well-founded. This keeps in mind the theory of restoration as one of the governing elements, along with proper documentation and analysis of the factors involved in the conservation of altarpieces.

Few professional groups have developed documents or practical guidelines that allow us to standardize interventions on altarpieces. Altarpiece restoration has been and, in most cases, continues to consist of repair work normally

entrusted by the community and certain cultural authorities to the most distinguished local carpenter. It is therefore essential to develop standards, with consensus from the academic community, approved of by the cultural authorities of each country. Indeed, all conservators are called upon to work towards the cultural authorities and decision-making bodies accepting the products of this joint effort, encouraging the active participation of the altarpiece's host community in conservation interventions. As part of this effort, each working group should produce documents that are easy to comprehend, distribute and read, so that the altarpiece's host communities will understand the importance of protecting and conserving this special heritage. This also contributes to enhancing an appreciation of the altarpiece's values and to increasing contributions to its conservation and subsequent maintenance.

Social participation in the conservation of altarpieces is essential, and should form a part of the methodological approach to the altarpiece. Such collaboration should be incorporated starting with preventive conservation, should be clearly incorporated in maintenance efforts and also be featured in subsequent protective actions and follow-up, consistent with available funding and human resources.

With respect to the theoretical body of knowledge for the restoration of altarpieces, several discussion forums about direct interventions on altarpieces have taken place in recent years, with varying degrees of success. Academic efforts have also been carried out, focusing on cataloging processes, diagnostic methodologies and guidelines for intervention. These elements have contributed to devising systems for similar exercises, and work methodologies for the restoration and conservation of altarpieces are thus developing. The analysis and the intangible elements of altarpieces, so important in Latin American contexts, must be considered as the basis of action. Altarpieces today are part of a living cultural heritage that supports the social identity and sense of belonging within communities.

The cultures of Latin America are shaped by a series of intangibles that comprise particular ideologies. As such, research on heritage and its conservation and restoration is an action of high importance for conserving the identity of present and future generations.

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Sixteenth-century Antwerp-style altarpieces of the
Church of Saint-Nicolas at Enghien and the Church of
Saint-Lambert at Bouvignes,
Belgium

Myriam Serck-Dewaide

20



Altarpiece of the Church of
Saint-Nicolas, Enghien.

Name of the work of art: Altarpiece of Vie de la Vierge (Life of the Virgin)

Location: Church of Saint-Nicolas, Enghien, Belgium

Owner/responsible party: State of Belgium

Authored by/attributed to: An Antwerp workshop, as Antwerp-style marks were identified on the case and architectural elements. The sculptures are attributed to the studio of Robert Moreau, while the wings and predella are attributed to a Mannerist painter of Antwerp whose style is similar to that of Pieter Coecke.

Chronology: around 1540

Style: Antwerp Mannerism (Gothic)

Dimensions: 2.26 m x 2.11 m x 0.32 m (height x width x depth)

Materials and techniques: Support: the case, architectural elements, sculptures and paintings are made of top-quality oak imported from

forests along the Baltic Sea. Surface: the original polychromy and painting are applied on a ground layer of calcium carbonate (chalk). The gold and silver gildings are applied by one of two techniques: in the first, the leaf is applied over a transparent orange-color bole and then polished, while in the second, it is applied over an oil mixtion and is thus a matte gilding. The pigments used for glazes and paints are bound with glue or oil (made of linseed or walnut), and decorative techniques include punchwork, painted motifs and sgraffito. The whole altarpiece is entirely overpainted in a neogothic style, very close to the original.

Since its creation a little over fifty years ago, the Belgian Institut Royal du Patrimoine Artistique (Royal Institute of Artistic Heritage, IRPA) has been dedicated to the study, conservation and restoration of polychromed wooden altarpieces. Some forty altarpieces of the Brabant region originating in Brussels, Mechelin, Antwerp and other local workshops have been treated by the Institut or by private conservators working closely with the IRPA and its conservation laboratories, together with scientific analyses and detailed documentation.

Two cases of the treatment of altarpieces from the school of Antwerp, dating from the sixteenth century, are presented here to illustrate the reasons for choosing a minimalist in situ conservation treatment for the altarpiece of Enghien, and for the in-depth restoration treatment in a laboratory for the Bouvignes altarpiece.

Altarpiece of the Church of St-Nicolas, Enghien

The nomination of Antwerp as a Cultural City of Europe in 1993 created a special opportunity for undertaking a series of studies and treatments of Antwerp altarpieces in preparation for their exhibition in Antwerp Cathedral.

The Enghien altarpiece is of very high quality, but above all it is exceptionally conserved. All its parts, the predella, the painted wings and the totality of its sculpted scenes, are still in place. This is rare, as these works of art often become mutilated by numerous thefts.

The original location of this altarpiece is unknown. Archival documentation reveals that the polychromed altarpiece was regilded and repainted after its acquisition by the Duchess Prosper-Louis d'Arenberg, and was then placed in the chapel of the Castle of Enghien. It was moved during the Second World War, then relocated to the chapel of the castle in 1947, and must have been retouched at that time. Finally, after the chapel was abandoned, the altarpiece was moved again and, since 1964, has been housed in the Church of Saint-Nicolas in Enghien.

Origin of the project

Conservation context

The altarpiece greatly suffered from its last transfer. Extracted from the cold and damp abandoned castle chapel, and then placed in the drier environment of the heated Church of Saint-Nicolas, the altarpiece dried out. Due to the effect of wood shrinkage, the decorated surfaces suffered numerous flaking and losses. Fortunately, the losses occurred mostly on the frames of the painted wings.

Although the altarpiece is protected from theft by a pane of glass, this security measure does not protect it from dust. Thus the work as a whole is very dirty. The chapel is protected by an alarm system, and access by the public is allowed only during services or by special request. Lighting is very weak, and the electrical installation is rather old.

22

Establishment of the treatment proposal

First inspection of the altarpiece followed the treatment request, and consisted of meticulous observation accompanied by some photography, note-taking and hand-drawn sketches to help in writing up a first report or preliminary assessment of the present state of the altarpiece.

Hidden behind the protective glass and covered by the dust that dulled its appearance, the altarpiece's conditions were difficult to assess. Concerns were raised regarding the original state and the repainting of the sculptures, as well as the gilding.

General view of the Enghien altarpiece, showing its condition before treatment.



At first, answers to these questions were found through archival research and study of documents on the history of the work of art. Later, at the time of a second visit, in-depth examinations by conservators and testing by laboratory technicians, revealed that the original polychromy of the carved sculptures was, on the whole, well-preserved under the overpainting. An earlier restoration with limited overpainting appears to have been executed before the general overpainting executed by J. F. Thijs in 1835-36, which was followed by some additional interventions in 1946. The 1835 polychromy had been carried out with the intention of copying the original as closely as possible. In fact, the regilding is so thin that most of the underlying original punchwork is quite visible. However, the gilding technique does not respect the original alternating water gilding (polished gold on bole) and matte oil gilding (matte gold on mixtion). Some of the decorative motifs, in the sgraffito technique, are partially overpainted, but most have been redone so closely respecting the original appearance that they cannot be suspected, even by a specialist, without meticulous scrutiny under magnification or by material analysis.

Once the preliminary study was written up, treatment proposals were elaborated. Considering all these observations and the fact that the original polychromy was in a good state of conservation below the overpainting, it was deemed absolutely out of the question to remove the subsequent layers of paint. In fact, the 1835 polychromy is not very thick and does not alter the legibility of the work of art much. In general, it respects the original appearance of the object (except for the alternating polished and matte gold), and, moreover, appears to be strongly adhered to the surface of the early polychromy. This intervention was not considered to have disturbed the original object, and it was agreed to have become an integral part of the object's material history.

The choice of treatment would be conservation work carried out in situ and limited to fixing the flaking, cleaning and retouches. After the decision was approved by a scientific committee, preparation work was finalized by detailing specifications in a cahier des charges (notebook of tasks and responsibilities), the estimates were studied and the conservators selected.

The in situ treatments were programmed as follows:

- photographic survey of the altarpiece prior to treatment
- dismantling of the wings, selected statuettes and architectural elements
- fixing of lifted areas of the paintings, frames and sculptures
- cleaning of sculpted parts and maintenance work on painted surfaces
- recording of marks
- sampling of the polychromy
- dendrochronological survey
- photographic documentation during treatment, with individual shots of the statuettes, front, back, base, sides, marks, stages of cleaning, etc.
- local disinfecting of case bottom and the bases of certain statuettes using Xylamon combi-200

Iconography: The altarpiece is built on the model traditionally employed by Antwerp workshops during the first half of the sixteenth century. The hutch contains about ninety individual statuettes grouped into six main scenes representing episodes from the life of the Virgin Mary. The case rests on a painted predella, and two double-faced painted wings present the continuation of the story in the closed or open position. The predella illustrates the Tree of Jesse. When closed, the painted wings depict the Holy Family, the Refusal of Ann and Joachim's Offer, and the Encounter at the Golden Door. When open, the painted wings depict, on the left, the Presentation of the Virgin to the Temple, the Miracle of the Almond Bough, and the Birth of Mary. On the right, we see the Funeral of the Virgin, the Assumption, and the Salutation of the Angel. Finally, the carved central portion illustrates the Marriage of Mary and Joseph, the Nativity, the Circumcision, the Adoration of the Magi, the Presentation to the Temple, and the Dormition of the Virgin.

Intervention

A series of stamps from the Enghien altarpiece, including the stamp of an Antwerp-style hand.



Date and duration of the studies/intervention:

- **Documentation and preliminary study:** 4 days.
- **In situ conservation treatment:** 4 weeks.
- **Report, drawings and drafting of article:** 1 week.

Profile of the study/intervention team:

- **Documentation:** one art historian, one conservator-restorer, two photographers.
- **In situ conservation treatment:** 18 conservator-restorers (seven painting specialists, ten sculpture specialists, one woodwork specialist), one chemist, one dendrochronologist, one driver and two photographers.

- treatment of the hinges, involving replacement with new pieces
- retouching on the frames
- assembling and regluing detached architectural elements, once old adhesives had been removed
- reassembling these elements and the wings with brass screws and dowels
- final retouching
- photographic documentation after completion of the treatment of the altarpiece and before reinstallation of the protective glass
- drafting the final report including laboratory analysis and historical research
- preparation for transport to and from the exhibition, as well as control during exhibition.

Several materials and techniques, including variants of the originals, underwent preliminary testing on different surfaces to evaluate potential treatments. An overall dry cleaning was chosen for the altarpiece, with solvent used only in some places, and spectacular results were achieved.

Detail of figure from the Enghien altarpiece holding a censer, before and after treatment.



The intervention also provided valuable information on the provenance of the altarpiece and the original techniques used in its creation. Marks, often made by workshops for quality control, were identified on the altarpiece: on the right side of the case, two hands and a castle; on the left side of the case, two hands; on the sculptures, a total of 25 marks were found, from three different irons. Sampling of the original polychromy revealed the presence of gold leaf over a fine oily grayish layer (in which brushstrokes are visible) which is uniformly matte and covers the original polished gold. Dendrochronological studies confirmed the use of a Nordic oak, felled close to the Baltic Sea as early as 1530, thereby dating the initial construction of the altarpiece to between 1535 and 1540.

The numerous retouchings needed for the frames were carried out without leveling the lacunae, by coloring the wood and integrating the retouchings with those lacunae showing the preparation layer. Retouchings on the statuettes were kept to a minimum.



General view of the Engbien altarpiece, with its painted wings closed, illustrating the spectacular results of the treatment.

Altarpiece of the Church of St-Lambert,
Bouvignes



Name of the work of art: Altarpiece of Vraie Croix (Holy Cross)

Location: Church of Saint-Lambert, Bouvignes-sur-Meuse, Belgium

Owner/responsible party: Fabrique d' glise (local community church council)

Authored by/attributed to: An Antwerp workshop, as Antwerp-style marks were noted on the altarpiece.

Chronology: around 1555-56

Style: The altarpiece is built according to the approach of the Antwerp workshops, but its decoration is entirely of the Renaissance style with pilasters ornamented with grotesque figures and conch shells.

Dimensions: 3.55 m x 2.50 m (height x width)

Materials and techniques:

- **Support:** Part of the original case had disappeared, so the scenes were supported by boards from various tree species. Architectural elements and sculptures are made of oak from the forests along the Baltic Sea.

- **Surface:** The original polychromy is applied by traditional gold and silver gilding techniques on a calcium carbonate (chalk) ground layer, following conventional techniques of the time. Extensive use of red glazes can be found in the decorative motifs, particularly in the painted borders and the sgraffito, while matte gold and matte blue are present in the architectural elements. Some 80% of the work was repainted with modern, raw and vivid colors.

An early request for conservation and restoration treatment from the Fabrique d' glise had led to provisional fixing of some areas on the altarpiece being carried out free of charge in 1979. Continuation of the treatment required financing, which was obtained by exhibiting Antwerp altarpieces in the Antwerp Cathedral.

The altarpiece is a rare example from the late period of the Antwerp school. This masterpiece of pure Renaissance style has remained in its original location since its creation.

The altarpiece has suffered successive losses. First its wings, then numerous sculpted pieces from the foreground of the altarpiece, and finally, the panels of the predella and the entire hutch were removed. Since the altarpiece was created, its polychromy had suffered two partial overpaintings and two partial removals of paint.

The altarpiece is housed in a recently restored and well-maintained church, with a reasonably controlled environment (with moderate and constant central heating in winter) and a newly installed alarm system. After the conservation treatment, lighting was renovated as well, and glass panes are no longer used for protecting the altarpiece.

The altarpiece of Bouvignes appeared very damaged at the conservators' first visit. A preliminary condition assessment drafted on site guided the research toward archives, old photographs and other related documents, as well as art history and technological comparisons.

Historical research revealed a commission for an altarpiece in 1555 or 1556, which is very likely to correspond to the Bouvignes altarpiece, which has been dated to between 1555 and 1560. Four other Antwerp altarpieces served as key references in the comparative studies: the smaller altarpiece of Riceys-Bas II from the Champagne region of France, which was also greatly altered in the

Origin of the project

Conservation context

Establishment of the treatment proposal

Iconography: The hutch contains about one hundred individual statuettes grouped into six main scenes representing episodes of the Passion of Christ: the Flagellation, the Ecce Homo and the Crown of Thorns (lower section, left to right); the Carrying of the Cross, the Crucifixion and the Descent from the Cross (upper section, left to right). The case rests on a predella formerly composed of three painted panels. These paintings disappeared during the Second World War and were replaced by rich textiles cut from liturgical vestments. Archival documentation shows two double-faced painted wings depicting other scenes from the Life of Christ. These probably disappeared at the time of the altarpiece's transfer from the central altar to one of the lateral altars in 1766.

28

Grouping of the Bearing of the Cross from the Bouvignes altarpiece, before and after treatment.



nineteenth century; the Roskilde altarpiece of Denmark, which has carved wings; the painted "Tendilla Retablo" altarpiece in the Cincinnati Museum, USA, which has a similar framework and dimensions; and, finally, a later work, the Gedinne altarpiece of Belgium. The earlier technological study of the altarpiece of Oplinter (MRAH-Brussels) also shed light on the lost structure of the Bouvignes altarpiece case.

Detailed in situ observation of the altarpiece's decorative architectural elements, sculpted parts and their assembly was carried out. The original polychromy was examined with the help of a binocular magnifying glass and was found to be eroded but preserved under two layers of overpainting. The first overpainting was applied around 1766, and the second, unaesthetic, oil layer was lavishly applied by Boreux d'Evrehailles in 1847-48.

This second overpainting covered the sculpted groups and the architecture, but did not touch the rocky and verdant background settings that remain in their original state. The case was painted to imitate the appearance of marble, while the fluting of the columns and the bases of the pilasters were painted white, as evidenced in a photograph from 1892.

Owing to damage suffered during the First World War, the altarpiece was then restored by a sculptor, Jean Leuthard. He reconstructed a part of the upper frame and all the moldings not visible in the 1892 photograph. After the Second World War, the painter Joseph Claes removed the overpainting on the case and architectural elements. This partial stripping was pretty rough and was followed by several retouchings of yellow ochre and bronzing on the gilded

areas, and vivid red and blue repainting on all the architecture. Fortunately, the statuettes were left untouched. At this time, the textile pieces were probably inserted to replace the lost predella paintings.

Finally, in 1979, severe flaking of the original polychromy was detected, and an emergency intervention was carried out in situ by IRPA's sculpture restoration experts. The altarpiece was then placed on a waiting list for complete restoration, which took place for the Antwerp exhibition.

Previous interventions had given the altarpiece an incongruous and unaesthetic appearance. The loss of the hutch, the deep coat of dirt, and the stripping of the paint layers called for an in-depth intervention on the support as well as the surface. Therefore a complete restoration treatment was proposed. This decision was approved by a scientific committee and detailed specifications were drafted.

Following the same process applied to the Enghien altarpiece, a preliminary study was undertaken, the corresponding report was drafted, and a detailed treatment proposal was developed. The treatments were programmed as follows:

In situ treatments:

- photography prior to treatment
- installing the scaffolding
- temporary fixing of the polychromy
- dismantling the altarpiece, documented by step-by-step photography
- drawing, numbering and packaging the pieces
- transporting to the laboratories.

Laboratory treatments:

- photography of the dismantled elements before treatment
- examining the pieces under a binocular microscope; examining pictorial stratigraphy
- listing of samples taken for analyses
- selecting pieces for dendrochronological studies
- complete fixing of the polychromy
- treatment trials for cleaning and removal of the two partial overpaintings and final decision to remove the overpainting; trials for cleaning the bronze layer on the architecture
- verifying that the central Christ figure in the upper compartment is a baroque sculpture that was not originally part of the altarpiece but was inserted later on; a specific study and treatment proposal for this piece were then added to the initial project

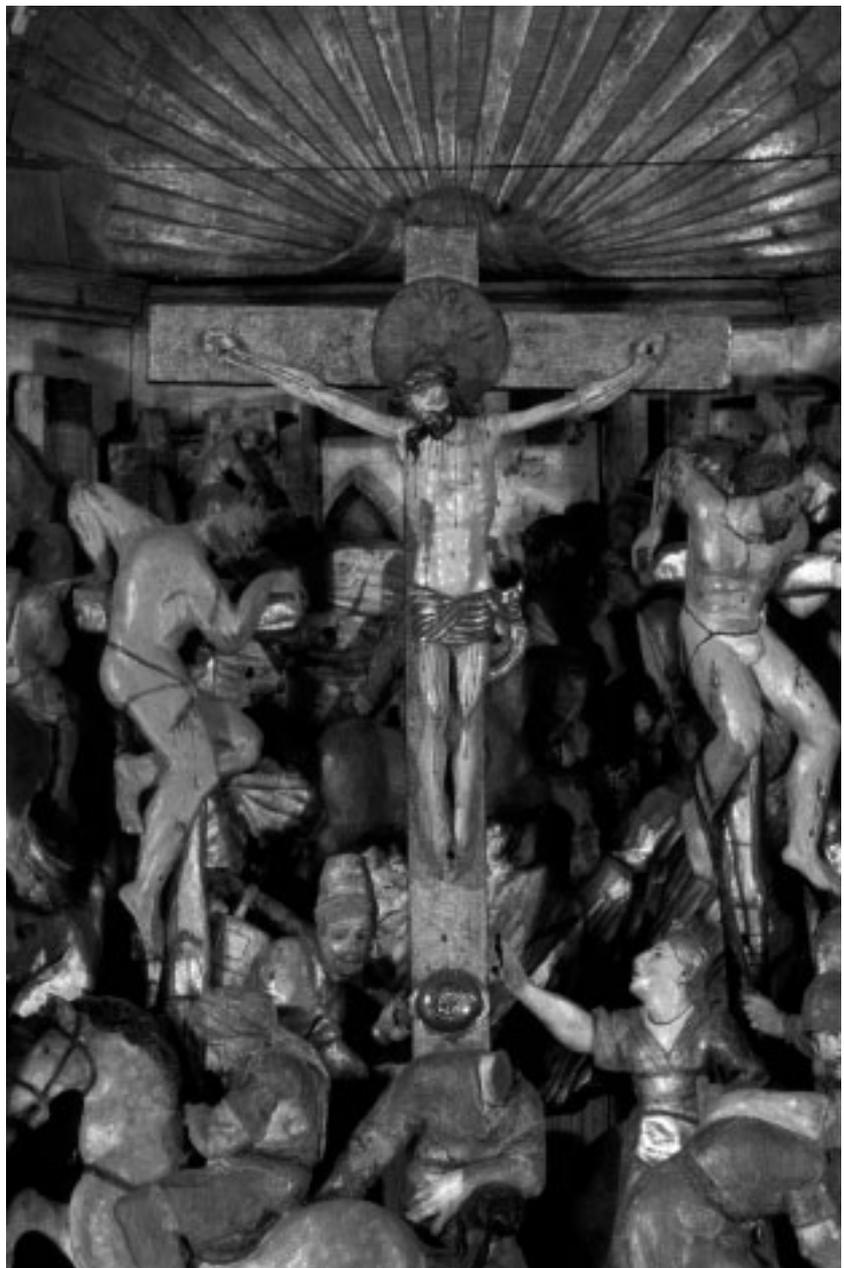
Intervention

Date and duration of the studies/intervention:

- **Documentation:** two days by one art historian, one conservator-restorer, two photographers in 1992. It should be noted that a previous study had been conducted by IRPA in 1979.
- **In situ conservation treatment:** eight days by six workers before transporting the altarpiece to IRPA laboratories in 1992.
- **Laboratory treatment:** one year, part-time (June 1992 - May 1993).

Profile of the study/intervention team: 18 sculpture conservator-restorers, four interns, one furniture restorer, one cabinet-maker, one chemist, one dendrochronologist, four photographers and one driver.

- restoring the textiles in another IRPA laboratory
- reconstructing the predella and case
- retouching after removal of the overpainting
- photography of all pieces after treatment and before rebuilding
- molds of sculpture marks and documentation of woodcutter's marks
- remounting of the pieces
- remounting of the textiles
- coating the screws with tinted wax
- final retouching to achieve an overall balance
- local application of a protective layer of microcrystalline wax on the gilded areas



Detail of the Crucifixion from the Bouvignes altarpiece, after treatment.

- photography after complete treatment
- packaging
- transporting to the Antwerp exhibition
- writing up the research and work files, as well as a catalog and brochure texts
- climate control and supervision of the altarpieces during the exhibition
- supervising the return transportation, reinstalling the altarpiece, and setting up an exhibition on the treatment
- in situ maintenance: six years later (monitoring and light dusting, two days by three workers).

As in the Enghien altarpiece intervention, work on the Bouvignes altarpiece revealed important historical and provenance information. The dendrochronological analysis indicated that the altarpiece contains oak felled in 1552, and woodcutters' marks were found on the cleaved areas of the rear of the altarpiece and sometimes on their face. Nineteen "hand" marks were found on the remaining statuettes, produced by two different irons: a small hand with short fingers and a rounded base, and a slightly larger hand with short fingers and a cut base.

The extensive experience and the multidisciplinary approach of IRPA made possible the management of such large-scale interventions, carried out both on site and in laboratories. The success of these undertakings is the result of careful and detailed studies carried out before the intervention, establishing the specifications of the intervention clearly, identifying its tasks precisely, strong and reliable financial planning, and the designation of a qualified team of professionals.

The removal of polychromy is a delicate task, and the quality of work must be impeccable. It is ineffective and dangerous to initiate such a process without sufficient time, adequate financing and enough qualified conservator-restorers on hand.

The cost of treatment for the Enghien altarpiece was moderate considering the spectacular result obtained. While the results obtained for the Bouvignes altarpiece were also very satisfactory, the associated costs were clearly higher. The management of its operations was more burdensome and difficult, given the desire to obtain an identical level of quality in the removal, cleaning, and retouching of all its features. A working process was developed that included small meetings held every week, and a large meeting with all staff once a month, in order to outline all the steps of the work. Special attention was given to generating a unified and systematic documentation process for each altarpiece by accurate drawings, systematic annotation, adequate and timely photography, sampling and scientific analysis and cleaning.

The two altarpieces presented here recovered their identities and beauty, with a state of conservation that guarantees their future preservation. The Antwerp

Results and conclusions

exhibition provided an exceptional opportunity to present and disseminate not only the objects themselves but also their histories. The entire print run of the two-volume catalog commenting on the altarpieces' construction and decorative techniques, and their conservation and restoration treatments, was sold out.

In the villages of Enghien and Bouvignes, both community leaders and inhabitants expressed satisfaction at the safe return of the altarpieces to their churches. In Bouvignes, the return of the altarpiece was celebrated with an exhibition on its restoration, accompanied by conferences and a brochure.

The works of art are inspected on a regular basis. The individuals in charge of the artistic heritage of the church of Bouvignes are particularly attentive. Six years after the intervention they ordered a condition survey of the altarpiece, and the team dispatched there found practically no lifted areas of paint and noted that the retouching had remained stable. While a slight dusting was required, three people working for two days were sufficient to complete the job.

Monitoring and maintaining works of art on a regular basis guarantees good management of artistic heritage. It is an integral component of Preventive Conservation, which is itself an essential part of "sustainable development."

Acknowledgments

We are grateful to all the participants named below.

Enghien:

Painting restorers under the direction of Nicole Goetghebeur: Dominique Verloo, Griet Steyaert, Vinciane Jadoul, and graduate trainees Margit Kuiper, Loreto Perez de Guzman and Sophie Deyrolle.

Sculpture restorers under the direction of Myriam Serck-Dewaide: Christine Cession, Jean-Albert Glatigny, Tiamat Molina, Luc Reper, Erika Rabelo, Frederike Schaffer, Nathalie Pruha, Susana Ortiz, Xavier Llerena (under contract, freelancers and interns).

Cabinetwork: Jean-Paul Jankoviak.

Laboratory: Joseph Vynckier, Jana Sanyova.

Photography: Jacques Declercq, Jean-Louis Torsin.

Bouvignes:

Dismantling: Jules Torfs.

Treatment: Sculpture restorers under the direction of Myriam Serck-Dewaide: Christine Cession, Marianne Decroly, Georges de Wispelaere, Emmanuelle Mercier, Tiamat Molina, Luc Reper, Frederike Schaffer, Jacques Vereecke, Jeanne Theyskens, Françoise Van Hauwaert, Erika Rabelo, Sandy Van Wissen, Xavier Llerena, Suzana Ortiz, Nathalie Pruha, Margit Kuyper.

Fabrication of the new hutch, rebuilding: Jean-Albert Glatigny, Jean-Paul Jankoviak.

Laboratory: J. Vynckier, J. Sanyova and colleagues.

Photography: Daniel Soumeryn, Georges Hiclet, Alain Delers, Jean-Louis Torsin.

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IRPA-KIK, Brussels

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Main altarpiece of the Basilica Menor de San Francisco, La Paz, Bolivia

Carlos M. Rúa Landa

34



Name of the work of art: Main altarpiece

Location: Basilica Menor de San Francisco, La Paz, Bolivia

Owner/responsible party: Franciscan community

Authored by/attribution to: Anonymous

Chronology: Eighteenth century (1784) **Style:** Andean baroque-mestizo

Dimensions: 13.80 m x 9.50 m x 1.50 m (height x width x depth)

Typology: Altarpiece, sculptures, mirrors, and painting

Materials and techniques: The structure of the altarpiece is in cedar wood, carved and gilded throughout. There are some polychromed details and silver mirrors. All the frames are carved and gilded. The carved wooden sculptures are fully dressed with glue-treated cloth, polychromed and gilded in part. In the central part of the upper horizontal register the only canvas painting.

Date and duration of the studies/intervention: Studies: September to December 1995. Intervention: July to December 1996

Profile of the study/intervention team:

- **Study:** From Bolivia, there were four restoration specialists, one chemist, one restoration architect, one civil engineer, one photographer, and one representative from the National Herbarium. From Germany, there were two consultants.
- **Intervention:** From Bolivia, there were four restoration specialists, two auxiliary technicians, one chemist, one architect and his assistants.

The altarpiece of San Francisco provides an excellent example of the Andean artistic style known as “baroque-mestizo”, an expression that reflects the contribution of indigenous artists in the area to the elaboration of artwork during the colonial period.

The altarpiece was in a very poor state of conservation and required immediate attention. The project for its conservation was a collaborative effort between German and Bolivian restorers, aimed at the development of a restoration methodology. This article illustrates the methodological investigation, study and diagnosis conducted, which contributed to the correct restoration of one of Bolivia's most significant altarpieces from the eighteenth century.

The project was designed as two key phases: the documentation and study phase, and the restoration phase based on the proposal resulting from the first phase. This process led to an intervention based on preliminary research, which could also serve as a model for the restoration of other altarpieces. The importance of forming a multidisciplinary team was justified by this experience, as each member of the team contributed through their respective disciplines to the altarpiece's restoration, devising appropriate approaches for the restoration.

The project also contributed to bringing to light the religious and cultural values of one of Bolivia's most significant pieces of cultural heritage, recognized by the local community as well as the public at large, including tourists.

The main altarpiece of San Francisco in La Paz was chosen in part because it provided a good example for launching a methodological intervention plan. It was also chosen in response to a request by the Franciscan community for the altarpiece's restoration. This request was directed to the Centro Nacional de Conservación y Restauración de Bienes Muebles (National Center for the Conservation and Restoration of Movable Objects) of the Vice-Ministry of Culture, who undertook management of the project.

To address the main objective of the project, the development of a method-

Origin of the project

Cultural significance of the altarpiece

Iconography of the sculptures: The titular saint is the Immaculate Virgin Mary, found in the central part of the altarpiece. The lateral registers house images of the Dominican and Franciscan orders. On the left side are Santo Domingo de Guzmán, who carries the Book of Rules (first horizontal register), St Thomas Aquinas (second horizontal register), and San Juan Capistrano (third horizontal register). On the right are St Francis of Assisi, who bears the Seraphic Cord, cross and a metallic halo (first horizontal register), San Buenaventura (second horizontal register) and San Leonardo de Porto Mauricio (third horizontal register).

Front view of the church of San Francisco in the city of La Paz.

ological approach, a multidisciplinary team of German and Bolivian conservators and professionals from different fields was created. A work schedule and budget were developed. The project itself was designed as two phases: the study and diagnosis phase, followed by the implementation phase.

The first phase was marked by the decisions and final conclusions made by consensus among the consultants and restoration specialists. The second phase established the responsibilities to be distributed among the restoration specialists, architects and support personnel.

Since their initial construction, both the church and convent of San Francisco have been under the administration and custody of the Franciscan order. The church represents the meeting point of several different cultures, including Spanish, criollo (Bolivians of Spanish descent), mestizo (Bolivians of Spanish and indigenous descent), and the indigenous Andean population, while also serving visitors and tourists.

The altarpiece symbolizes both the history of the Franciscan order and the



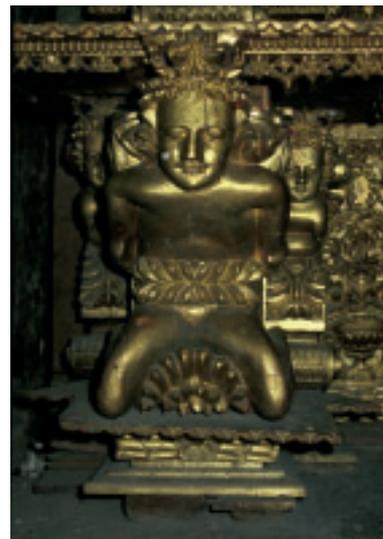
dedication of the order to the Virgin. Integrated into the architecture of the church's interior, the altarpiece plays a central role by providing the backdrop for daily religious ceremonies. On the dates that mark the commemorative celebrations of the altarpiece's principal images, it enhances the festivals and religious ceremonies promoted by the Franciscans and churchgoers.

The eighteenth-century altarpiece of San Francisco is an excellent example of the art style known as baroque-mestizo. This peculiar Andean expression developed from the fusion of the two cultures, which forms the basis for its mestizo interpretation. The monumental and religious art brought by the Spanish monks combined with the spontaneous expression of indigenous artists. Influenced by their own traditions as well as the natural environment, the indigenous artists incorporated highly decorative elements of flora, fauna, anthropomorphic and prehispanic figures in the altarpiece, marking it with the unique style and techniques that developed during the eighteenth century in Bolivia.

An example of this style can be noted in the predella, which has four figures reclined in the manner of Atlantes, but with indigenous features. Almost naked, they wear feathered headdresses. Their arms are behind their backs, as if carrying or supporting the altarpiece. These images are in turn flanked by female figures, whose features are also indigenous, posed as caryatids, and combined with floral elements. Above these figures are the symbols of the four Evangelists.

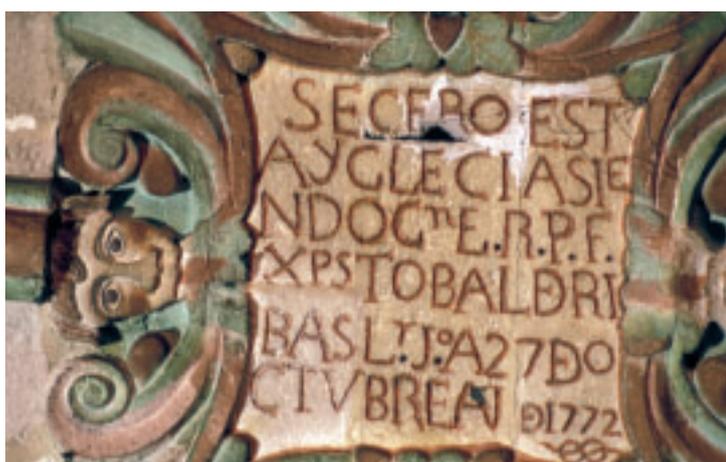
Gilding combined with silver in a series of mirrors and religious images predominates on the altarpiece, beginning with the first horizontal register and continuing up the altarpiece to its crowning elements. This decoration may be related to the sun and the light, following the idea that the lower, non-gilded part of the altarpiece represents earth, while the upper part represents the glory of the heavens. A large part of the ornamentation is represented by flora, some from the region and some tropical, combined with winged creatures and animals.

Although no precise information was found pertaining to the altarpiece's construction, related referential data was compiled and carefully evaluated in a



A figure with indigenous features, located at the base of a column in the predella.

Context of the altarpiece



An inscription dating to 1772 on the central vault, indicating the conclusion of the construction of the current church.



Photograph of the altarpiece in 1920, taken after some modifications to the central vertical register were made in response to the fire.

chronological table, contemplating the history of interventions on both the church and the altarpiece. This research allowed for the identification and interpretation of the main prior intervention episodes and their consequences, including those related to the alteration of the original design of the altarpiece.

Some evidence found in the church itself also helped establish a timeframe for the altarpiece's construction¹. All the architectural elements of the church (such as stonework vaults and cupolas) correspond to the baroque style. One of the most significant characteristics of the building is the combination of painted and sculpted decorative elements with the architectural space and lighting. Due to its outstanding location, the presbytery is a point of attraction as well as a focal point of the spatial composition.

With respect to modifications made to the altarpiece, a priest at the church of San Francisco in the 1950s, the Reverend Father Julio Calatayud, provided relevant oral data, stating that a fire burned the altarpiece and severely affected the central vertical register in the late nineteenth century, destroying the principal image and the silverwork. For that reason, in the early twentieth century the central vertical register was reconstructed. During that reconstruction, neogothic elements were introduced, such as a baldachin, and the silverwork was replaced by a large heavy urn bearing an image of the Virgin, which contrasted with the baroque style of the altarpiece.

In 1948, on the occasion of the four hundredth anniversary of the founding of the Franciscan convent, a fundamental refurbishing of the central register was commissioned, taking away all of the neogothic elements except for the tabernacle. The aim was to restore the altarpiece's baroque-mestizo style. To that end, parts were used from the lateral registers of the altarpiece itself, as well as parts from other altarpieces of the highland region. During that intervention the originally polychromed predella was also repainted with mosaic gold.

In 1994, with the most recent modification, the neogothic Virgin was replaced and mirrors were removed from the crown.

Results of the study phase

The detailed process of investigation included bibliographic documentation, description of the iconography and historical analysis, survey and research on the original techniques and materials, condition survey and analysis of the state of conservation of the altarpiece. Based on this information it was possible to determine a conservation approach adapted to both the values and needs of the altarpiece².

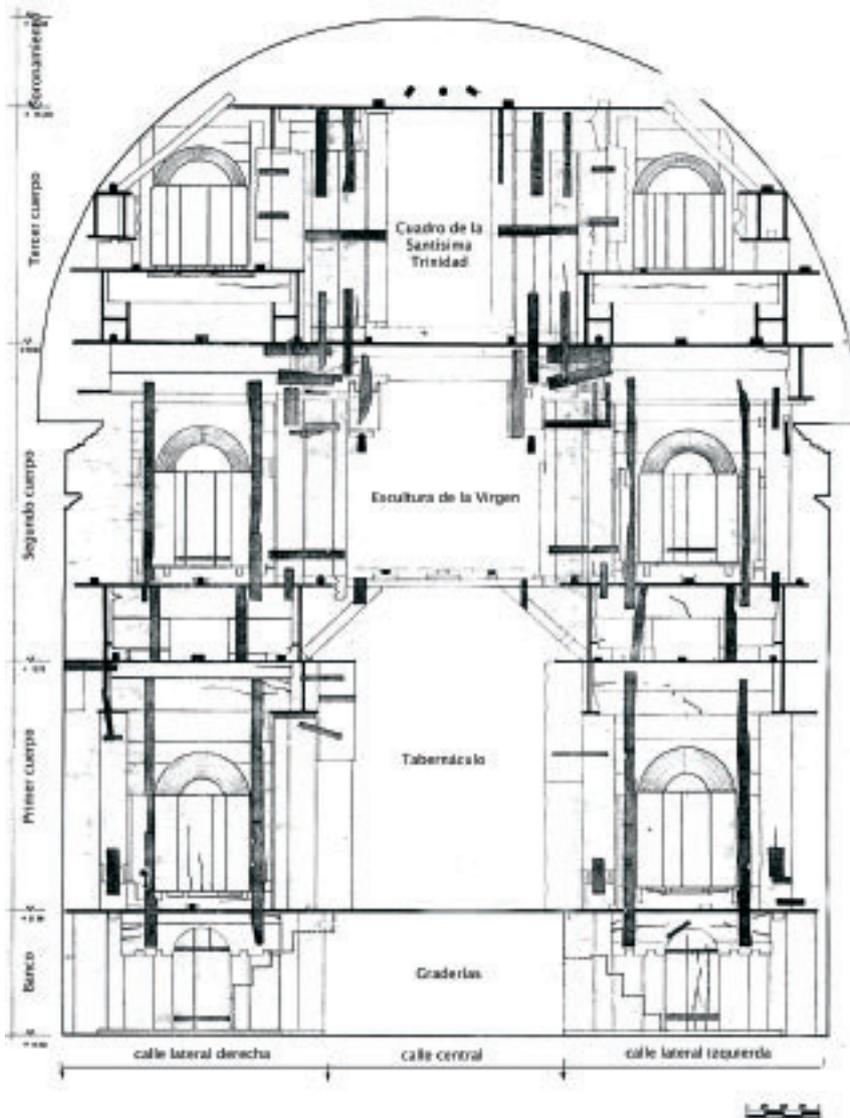
Documentation

Documentation included photographs and photogrammetry as well as a detailed architectural survey. Measurements of the altarpiece's elements including its structure were taken and scientific analyses of wood, polychromy and decorative treatment by sampling were executed, the results of which are described below.

Extensively detailed drawings were made of the presbytery and the altarpiece in all its details. All the data collected were eventually recorded on blueprints. This documentation was used for diagnostic purposes, but also constitutes a primary record of the current state of the work of art. The particularities of the architecture and iconography of the altarpiece were also interpreted and represented in the drawings.

As a work method, a grid-based coding was adopted for the altarpiece to summarize the data and facilitate its interpretation. The system followed the architectural design of the altarpiece:

- predella (right, left)
- central altar
- first, second, and third horizontal registers (first, second, and third vertical registers)



Survey of the rear elevation of the altarpiece.

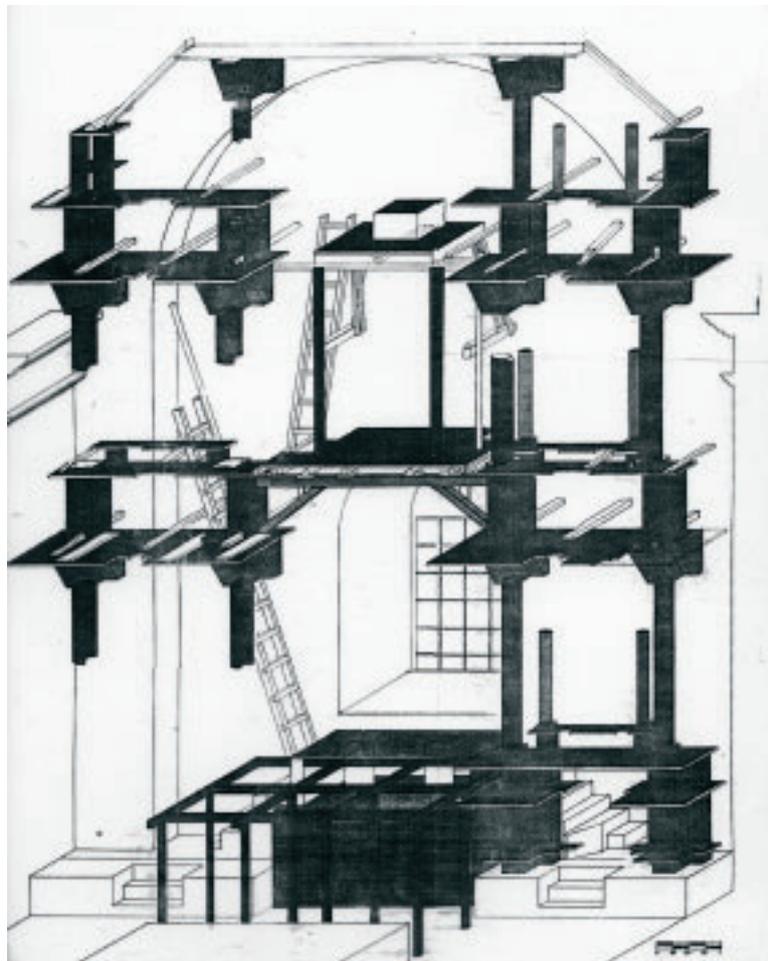
- crown.

Other individual divisions (columns or other individual decorations) could also be added to this system of codification. Research was conducted starting at the base of the altarpiece, working up. Two mobile scaffolds were obtained for the in situ research work. The data logging took place on site, and the results were recorded on technical control cards.

Composition and design

Precise measurements of the building revealed that the presbytery is narrower at the back, becoming wider at the front with the objective of enhancing the perception of the altarpiece. This demonstrates that its designers understood the effects produced by architectural forms on the observer and that this phenomenon was deliberately used to enhance the perception of the altarpiece. Other effects also function to accentuate the altarpiece, such as placing it on a pedestal and inclining its upper portion toward the viewer.

The back of the presbytery, which faces west (towards the setting sun), has an opening at the height of the tabernacle, intended to use the sunset light to enhance the Holy Sacrament. This illumination is complemented by two large windows at the top of the presbytery on each side, leaving the lower area of the



Layout of the supporting structure and back passageway.

presbytery somewhat shadowed. It was not possible to determine with precision if the mirrors located at different heights functioned to create indirect lighting.

The remains of candelabras were found in front of the mirrors on the second and third horizontal registers. It is possible that candles were lit on special occasions to lend a more festive character to the altarpiece at night.

The altarpiece is a freestanding structure anchored to the wall. The distance between the rear side of the altarpiece and the wall of the presbytery is 1.20 meters. Along the back of the altarpiece, there are four access levels by which the predella and each of the three horizontal registers can be reached. There is no access to the crown.

Two small round-arched doors in the predella lead to the rear of the altarpiece. The first platform is reached by way of a two-flight stone stairway connected to the doors. It should be noted that the left-hand flight of stairs reaches only halfway to the first platform, because the original altar and tabernacle were lower than the current altar. From this level another staircase runs upward, supported by the left lateral wall and reaching the back of the niche of the first vertical/second horizontal register. Based on the techniques and materials employed, it is likely that this stairway dates to the time of the altarpiece's construction. The platform of this sector consists of planks placed over bracing beams. Many of the planks are carved and gilded, suggesting that at one point they formed a part of the altarpiece.

A second staircase supported against the back wall reaches the final platform, which is better built. Intermediate points provide access to the front of the altarpiece. Using this area could be considered difficult and dangerous, given the deterioration of the various elements and the fragility of the planks.

Materials and building system

The altarpiece consists of a wooden system clearly defined by two types of components: (1) the case and ornaments on the altarpiece's front, and (2) the supporting elements, including beams, struts, bracing and planking, which are generally located on the rear side of the altarpiece.

The assembly of the altarpiece's supporting structure was accomplished in quadrants, corresponding to the horizontal and vertical registers. The structure is braced to the wall using timbers³. The bracings are positioned perpendicular to the altarpiece and are symmetrically distributed. They are laid out in a staggered, triangular array and set in place using iron nails, and, in some cases, leather straps. The structural behavior of the bracings is one of pull-and-shearing stress. The elements that bear the most stress are those on the top, while those near the bottom are subjected to compression stress. Based on the wood's state of conservation, it was confirmed that these elements, in general, are functioning within their capacity.

Strength and stability in the altarpiece is also achieved by panels, which are placed along the back of each horizontal register, and columns along the principal face.

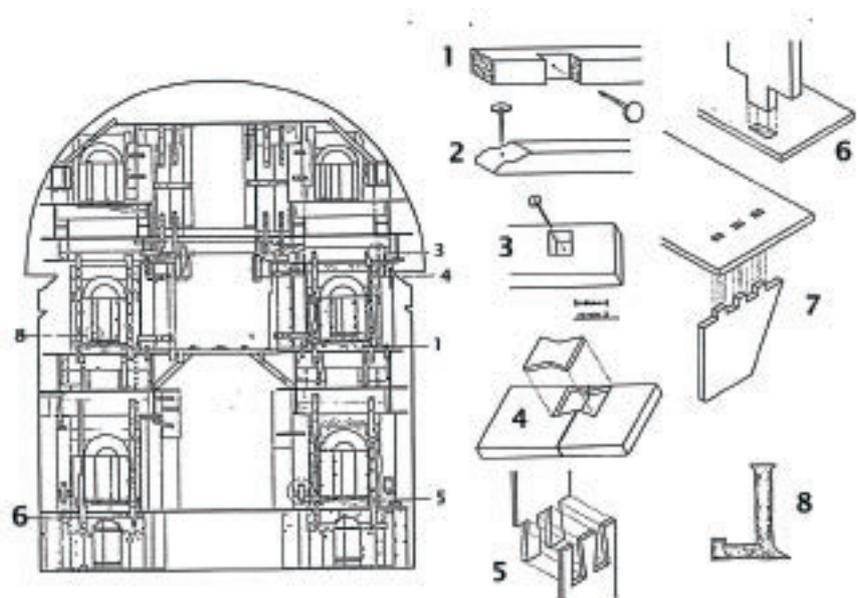
The altarpiece case was assembled on site from the bottom up, from right to left. Projecting panels and cornices were fastened to the supporting structure and wall bracings. The enclosures, niches, columns, and coves were then assembled, followed by the production of the decorative panels, bas relief, lambrequins and high relief on the columns.

For the bracings and original supports, the wood used was alder and walnut. The original case was built from cedar wood, but all the parts used in the nineteenth century to build the central part in neogothic style were of pine. It is assumed that the cedar was brought from Central America as deadweight cargo for the ships that transported gold and silver from Bolivia.

Dovetail joints were used to connect horizontal beams, mortise and tenon joints were used for columns and crossbeams were also used for other assemblies. Animal glue was added to these joints, and clamps pressed the pieces dry. Pieces were also fastened together with iron nails and wooden pins to reinforce the joints.

42

Supporting system and joints.



Craftsmanship

No documentation on the contracting of craftsmen for the building of the main altarpiece has been found to date. One would suppose, nonetheless, that the persons involved were master craftsmen, such as master carpenters, assemblers, carvers, whitewashers, master gilders and painters.

The marks left by the cutting and manipulation of the wood show the use of several colonial-period tools, such as the hatchet, adze, bow saw, splitter, hand saw (for the planks and cutting of the individual parts), and carpenter's saw for rough hewing. Backsaws, chisels, gouge chisels, knives, wooden mallets and rasps were used for carving and decorating the altarpiece's minor elements.

Based on the quality of construction, we deduced that different carvers worked on the upper and lower parts of the altarpiece, since there are differences in the carving of noses and faces. Differences were also observed in the columns.

Polychromy

After the altarpiece's structure had been assembled and the carved ornaments were in place, it was evident that the polychromy and gilding were applied on site, since the structural nails were covered by polychromy or gilding.

Most of the altarpiece is gilded, with the exception of a few small sculpted figures, which were polychromed or employed corladuras, and the predella, which was polychromed.

On the figures, the polychromy treatment is inconsistent in several sectors of the altarpiece. Our analysis shows that various techniques were used. For example, in the base preparation layer, there is a marked difference between the predella, first, second and third horizontal registers. The predella contains plaster or calcium sulfate, particles of carbon, and a binding of protein or animal glue. In the first and second horizontal registers, the base is chalk or calcium carbonate in crystalline state, as well as calcium sulfate, with a protein glue binding. Finally, the third horizontal register only contains calcium sulfate with protein glue.

The parts with gilding or corladuras consist of a preparation layer, followed by a layer of bole and a layer of metal leaf. The corladuras apply a transparent layer of copal varnish over silver leaf, with pigments (carmine red and green malachite, respectively).

In the area of the predella, there are two layers of polychromy for the flesh tones: one is ochre and the other natural sienna. For the ornaments and some architectural parts, there is a layer of yellow ochre, while the soffit is a shade of blue.

The technique for the flesh tones varies from the first and second to the third horizontal register. In the first and second horizontal registers, the polychromy and the base preparation layer merge, from which it can be deduced that the polychroming took place while the base preparation layer was still fresh. On the third horizontal register, the polychromy is superimposed over the base preparation layer.

Structure and stability

In general, the structure has good stability, except for the lateral displacement of the column bases on the second horizontal register. In order to verify the structure's stability, a wooden model was simulated using the current conditions, statically determined. It was thereby confirmed that the structure is stable, but requires a degree of intervention, especially on those elements that have undergone modifications.

State of conservation

As mentioned earlier, one can observe at the top of the altarpiece a horizontal displacement in a forward direction of 15 to 20 cm as compared to the altarpiece base. It was assumed that this was intentional, with the purpose of increasing the perspective effect for viewers.

The altarpiece structure is seated on a stone masonry platform that dates from the construction of the church. The difference in levels observed on the bottom right of the altarpiece is due to construction defects from that era. No settling was detected that would directly influence the altarpiece's stability and the wall displays no settling or fissures.

The weight of the altarpiece's components (supporting structure, decorative and ornamental elements) subjects the altarpiece structure to loads and stress initially uniformly distributed over the beams and struts. Still, due to the altarpiece's construction and subsequent modifications, displacements can be observed. The projecting parts are particularly affected, on account of the excessive load to which they are subjected from the statuettes, mirrors and other decorative elements.

The support has a good number of gaps and some displacements. The central vertical register has the worst alterations of the entire structure, due to a fire at the turn of the century.

Decorative components and repainting

The arches on the first horizontal register are cracked, parts are missing from the shells of the niches on the three horizontal registers and there are alterations to the horizontal registers' bases. The altarpiece was also very dirty, with an accumulation of dust, soil and soot, especially at the top and the back. All the supports have an average degree of dehydration, which has caused fissures at the joints, particularly in the columns and in the boards of the antefix. There are parts missing on account of burnt areas in the lambrequins of the niches. Also missing are certain minor elements (such as the decoration of a shaft in the first horizontal register or the relief of an angel in the second). Finally, parts of the entablatures and their projecting parts are missing, as are some acanthus leaves and fruit.



Image of the Immaculate Virgin, the titular saint: Sculpture in maguety and glue-treated cloth.

The polychromy and gilding are basically in a good state of conservation, but painstaking research revealed the following damage. The polychromy in the upper area was the most deteriorated, due to sudden changes in humidity, condensation and temperature. This caused a separation of the paint layers, gaps, flaking, blistering, cracking and abrasion. There were also gaps varying in size along the entire surface of the altarpiece.

Generalized repainting is only seen on the predella, which is completely repainted with mosaic gold. Two other repaintings are observed. The first, applied solely to the flesh tones, consisted of a dark orange/pink layer, covered by new flesh tones, with polychromed lips and eyes, and dates back to the intervention on the tabernacle area in the early twentieth century. The second repainting (mosaic gold and silver) is from a later intervention (1948) on

the bases of the second and third horizontal registers, and on some pieces of the central vertical register. This repainting has two layers: first, a red preparation layer (which probably served as an imitation of bole) and second, a metallic layer, applied with brushwork.

Currently the altarpiece has seven sculptures placed in the niches. The four saints in the first and second horizontal registers are wearing the respective contemporary vestments, fashioned from glue-treated, polychromed cloth, and have structures formed by maguëy. Their hands and heads are made of polychromed, carved wood, and their eyes are glass. Their size is 1.50 x 0.80 x 0.40 meters. The two saints on the third horizontal register were made using the same technique. They do not have cloth garments, their eyes are painted, and they measure 1.30 x 0.60 x 0.43 meters⁴. In general, the sculptures are in good condition, with the exception of some missing fingers (for example, on St Thomas Aquinas). The polychromy of the faces and hands is slightly stained. Nonetheless, the damage is minor. The face of San Leonardo de Porto Mauricio has been repainted.

The canvas painting has severe separation of paint layers and warping at its bottom edge. Additional minor damage is present and the surface is dirty.

For the intervention on the altarpiece, a technical team was formed and divided into two groups. A restoration architect and his support personnel, working on the structural aspects of the altarpiece, comprised the first group, while restoration specialists working on the ornamental features of the altarpiece comprised the second group.

Both teams participated in a general cleaning of the entire altarpiece. The divisions between the vertical registers were the most laborious, with great quantities of soil, debris, and impregnated wax. Starting at the third horizontal register and working down to the predella, the altarpiece was cleaned mechanically and with the use of organic solvents. Concurrently, the entire system of wiring, accessories and lighting of the various electrical installations was removed.

Structure

In the back of the altarpiece, a circulation system was installed independent of the bracings to reduce stress and overload. The original wood bracings were adjusted and set. In order to improve the bracings' behavior overall, it was important to replace those braces that had been cut, removed or modified in their geometry, reinforcing the upper parts of the horizontal registers with steel turnbuckles.

The support structures for the central vertical register of the second and third horizontal registers were stabilized, and several metallic turnbuckles were placed, braced to the back wall. Several pieces of the structural wood were reinforced in order to consolidate the structure of the various upper modules.

Intervention

The entire back was vacuumed and cleaned. For access to the various back levels, several platforms and stairways were reinforced and adapted, remaining independent of the original structure so that passage would be safer. Lighting was also installed, which had not been present before this intervention.

A preventive insect disinfection treatment was applied to the entire support or exposed wood, through a top layer of wax dissolved in solvent.

Decorative features

The polychromed or gilded sectors needed to have the paint and color set at certain specific points. This task was accomplished using protein adhesive or organic glue applied with a brush and syringes. All the loose pieces were also set in place. Most were fastened with wooden pegs reinforced with an organic consolidant.

Several pieces and ornaments had to be taken down from the altarpiece to be treated individually, including the mirrors, columns, canvas paintings, sculptures, cartouches and other minor elements.

Elements determined to be detrimental to the work for aesthetic reasons or in keeping with conservation needs were removed. To a lesser degree, elements deemed essential for a harmonious integration of the original were readapted or replaced. The task involving the most work was the reintegration and aesthetic improvement of the entire central vertical register.

Gaps in the base preparation layer were stuccoed with calcium sulfate in animal glue, after which the color and gilding was restored using watercolor and varnish pigments. For new pieces, gold leaf was used.

The mirrors on the attic, the side registers' crowns, and the canvas painting and crown of the third horizontal register were set back in place. Similarly, the side columns of the third horizontal register's central vertical register were restored. Also restored were the cartouches and columns of the second horizontal register, as well as the mirrors situated over the entablature. Intervention was performed on the seven sculptures and a canvas painting of the Virgin. Finally, the central sculpture of the Virgin was replaced by another whose proportions were better suited to the central niche, with a baroque style from the eighteenth century.

Acknowledgments

Our sincere thanks go to all those who collaborated directly or indirectly on this project. A very special thanks goes to Angela Hückel, the expert German restorer, and to her colleague, Thomas Schoeller, with whom the plan was developed; to Joseph Bornhorst, who was then the Director of the Goethe Institut in La Paz, to Barbara Haeming, interpreter, to the Reverend Father Orlando Cabrera, Guardian of the Convent of San Francisco, and Father Julio Calatayud.

Thanks are also due to the institutions that provided the economic support: The Getty Grant Program of the United States of America, the Embassy of the Federal Republic of Germany, the Goethe Institut, the Convent of San Francisco in La Paz, the Instituto Andaluz del Patrimonio Histórico in Spain, and the Vice Ministry of Culture of Bolivia.

Participants

Technical consultants: Angela Hückel and Thomas Schoeller (November 26 to December 9, 1995)

Restorers: Carlos M. Rúa Landa, Beatriz Loaiza B., Roberto Montero and Lucio Trujillo

Technical assistants: Roger Churata and José Luis Díaz

Structure: Viviana Fernández, architect

Photographers: Gilberto Vargas and Fernando Cuellar

Photogrammetry: Wilfried Seufert

Architectural documentation: Fidel Cossio, architect

Structural analysis: Ramiro Tirao, engineer

Laboratory analysis: María del Carmen Amusquívar

Studies of the flora: Emilia García, National Herbarium

Photographic credits

Carlos M. Rúa Landa

Notes

1. The present church of San Francisco is the third structure built on the same site since the arrival of missionaries in 1548-49. Its construction began in 1744 and ended in 1772, as noted in an inscription on the central vault.
2. See: "Documentación del Retablo, investigación y concepto de conservación del Retablo Mayor de la Basílica Menor de San Francisco, 1996," and "Informe final de la segunda fase de Ejecución," Centro Nacional de Conservación y Restauración de Bienes Mueble of the Vice Ministry of Culture, 1997.
3. Generally 5 cm x 5 cm and 5 cm x 7.5 cm, with a length of 1.20 meters, embedded into the wall to an average estimated depth of 0.30 meters.
4. According to information provided by the Reverend Father Julio Calatayud and the "Documentos del Arte Colonial Sudamericana. El Templo de San Francisco de La Paz," (1949), the two saints on the third horizontal register were exchanged for the two sculptures on the side walls of the presbytery. Nonetheless, it is not known for certain whether they formed a part of the original structure. The only painting, located in the central top horizontal register, represents "The Coronation of the Immaculate Virgin" from the eighteenth century, with dimensions of 2.18 x 1.60 meters. It was placed there in the 1950s (according to the Reverend Father Calatayud). It is an oil painting on canvas, bearing a gilded frame with a shell pattern.

Main altarpiece of the Church of
Santo Antonio de los Ángeles, Laguna,
Santa Catarina, Brazil

Susana Cardoso Fernández

48



Name of the work of art: Main altarpiece

Location: Church of Santo Antonio de los Ángeles, Laguna, Santa Catarina, Brazil

Owner/responsible party: Diocesan Miter of Tubarão. The altarpiece is legally protected at the municipal level as “City Architectural and Landscaping Heritage” and at the federal level has been registered in the Book on Archaeology, Ethnography, and Landscaping since April 1995.

Authored by/attribution to: Antônio José de Santana (carver), João de Almeida Pereira (painter and gilder)

Chronology: 1803 (structure), 1807 (polychromy and gilding)

Style: Baroque

Dimensions: 8.57 m x 6.00 m x 5.20 m (height x width x depth)

Typology: Altarpiece with columns and carvings

Materials and techniques: Carved, gilded and polychromed wood

Date and duration of the studies/intervention: Studies from April to July 2000

Profile of the study/intervention team: Studies employed two architects, one conservator, one carver and two assistants

Initiated by the Instituto do Patrimônio Histórico e Artístico Nacional (Institute for National Artistic and Historical Heritage, IPHAN), this project was developed to study the condition of the main altarpiece of the Church of Santo Antonio de los Ángeles, formulate intervention guidelines and raise community awareness, so that the local community of Laguna would value its cultural property.

Through the Programa Nacional de Incentivo à Cultura (National Cultural Incentive Program, PRONAC), a government program that earmarks funds for cultural purposes, sponsorship was obtained from the Banco Nacional de Desenvolvimento Econômico e Social (National Economic and Social Development Bank, BNDES). The parish provided financial administration under the supervision of the Instituto, and the coordination of project activities was carried out by the 11th Regional Superintendency of IPHAN. These institutions involved in the project made technical decisions jointly.

Located in the subtropical maritime zone, Laguna is a small city with an urban core of 37,255 inhabitants covering 29 km². The city as a whole covers a total area of 445 km² with a population of 47,543 people.

The city of Laguna as a whole is recognized as national historic architectural heritage, and provides an important frame of reference for the history of Brazil's colonial period. The altarpiece is located in the city's church, which is considered to be one of the city's most important cultural properties for its architectural value, the decoration of its constituent features, and as a factor in the city's social and religious integration.

This church played a vital role within the context of southern Brazil's colonial history. The city of Laguna represents the last landmark of the Treaty of Tordesillas, forming the former borderline with the Spanish province of Río de la Plata. The city also played an important role in the history of the revolutionaries Anita and Giuseppe Garibaldi, the Catarina Republic, and other significant historical events.

Constructed in the late seventeenth century, the Church of Santo Antonio de los Ángeles is located in a main plaza of the city, two blocks from the sea. Its

Origin and context of the project

main doors are permanently open to the public, which causes excessive humidity within the church. A number of recent restoration tasks on the building have been completed and include work on both the interior and exterior plaster, the roof and the electrical and lighting systems. A sound system and a security installation to protect against fire and lightning were also installed, while archaeological and architectural probes were performed in search of relevant historical data and original materials. Security for the building is as yet inadequate, since there is no continual guard service, and historic works of art have been stolen in the past.

The church's altarpieces were added during the eighteenth and nineteenth centuries, with some minor changes and repolychroming done in the twentieth century. In 1972, a major modification was made by a Portuguese craftsman and painter, who scraped off the former paint and gilding of the main altarpiece, to repaint it according to his own taste. This repolychroming is currently conserved as the altarpiece's decoration. The wood structure has seen several interventions since its construction, with the use of new wood of various types and sizes.

Intervention proposal

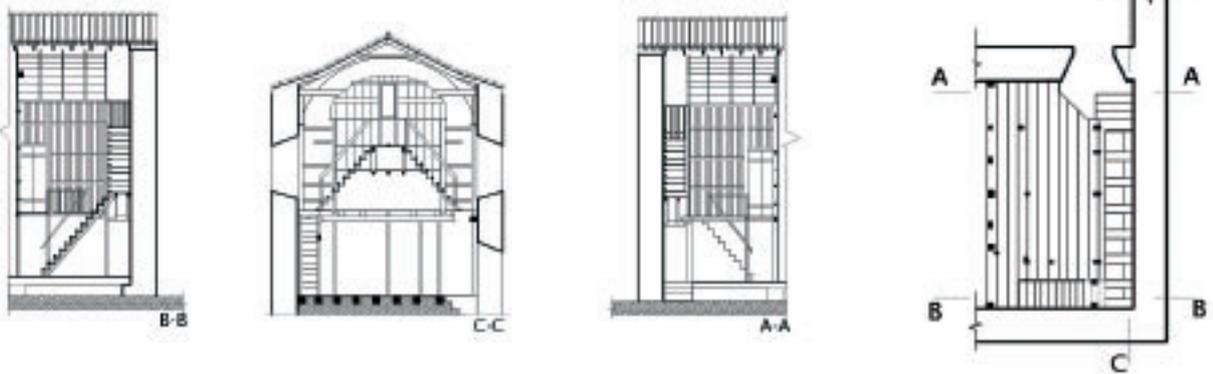
State of conservation

To determine the state of conservation of the main altarpiece, it was necessary to open the altar tables and conduct internal examinations. The following preliminary activities were conducted:

- graphic and photographic documentation of the state of conservation of the altarpiece and the church's sacred images, using a systematic inventory-card system
- samples taken of the paint layers for stratigraphic studies and analysis of materials
- historical analysis, through researching the books of the parish and other available references.



Back area of the altarpiece, showing part of its structure.



We found that the supporting structure of the altarpiece was badly infected by xylophagous (wood-eating) insects, principally along the back of the structure. We also observed widespread stains from the activities of microorganisms on both the front and back of the altarpiece. The altarpiece has been completely repainted, although we found remains of the original polychromy and gilding in some areas in the probes and samples taken from the paint layer. Another problem we noted is that the indoor electrical lighting is inadequate.

Proposed action

Based on these initial observations, we decided to clean the surface of the altarpiece and apply disinfectants to the wood to fight the xylophagous insect infestation, which was quite intense in the altarpiece's structure and supports.

In addition to the preliminary studies described above, the following work was done:

- mechanical cleaning of the altarpiece's interior
- taking of probes to evaluate the quantity and quality of the areas with original painting underneath the repainted layers
- disinfecting of the xylophagous-insect infested areas.

One of the main established criteria was to show maximum respect for the original materials, and to try to perform the cleaning and conservation work concurrently with the technical research.



View of the back of the altarpiece: Cross sections B-B, C-C and A-A. Survey conducted by José Francisco da Silva.

Part of an ornament found below the floor of the altarpiece, with remains of the original polychromy. (left). Detail of the xylophagous insect infestation in one of the altarpiece panels. (right).



Considerations

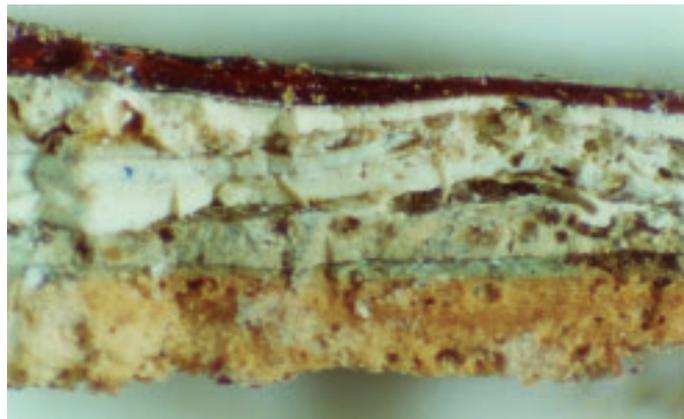
This project has raised some important issues concerning the often-competing interests of different groups involved in the conservation and restoration of altarpieces. One of the main objectives of the conservators at the Instituto do Patrimônio Histórico e Artístico Nacional was to determine whether or not the original paint layer was still present on the altarpiece. If so, the immediate proposal would have been to study the viability of removing the overpainting and restoring the original layer.

The preliminary studies indicated that only vestiges of the original polychromy remained, complicating the decision-making process. Should the polychromy be restored to its original state, even though very little of the original material is actually left, or should some other measure be implemented, to address the fact that the present gilding is of low quality, as well as completely tarnished?

While the institutions involved in the project were considering this decision, an issue began to arise within the community. The city of Laguna is composed of a rather small community, mainly dedicated to traditional fishing and agriculture. The community likes and appreciates the work done by the Portuguese craftsman who upon completion of the repainting, moved to the city where he remained until his death. His wife and children still live in the city. While the project was in progress, the community questioned us as to whether we were going to destroy the work done by “The Portuguese Man.”

Such issues are quite common in this region of Brazil, where we have many poorly executed interventions on the artistic assets of churches, with the complete repolychroming of altarpieces and images. Also misinformation on what conservation-restoration work consists of is widespread. Thus, the decision about how to intervene on the altarpiece has become complex.

The new project proposed for restoring the main altarpiece, the sacred images and other altarpieces of the Church of Santo Antonio de los Ángeles began in April 2005. First, a heritage educational campaign was organized and discussions on restoration criteria were held with the community that uses and maintains the church. As a result of these discussions, it was decided to restore the main altarpiece's present repainting and clean the tarnished gilding.



Stratigraphy of the altarpiece's paint layers, where we noted several layers of repainting, and vestiges of the preparation layers and original paint.

Under current preventive conservation principles, raising the awareness of the community to build its appreciation and preservation of the community's cultural heritage is of vital importance for the preservation of our cultural assets. Such an effort is indispensable to ensure the success of any conservation-restoration activity on the city's historic and artistic heritage. In this way, we can prevent the use of inappropriate maintenance techniques and materials.

Acknowledgments

We would like to thank the Instituto do Patrimônio Histórico e Artístico Nacional, and especially architect Lílian Mendonça Simon, the project coordinator, for the opportunity to carry out this work and hold technical discussions.

We thank parish priest Antônio Gerônimo Herdt and other members of the Social and Cultural Community Action Group at the Parish of Santo Antonio de los Ángeles in Laguna, for the confidence they placed in our work.

Participants

Technical orientation and supervision: 11th Regional Superintendency of the Instituto do Patrimônio Histórico e Artístico Nacional.

Responsible parties: architect Dalmo Vieira Filho, IPHAN Superintendent; architect Lílian Simon, church restoration project coordinator.

IPHAN technical team: architect Cyro Corre Lyra; architect José La Pastina; architect Leonardo Barreto de Oliveira; architect Maria Isabel Kanan.

Sponsorship: Banco Nacional de Desenvolvimento Econômico e Social.

Administration of project implementation: Community Social and Cultural Action Group of the Parish of Santo Antonio de los Ángeles of Laguna. Executive Director - parish priest Antônio Gerônimo Herdt.

Technical team: Susana Cardoso Fernández, specialist in the conservation and restoration of cultural assets; Manuel Fernández, technical manager, carpentry; Israel Oreano Rolim Borges, carpentry assistant; Júlio Cardoso Silva, carpentry assistant; architect José Francisco da Silva, architectural surveying.

Photographic credits

Susana Cardoso Fernández

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Main altarpiece of the Cathedral of Santo Antonio,
Santa Barbara, Minas Gerais, Brazil

Adriano Reis Ramos¹

54



Name of the work of art: Main altarpiece of the Cathedral of Santo Antonio

Location: Chapel of the Cathedral of Santo Antonio, Santa Barbara, Minas Gerais, Brazil

Owner/responsible party: Archdiocese of Mariana; registered in the Book of Fine Art, by the Instituto do Patrimônio Histórico e Artístico Nacional (National Institute of Cultural and Artistic Heritage, IPHAN) in June 1938

Authored by/attribution to: Francisco Xavier de Brito for the architecture of the altarpiece and Manoel da Costa Ataíde for its painting and gilding

Chronology: The altarpiece was constructed in the first half of the eighteenth century and was transformed later, around 1780. The painting and gilding were executed at the end of the eighteenth century

Style: Baroque, later redecorated in rococo style

Dimensions: 10.90 m x 5.89 m x 3.79 m (height x width x depth)

Typology: Polychromed wooden altarpiece

Materials and techniques: The front pieces of the altarpiece are made of cedar, to allow for trim and carvings, while the supporting structure is built with a more resistant wood. Brauna can be found in the areas where the wood is in contact with the masonry, and peroba is used for the supporting rectangular frame. The polychromy is done with temperas, while the gilding was applied with gold leaf. The base preparation is made of animal glue and gesso

Date and duration of the studies/intervention: The preliminary studies and the elaboration of the intervention proposal were conducted over three months, from April to June 1997. The execution of the restoration work took seven months, from January to October 1998.

The restoration of the main altarpiece of the Cathedral of Santo Antonio has proven invaluable in preserving a precious example of art produced in Minas Gerais during the eighteenth century, and by contributing to the documentation and better understanding of a fundamental component of Brazil's historic and artistic heritage. The undertaking made possible the rescue of a masterpiece that was rapidly deteriorating, and also produced a wealth of studies for conservation and art history. These studies concentrated on establishing the relationship between the altarpiece and other decorative elements that make up the interior decoration of the church, by assessing the transformation of the church and its ornamentation through time, which has proven essential in defining the intervention approach.

The restoration of the main altarpiece is part of the Santo Antonio Cathedral Restoration Project, which began in 1997, when the Associação dos Amigos de Santa Bárbara (Association of Friends of Santa Barbara, ASASB) took on the responsibility of coordinating and administering this long-awaited and necessary undertaking. To conform to the laws of the Ministry of Culture and the State Cultural Office of Minas Gerais pertaining to these types of projects, the responsibilities of ASASB included two preliminary steps: the elaboration of a comprehensive conservation project for all the church's artistic components, and the survey and evaluation of private companies and individuals who would implement the conservation proposal.

Over five years, the work was carried out as planned and in such a way that all the artistic elements of the church included in the overall study have been completely restored. The work on the building itself, its roof and electrical installations had already been carried out some years before by specialized technicians contracted by the Santa Barbara parish house.

The main altarpiece intervention was carried out by the company Grupo Oficina de Restauro, based in Belo Horizonte and specializing in the restoration of artistic property since 1988. Their tasks were defined in the intervention proposal established by professionals of IPHAN, and conservators from IEPHA/MG carried out the technical accompaniment at all stages.

Project management

Profile of the study/intervention team: The preliminary studies and proposal were developed by IPHAN. Chemical analyses were carried out at the Centro de Conservação e Restauração da Universidade Federal de Minas Gerais (Center for Conservation and Restoration at the Federal University of Minas Gerais, CECOR/UFMG). Grupo Oficina de Restauro, the company responsible for carrying out the restoration, had a team of one restorer, two restoration technicians, one technical assistant, and one cabinetmaker. The implementation was supervised by technicians from the Instituto Estadual do Patrimônio Histórico e Artístico de Minas Gerais (State Institute for Historic and Artistic Heritage of Minas Gerais, IEPHA/MG).

All administrative and financial management was the sole and exclusive responsibility of ASASB, and included the restoration of all the interior decoration of the church, which was anticipated to take five years with a final cost of approximately \$300,000 (US dollars). The completed work was turned over to the Santa Barbara community on December 4, 2003.

Historical context

The Cathedral of Santo Antonio in Santa Barbara is representative of the transformation processes witnessed by this type of monument built in the first half of the eighteenth century in Minas Gerais. At first, these constructions were timidly elaborated, but over time they were enlarged until they reached their current architectural forms. Likewise, interior decoration was progressively transformed depending on the financial ease or difficulty of the church and its parishioners. To date, some unfinished monuments in the Minas Gerais region attest to these situations.

Following a similar pattern, the Cathedral of Santo Antonio and the ornamentation that we see today were completed at the beginning of the nineteenth century. Consequently the church incorporates stages of construction and aesthetic solutions from various times throughout the eighteenth and nineteenth centuries.

Francisco Xavier de Brito² is considered to be the main sculptor in the decoration of the cathedral from the beginning of its construction, while a few decorative elements are attributed to other artists who were also active in the province of Minas Gerais. However, a lack of specific documentation about the history of the building and its decoration has prevented the confirmation of hypotheses on the authorship or date of construction of the church's ornamentation or the main altarpiece. The first known records about the church, found in the archives of the Curia of the Archdiocese of Mariana, are from 1744, when the altarpiece of the Chapel of the Most Holy Sacrament, another of the church's numerous altarpieces, was finished by Francisco de Faria Xavier. Stylistic and technical analyses of the church altarpieces indicate that at least two others are older than this altarpiece, which lends support to the idea that the original church had already been erected some years before 1744.

To understand and interpret the historical and stylistic values of the Santo Antonio altarpiece, it is important to note that during the first decades of the eighteenth century, the Portuguese "national" style predominated as the most expressive artistic manifestation in most of the interior decorations of the religious monuments of the province of Minas Gerais. Carried out by superb but anonymous carvers, the designs of that period were transplanted from Portugal, and were characterized by concentric arches, twisted or torso columns, vegetal elements, such as clusters of grapes and grapevines, and the vivid presence of zoomorphic elements, such as the phoenix and pelicans.

Following the "national" period and starting in the 1730s, there arose an attempt to include canopies in altarpieces, which imitated noble court mantles and included Salomonic columns and figures of angels or children in three dimensions, based on the Italian treatises of Andrea Pozzo and Felipe Nazaro. This started out rather timidly but gradually revealed the daring of



Set of sculptures representing the Holy Trinity, which used to be part of the main altarpiece of the Cathedral of Santo Antonio. At present, this set of sculptures is being exhibited at the Museu da Inconfidência, in the city of Ouro Preto.

woodworking specialists. When the Santo Antonio altarpiece was originally constructed, it adopted the Portuguese “Joanino” style, which was very much influenced by the sculptor Gianlorenzo Bernini.

The church's interior ornamentation is one of the most significant decorations of Minas Gerais, in which among other things are outstanding, very beautiful and varied models of polychromed and gilded altarpieces, as well as a superb painting of the chapel ceiling, executed in 1806 by the master painter Manoel da Costa Ataíde.

The main altarpiece was originally elaborated in baroque style and its main design components consisted of a crowning element, an accessible niche for the Host, corbels, fluted columns, and anthropomorphic figures (sculptures of angels and cherubim). Around 1780, decorative elements in the rococo style were added, characterized mainly by rocaill motifs. Originally the altarpiece was crowned by a sculptural group of the Holy Trinity and was of smaller proportions, occupying a less important space within the main chapel.

At the time of its transformation into the rococo style, the altarpiece was enlarged, with the inclusion of a new intermediate shelf, or banquette³ above the altar, and the crowning sculptural group was replaced by a round arch with a central ornamental cartouche. However, the accessible niche with its tiered throne⁴ was kept, as well as the corbels and fluted columns and some anthropomorphic figures. Although some original elements were maintained in its composition, the altarpiece was significantly changed, acquiring characteristics of the rococo style, mainly due to the refined pictorial treatment it received.

Guiding principles

The restoration of the main altarpiece was planned and conceptualized by taking into consideration all of the remaining interior decoration of the



View of the throne of the altarpiece, with its various steps, being restored (above).

Banquette of the main altarpiece (below).

The intervention

church. The present intervention was based on research and historical surveys, which were essential to understanding the distinct periods of style involved, interpreting the superimposed painted and carved decorations, and identifying the changes that had significantly altered the appearance of the altarpiece. With this research and comparative studies, combined with on-site technical and material analyses, the restoration sought to recognize the historical values of the altarpiece, respecting its contributing artists from the eighteenth and nineteenth centuries, without losing sight of the balanced aesthetics of the whole.

The proposed intervention on the main altarpiece was designed to respect and maintain the 1780 transformation, which radically altered the original baroque concept, by impressing upon it elements from the rococo period. The sculptural group of the Holy Trinity is presently on display at the Museu da Inconfidência in Ouro Preto, Minas Gerais, yet at no time was the possibility of reintegrating it considered, which would have given the altarpiece its original crowning. It was concluded that this prior intervention was a fundamental and historic transformation that was part of the natural evolution of this artistic property, and an integrated part of the decorative whole, which had been transformed over time according to new styles as well.

Other general considerations further influenced the intervention approach, such as balancing the sense of completion displayed by the work of art, and considering both historical and artistic values alongside functionality.

These criteria were the starting point of the debates that preceded the restoration of the main altarpiece, always recognizing that the altarpiece was an amply renovated work incorporating two distinct styles that needed to be carefully preserved in this intervention. Another concern was how to integrate collaborative work among a variety of disciplines, from art historians to craftsmen, following the needs of conservation. Still, above all, the implementation of the restoration project was intrinsically related to financial factors, which, as in other cases, determined how encompassing the project would be.

It is important to note that some of the project's preliminary studies were not completely carried out prior to intervention. In some instances it was not possible to conduct chemical analyses of the strata that make up the pictorial layers, or there were difficulties in accessing the structures or the elements that make up the ornamentation. As a result, many analyses were undertaken during the intervention phase itself, depending on the needs of the project, and many of the problems affecting the structural pieces were only fully known at the time of the intervention.

In this context, it was necessary to take advantage of experience gained from previous projects of a similar nature, in order to develop a proposal that would address the complexity of all of the altarpiece's existent problems. In general, we were able to anticipate that the altarpiece, like other wooden structures in Brazil, probably had reached a critical state of conservation considering the challenging environment of this hot and humid region.

Condition assessment and intervention

The study of the structure and modules that make up the main altarpiece of the Cathedral of Santo Antonio initially revealed a good state of conservation. However, after closer observation, the presence of wood-eating insects was found in several areas. There was also found to be water damage between the wooden supporting structure and the anchoring areas on the floor.

The painting and gilding decorations had been subjected to damage due to variations in the environment, and they had also suffered from the spontaneous actions of people throughout the years who had tried to make aesthetic improvements. Believing that they were improving the presentation of the altarpiece, they repainted and added several objects as they saw fit, which has made it harder to interpret the true values of the artwork. It was also necessary to evaluate the different interventions that had occurred over time due to acts of religious devotion.

In the first phase of our work, after all the structures for adequate and safe access to the altarpiece were set up, the cleaning of the altarpiece was begun. First, the inadequate electric wiring in the accessible niche was removed. Nails added over the years by people fastening their religious messages onto the altarpiece were removed. Cleaning was then begun on the wood structure, which had accumulated an excess of debris because of its contact with the masonry. At the same time, dirt that had settled on the polychrome painting and, to a larger degree, on the decorative relief elements, was removed.

The planking of the accessible niche was removed so that its structural elements could be restored or replaced where necessary. On all of the wood, both of the structure and of the pieces that make up the altarpiece itself, an immunizing substance with a piretrine base was applied.

Where the wooden support of the altarpiece was quite deteriorated, i.e. where it was rotten or worm-eaten, it was decided to adequately consolidate or replace the damaged parts of the altarpiece. Complete substitution of the wood took place only in those parts that were of lesser aesthetic importance, such as friezes and ornamental cords. The recuperation of these types of elements was impossible in some situations due to the level of deterioration found, although they were restored whenever possible.

It was evident that many decorative elements had been lost. The carvings that had been stored in the church were put back into their corresponding locations. For those that had been lost, it was decided to make new decorations based on the existing ones, since the lack of these decorations would interfere significantly with the visual reading of the work of art. Also, we had an outstanding carver on the restoration team who could make high-quality reproductions.

In terms of painting, dirt that had accumulated and adhered over the years was noted along with repainting in some areas at the bottom of the accessible niche. There were also significant abrasions in the area next to the electric installations. Peeling and loss of paint and gilding, as well as minor scratches

and the absence of decorative carvings, were seen in practically all parts of the altarpiece.

After fixing the polychromy and gilding, a search was made to locate the places where repainting had occurred, in order to evaluate the state of the underlying painting. With this information, the pictorial treatment was begun, removing the repainting that had been applied over the original, historically and aesthetically more valuable, polychromy.

For aesthetic purposes, a leveling was carried out in the areas where a loss of the original paint was noted, and then a later chromatic reintegration was carried out with the application of watercolor paint by hatching (*tratteggio*). This treatment was applied mainly on the painting of the accessible niche, which was quite stained because of previous inadequate oily protection against wood-eating insects. This technique satisfactorily allowed us to integrate the needed variety of hues. In the specific case of the stains, light hatching was applied on the dark areas so as to neutralize the impact of the stains. Finally, a glossy finish was added to the restored painting to protect it and keep the opaque appearance of the original polychrome painting.

In certain areas where the gilding had been lost, gold leaf was used as a restoring element. Since these areas of loss were very small, the use of gold leaf did not result in the favoring of new materials over the original.

Thus, the main objective of the project was to keep intervention to a minimum, yet restore the physical integrity of the altarpiece and revive its appearance.

GUIDELINES FOR IMPROVED CONSERVATION OF THE ALTARPIECE

Since the maintenance of the church will be under the responsibility of the parish house of the Cathedral of Santo Antonio, a shortlist of recommendations was drawn up so that basic maintenance practices would be applied to the decorative elements, thus ensuring a sustainable conservation of the altarpiece over time:

- Periodically monitor the roof of the cathedral, since rainwater is one of the agents that most commonly causes the deterioration of our cultural heritage.
- Keep the altarpiece away from all sources of heat, such as heaters, stoves, lights, etc. Candles should be used in pre-determined places, away from decorative elements.
- Ultraviolet rays from the sun, as well as intense artificial illumination, bring about the discoloration of pigments and accelerate the ageing of varnishes and other organic materials. If there is natural light on the decorative elements, sun filters should be used on the windowpanes.
- Restrict the use of waxing and other varnishing and polishing products to the floors.
- Look periodically for the presence of residue from wood-eating insects while cleaning.
- Stop using damp cloths on any of the decorative areas.
- The accumulation of dust on the surfaces of the altarpiece is inevitable. To decrease this as much as possible, it is advisable to use vacuum cleaners in the areas next to the decorative elements, but not on them. A light, good-quality duster is recommended for cleaning the dust that accumulates on the altarpiece itself.
- During festivals, avoid filling flower vases with water. Rather, place wet sponges in the bottom of vases to keep flowers hydrated.
- It is recommended that a technician with at least a basic knowledge of art preservation be hired to be in charge of monitoring the monument.

Brazil is a tropical country with a hot and humid climate, whose environment challenges the conservation of wooden works of art. This is why complementary research on altarpiece materials, building techniques, and wood treatment contributes to a better understanding of the material behavior of altarpieces, and therefore contributes to defining appropriate interventions. The techniques, materials and equipment used by the artisans in Minas Gerais during the eighteenth century were practically the same as those used throughout the colony and in Portugal. During most of the eighteenth century and continuing until the beginning of the nineteenth century, sacred art proliferated, involving an infinite number of artists and craftsmen. Professionals who worked with wood were prominent and quite numerous in the province.

These professionals worked in teams, dividing up the specific tasks of each phase of work into an interesting sequence of tasks. After the design of the altarpiece was determined, work would begin with the tracing of the altarpiece in the designated area where it would be built. Throughout the long process, from cutting trees to the final decoration of the altarpiece, very specific tasks have been identified. The woodcutters' duties consisted of the selection and felling of trees, while the carpenters took care of preparing and shaping the wood, as well as the internal and external structure of the altarpiece. Other woodworkers prepared the pieces for joining, some of which were glued and nailed together. Many times these systems for fitting pieces together were at complicated angles, especially in the baroque and rococo altarpieces, in which there is exceptionally profuse decoration. There were also assemblers, who worked exclusively at assembling wood according to sophisticated joining systems, but there has been very little reference to them in Minas Gerais. Finally, the carving work was under the responsibility of artisans who worked with a carver in charge of all such work.

It should be pointed out that through comparative studies it is possible to notice the presence of two or more carvers in a single altarpiece. Many times we can verify different anatomical features of the sculpted figures – whether angels, cherubim or children – distributed throughout the different modules of the altarpiece, and deduce which modules may have been done separately and/or simultaneously by different teams.

The quality and type of wood varied according to use. In the structural parts of the altarpiece, harder woods, such as brauna (*Mealoxilon braunia*), pepper tree (*Ventanea pnaiculata* - *Humiraceas*), and “pau d'arco” (*Tecoma longiflora* - *Bigoniaceas*), predominated. For the carved and more delicate work, softer wood, such as cedar (*Cedrela sp.* - *Meliaceas*), cinnamon (*Nectandra mololis*, *Lauraceas*), and “vinhático” (*plathymenia reticulate*, *Legume*, *Mimos*), among others, were used.

Oral and sometimes written sources have testified to specific processes followed for cutting trees. Although opinions about the best time of year for cutting trees are often contradictory, it is interesting to note that there is a consensus among the older carpenters who are still working in Minas Gerais that wood should be cut during the waning moon. Some add that in order to avoid insect attacks and structural changes, such as warping and longitudinal cracks, cutting should also take place in months without the letter “r”, i.e. May, June, July, and August in Portuguese. Seasons in Brazil are not as separable as

Key results of the research

they are in Europe, as there are essentially just two distinct periods: the rainy season and the dry season. The dry season encompasses those months mentioned above. It was not possible to find a scientific explanation for the preference for the waning moon, but it is interesting to note that this is also the phase of the moon in which farmers plant crops in order to avoid problems with insect attacks.

After the trees were cut, the tree trunks were hewn into large planks, slabs, or boards, which were conditioned to dry using a process called wedging, which consists of placing the pieces on top of each other, always in the shade, with small slats between them to allow for ventilation. A more sophisticated procedure involved submerging a tree trunk in water once its bark was removed. This allows the sap to be dissolved and replaced by water, which then evaporates when the wood is duly conditioned for drying. It is important to note that the wood for altarpieces was obtained from specific locations known to the workers, locations where the wood was also dried and cut, as can be seen in the inventory document of Manoel Francisco de Araujo, which dates to 1799⁵:

“Wood cut for the altars of the Carmo (i.e. the Church of Our Lady of Carmo in Ouro Preto), at the mill in the woods of Captain Bento Alves Viana in the district of Milagres:

- 13 large wooden planks having a length of 20 palms each
- 28 pieces of wood already selected for use in predetermined locations in the altars
- 1 piece of wood for the corbels of the same altars, measuring 20 palms in length
- 6 planks of 20 palms each
- 22 square cuts (which is a rough hewn log with four rectangular sides)
- Logs sawed off a trunk
- Payment for the bill for the roads and transportation to take them to where they are at the mill...”

There was some variety in the tools used. Handsaws were used for cutting, while mallets were used for percussion. Various types of chisel gouges and burins were used for carving. Axes, adzes and planing tools were used to even out the wood, and there were augers and drills for making holes. For finishing the wood, there were rasps, files, pumice stones, and sandpaper. The sandpaper generally came from a kind of shark similar to the dogfish, whose skin becomes very tough when dry. Sandpaper could also be made by gluing sand onto paper, and imbauba leaves were used as fine sandpaper. Aside from the tools themselves, the workers used some measuring and checking instruments for tracings and markings, such as measuring tapes, rulers, T-squares and marking gauges.

Certain equipment was important when assembling the altarpieces, such as crowbars, cords made out of plant products, and pulleys made of wood or cast iron, which made it much easier to transport large pieces such as columns or

even sculptures, to higher levels. In regard to the tools that were specifically for carving, it is interesting to note that they were made by hand, and the woodworker together with the blacksmith could adjust them to the specific kind of carving that was desired.

Finally, a kind of molding machine existed for making sets of moldings, friezes and ornamental cords, which are very repetitive elements present in almost all styles of altarpieces. Manoel Francisco de Araujo's inventory⁶ lists some interesting equipment among his property, such as a "torno com roda e bigorna e dez sepos de correr molduras com os seus ferros em cavados." We have deduced that this item consisted of concave pieces of metal, shaped to produce the traditional convex cuts typical of moldings, which must have been joined with some type of machine that was run manually with wheels or foot pedals. The "sepos" were planes of different widths.

As for the painting and gilding which complemented the carvings and sculptures, it is important to realize that the sculptors and carvers did not paint or gild their own works. This was the responsibility of the specialized painters and gilders of the images. Most of the altarpieces made in Minas Gerais in the 1700s, as well as the sculptures produced in that period, were painted some years after they were made, as was the case with the Passos de Congonhas by Aleijadinho. Innumerable documents attest to the space of time between when the carving was done and when it was painted⁷. It is interesting to note the item "washing the clay" (which covered all the carved wood) on the list of services presented by the painter Ataide. This information leads us to the conclusion that as soon as the carvers finished many of these altarpieces, depending on the financial situation of the brotherhood, they were painted with white clay or even gesso so as to protect them from the environment so that they could be used for religious purposes before the final paint was applied.

In Santa Barbara, the presence of Ataide's work is proven through documentation only in regard to the painting of the border of the main chapel. However, comparative analyses indicate that it is likely he was involved in other decoration, suggested by the anatomy of the angels, the palette of colors and the refined resolution of the design of the ornamentation in the painting of the accessible niche, as seen in its curtains and lambrequins^{8,9}.



View of the panel painting at the back of the accessible niche of the main altarpiece, decorated with lambrequins.

Conclusion

Two great moments in the history of art created in Minas Gerais during the eighteenth century are illustrated in the main altarpiece of the Cathedral of Santo Antonio. The transformation of part of the original design of altarpiece through the addition of new decorative elements evidences the transition from the classical baroque to the rococo style, while reflecting the aesthetically dynamic nature of art. Rococo was the great novelty that would become established in the most important monuments of the province at that time, which were being built or rebuilt simultaneously in various regions of Minas Gerais and which were called “novos templos” (new churches) by contemporary writers. Thus, this altarpiece represents the expression of new artistic models within a historical context of intense cultural change in the province of Minas Gerais, and these characteristics of style are of unique importance in the study of the evolution of baroque art in Brazil.

The work carried out in Santa Barbara has also provided an opportunity to collect and develop information to the benefit of both art history and conservation, as well as promoting a model for conceptualizing and defining conservation and intervention.

Acknowledgments

The photographs reproduced here were taken by Rosangela Reis Costa, of Grupo Oficina de Restauro, whom, together with members of the ASASB and of the community of Santa Barbara in general, we want to thank for their willingness to provide any information necessary for carrying out this study.

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Photographic credits

Rosangela Reis Costa

Notes

1. This work was developed together with restorer Vania Rosa Parreira, from the Superintendência de Conservação e Restauração de Elementos Artísticos do Instituto Estadual do Patrimônio Histórico e Artístico de Minas Gerais (Office of Conservation and Restoration of Artistic Elements of the State Institute of the Historic and Artistic Heritage of Minas Gerais, IEPHA/MG).
2. Several Brazilian and international specialists attribute the maturity and richness of carving in Minas Gerais to Francisco Xavier de Brito, who together with Manoel de Brito created the six-sided altars of the Church of the Third Order of St. Francis of Penitence, in Rio de Janeiro. Another renowned later work, dated from 1746, is the interior decoration of the main chapel of the Church of Our Lady of the Pillar in Ouro Preto, where he introduced very prominent figures, following the new trend that began in Lisbon, Portugal, in the third decade of the eighteenth century.
3. A banquette is “the first step above the altar table, where the candlesticks with wax candles are placed, with the cross in the center” (from ÁVILA, Afonso, MACHADO GONTIJO, João Marcos, and GUEDES MACHADO, Reinaldo: *Barroco Mineiro - Glossário de Arquitetura e Ornamentação*. 3rd edition. Belo Horizonte: Fundação João Pinheiro, 1996; see also the introductory essay by Afonso Ávila).
4. A throne is “a kind of pedestal placed in the open space of the pulpit or accessible niche of an altar, where images or crucifixes are exhibited. In the churches in Minas Gerais of the eighteenth century, the throne is often in the form of a jar or steps” (from ÁVILA, Afonso, MACHADO GONTIJO, João Marcos, and GUEDES MACHADO, Reinaldo: *Barroco Mineiro - Glossário de Arquitetura e Ornamentação*. 3rd edition. Belo Horizonte: Fundação João Pinheiro, 1996; see also the introductory essay by Afonso Ávila).
5. Copied from Ivo Porto de Menezes in the *Revista del Patrimônio Histórico e Artístico Nacional*, issue no. 18.
6. Published by Ivo Porto de Menezes in the *Revista del Patrimônio Histórico e Artístico Nacional*, issue no. 18.
7. For example, the interior ornamentation of the Church of Our Lady of the Rosary in Mariana was begun in 1770 and finished in 1775 by Servas, yet it was painted 48 years later, in 1823 by Manoel da Costa Ataíde, a painter from Mariana.
8. See RAMOS, Adriano Reis: *Francisco Vieira Servas e o Ofício da Escultura na Capitania das Minas do Ouro* (Belo Horizonte: Ed. Instituto Cultural Flavio Gutierrez, 2002), especially the chapter referring to the techniques and materials used in making works of art.
9. Lambrequins are “wood trim or metallic sheet trim for the edges of coverings or overhangs in carved work with canopies, valences or altarpiece canopies. Sometimes they are also called 'sinhaninhas.' It is thought that they were first used in Minas Gerais during the second half of the nineteenth century” (from ÁVILA, Afonso, MACHADO GONTIJO, João Marcos, and GUEDES MACHADO, Reinaldo: *Barroco Mineiro - Glossário de Arquitetura e Ornamentação*. 3rd edition. Belo Horizonte: Fundação João Pinheiro, 1996; see also the introductory essay by Afonso Ávila).

Main altarpiece of the Church of the Conception, Bogotá, Colombia

Héctor Oswaldo Prieto Gordillo

66



Name of the work of art: Main altarpiece of the Church of the Conception
Location: Presbytery, Church of the Conception, Bogotá, Colombia
Owner/responsible party: Order of the Capuchin Monks
Authored by/attribution to: Anonymous
Chronology: Eighteenth-century altarpiece with modern sculptures
Style: Baroque, rococo, and neoclassical
Dimensions: 10 m x 9 m x 1.50 m (height x width x depth)

Typology: Altarpiece and sculptures
Materials and techniques: Carved, gilded, and polychromed wood
Date and duration of the studies/intervention: September 2000 to April 2001
Profile of the study/intervention team: Two restorers, one photographer, one chemist and one historian

Over the past few decades, the Colombian government, under its respective Ministry of Culture and with certain financial entities, has undertaken the task of raising awareness of the country's heritage, so that Colombia's movable and immovable cultural property will be respected and safeguarded. The private institutions and religious orders that own these cultural legacies have followed this example in turn.

In recent years, the Order of the Capuchin Monks has embarked upon an effort to restore and safeguard all of its heritage property.

This heritage restoration work concluded with an intervention on the main altarpiece of the Church of the Conception. For this purpose, a series of guidelines were developed from the point of view of both material and methodological needs. The restoration's goal was to enhance the presentation of the altarpiece, with the sole purpose of having it acknowledged and conserved by the public in general and by future generations.

The project involved an interdisciplinary group of professionals, who undertook the task of analyzing, studying and defining the methodology and processes best suited to working on this cultural object. As a result of this effort, today the main altarpiece, as well as the church and the other works of arts housed there, are respected and acknowledged by churchgoers and other visitors.

The Order of the Conception of the Virgin Mary was founded by St Beatriz de Silva (1424-1490). It belongs to the Franciscan branch, although during the period in which it was organized it took on special characteristics. Founded in the Spanish city of Toledo in 1484, it was a contemplative order with a special devotion to the Most Holy Virgin Mary, dedicated to the Immaculate Conception. Pope Alexander VI granted it preliminary approval as a religious order in April 1489, and Julius II granted its definitive approval in September 1511, which placed the order under the jurisdiction of the Franciscans. Pope Julius II also approved the special constitutions, which are based on those of the Clarisan nuns.

Historical context

The Order of the Conception of the Virgin Mary was very well received both in Europe and in the Americas, to such an extent that, by the sixteenth century, fifteen monasteries had been constructed, located in Mexico, Guatemala, Colombia, Ecuador, Peru and Bolivia. The first foundations of the Conception of the Virgin Mary cloisters were entrusted to highly prominent members of the local aristocracy.

For the city of Santa Fe de Bogotá, this church was the first one for nuns. It was built at the initiative of businessmen Luis López Ortiz and Cristóbal Rodríguez Cano. Their objective was to make it available for the daughters and granddaughters of the conquistadors, dedicated to the adoration of the Conception of Our Lady, the Virgin Mary.

The construction of the church and convent was entrusted to two brothers, Domingo and Jorge Moreno, and to a carpenter, Juan Sánchez García. The work began in 1583 and concluded on September 29, 1595, at which time convent life began for its first three nuns, named Catalina de Céspedes, Úrsula and Isabel Villagómez. In order to teach them about their life at the convent, the founder of the convent of the Clarisas in Tunja, Sister Juana de la Cruz, arrived in November 1595, along with her Mother Superior's deputy, Sister Ana de la Cruz. The first three novices took their vows on the eve of the festival of the Eleven Thousand Virgins in the following year, 1596, received by Vicar General Don Francisco Guerrero. Sister Juana de la Cruz and her companion returned to their monastery in 1599, and the Reverend Mother Catalina de Jesús was selected as the first abbess.

The single nave church has a semi-vaulted ceiling adorned with ornamentations in the plateresque style, originally imported from Seville to decorate the Tocaima residence of Spaniard Juan Díaz. That home was destroyed in 1581 by a flooding of the Bogotá River, but part of the ornamentation was rescued and later donated to the church.

In 1862, General Tomas Cipriano de Mosquera enacted the Law for the Seizure of Property in Dead Hands, which expelled and evicted all religious orders



General view of the transverse arch and the main altarpiece in the Church of the Conception.

from the country and confiscated their property. All of that property was handed over to be administered by the Office of the Archbishop and to certain private parties.

In 1905 the Archbishop of Santa Fe de Bogotá, Bernardo Restrepo, assigned the custody of the Church of the Conception to the Capuchin monks, and on September 10, 1948, the nuns of the Conception of the Virgin Mary sold the church to the Capuchin monks.

The main altarpiece of the Church of the Conception is formed by two horizontal and three vertical registers. The design components of these registers will be detailed in this section.

The lower base of the altarpiece is built in lime and stone masonry. It employs a colonial red paint and its shape is semi-cylindrical, similar to that observed in the predella. The predella uses a variety of forms, such as concave, convex and semi-cylindrical, and has appliqués of gilded and carved plant motifs.

The first horizontal register has two side vertical registers, flanked by smooth shafted columns with Corinthian capitals and wooden appliqués in plant motifs. The four columns have a special characteristic, since they are hollow and assembled using wooden slats placed vertically. Between each set of columns is a protruding canopy, each with a set of curtains. Garlands hang from each canopy as well. All these features are carved from wood and decorated in tones of light yellow and red. These elements stand out against the entablature, which is painted in yellow.

The niche on the right side of the altarpiece houses the sculpture of San Antonio de Padua. This sculpture is placed on a carved corbel shelf with rocaille ornamentation in shades of yellowish-white against a blue background. In the niche on the left side is the sculpture of San Pascual Bailón, which is placed on a similar shelf. Two pilasters covered by appliqués with floral forms and motifs flank the central or main niche. The frieze is bluish in hue, while the cornice is partially gilded, and partially painted in white.

The second horizontal register has two pilasters whose characteristics are similar to those described above, which flank the central niche. The lateral niches are flanked by carved appliqués in vegetal motifs, with gilded canopies located in their central area. The scallop shell is red and blue in hue, with sparkling rays of light. The two niches are occupied by the sculptures of San Félix de Cantalicio (with the Christ Child in his arms) and San Conrado de Parzam.

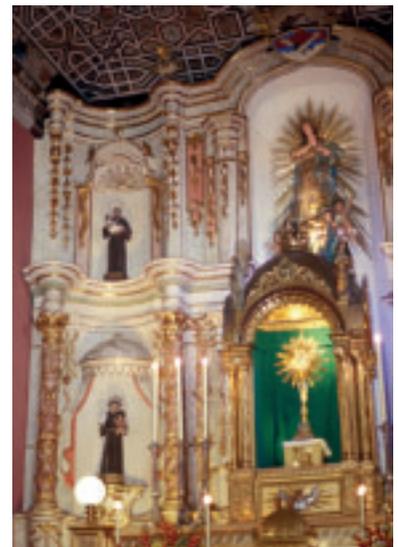
The altar is crowned with a broken pediment bearing the representation of the Eternal Father, which has carved clouds with well-preserved silver leaf decoration.

In front of the main altarpiece is the exhibitor (or expositorio). Father Joaquín de Albocacer, who is now beatified, acquired this work in 1932. The exhibitor was moved to its current location in 1933 and was entrusted to Valencian

Description and significance of the main altarpiece

69

Detail of the central and side vertical registers, with the exhibitor in front of the altarpiece.



sculptor Jaime Mulet. Its decoration is based on a series of carvings elaborated in pine, representing the scenes of the Last Supper by Joanes flanked by the four Evangelists. To the right of the exhibitor are St. Matthew and St. Luke, framed by columns that form niches. To the left are St. John and St. Mark. Crowning the sides of the exhibitor are the shield of the Capuchin Province of Valencia and the shield of the Founding Bishop.

The exhibitor rests upon eight columns that support the arches and cupola. Above the main arch, the shield of the Republic of Colombia is carved, while four angels appear on the sides. The ones in the front are carrying grapes and ears of grain. Another carries a chalice and the final one is in a praying stance. The final touch is a royal crown.

The main altarpiece of the Church of the Conception has a historic value within the community of Bogotá, because it is the city's only remaining gilded and polychromed altarpiece from the colonial period. Its construction, materials and decorative techniques unusual in New Granada are unique examples that document the building of altarpieces. Its aesthetic characteristics and type of carving relate harmoniously to the current ceiling adornments.

The decorative whole formed by the main altarpiece, ceiling work, mural painting and other movable objects that constitute the collection of the Capuchin Order conserves a record for the Bogotá community from one generation to another. Having undergone changes and transformations, this monument bears witness to a living past that has left its mark on society.

Origin and objectives of the project

Government policy on the conservation and restoration of movable and immovable heritage over the past years has raised awareness around the need to restore the cultural heritage of Colombia. As such, in 1988, the Fundación para la Conservación y Restauración del Patrimonio Cultural Colombiano (Foundation for the Conservation and Restoration of Colombian Cultural Heritage) of the Bank of the Republic, together with the Order of the Capuchin Monks, undertook the task of intervening on the church and certain works of art. All interventions were framed on one hand by the collection and systematization of information about all the works of art forming the collection of the Capuchin Order for future use, and on the other hand by the creation of a small museum.

Once the building's restoration was complete, the Capuchin Order, under the direction of its Provincial, embarked upon the task of recovering and restoring any and all works of art whose state of conservation was inadequate. Specialized personnel and funds were procured for the task but this was also carried out with the assistance of the public in general and with the Order's own funds.

The selection of the San Agustín Restoration Workshop's personnel to carry out the work on the main altarpiece depended in large measure on the fact that in previous years, that workshop had carried out the intervention on the ceiling adornments and mural painting.

The first phase of the project, prior to the preliminary studies and the intervention on the main altarpiece, consisted of a meeting between the specialized personnel in charge of the intervention and representatives of the Capuchin Order, such as its Provincial, treasurer and historian. At the meeting, the fundamental objective put forth was the need to intervene on the main altarpiece, bearing in mind its aesthetic and historic characteristics, its importance in the community, the possible impact on the community (in the event of a significant change), the stability of its original constitutive materials, and the need to recover those materials.

The intervention and methodology to be applied during the intervention on the altarpiece was proposed following the directives, principles and guidelines used during previous interventions in the church, in order to achieve a similar, homogeneous aesthetic appearance among the objects that form the church's collection of art.

The second phase of the project consisted of analysis and direct observation of the altarpiece, to determine its outstanding features, current state of conservation and indications of alterations.

As we began to face the issues of the intervention phase, we continued with an exhaustive search for bibliographic materials, starting with the historic archives of the community. Interviews were conducted with historians (including the Order's historian), churchgoers and other persons with some form of connection to the church, who have observed and are familiar with its transformation over the past decades.

At the same time, the Provincial of the Capuchin Order did whatever was needed to obtain funding. Most of the funds came from the Order itself, while the rest were acquired through donations and churchgoers' charity contributions. For this purpose, the parish priests carried out a campaign during the masses, describing the urgent need to intervene upon the altarpiece, and explaining that this work would take a long time to finish and would require fairly extensive funding to accomplish. The community was also informed in general terms of the professional characteristics of the personnel who would be involved in the conservation work, the importance of the restoration and the significance of the altarpiece over time. The community was encouraged to respect a work of art of such importance and was informed of potential visible changes that the altarpiece might undergo.

Continuing with the analysis of the work's needs, an interdisciplinary group was formed, with restorers, a historian, a chemist and a photographer. Each of the group's participants conducted research (technical, historic, and aesthetic), upon which to later propose a comprehensive intervention project.

The fundamental objectives proposed were to restore the main altarpiece from a structural, historic, and aesthetic point of view. In that way, it would be preserved for future generations as one of the few examples (and perhaps the only example) of polychromed altarpieces from the colonial era in Colombia.

Development of the proposal and preliminary studies

Still the altarpiece and its context in general were respected, and harmony was sought between prior interventions and this new one, so that the altarpiece would be seen as heritage with a historical trajectory, and would be valued by the population as a whole.

Before conducting any intervention work, the restoration was contemplated from two well-defined and closely interrelated standpoints. The first corresponded to methodology and therefore required a critical approach. It basically involved values, reflections, analyses and concepts that made it possible to implement and carry out the proposals. The second was related to operational efforts, in terms of how we would intervene from a material point of view.

Bearing in mind the above-mentioned proposals, we decided to follow the methodological phases described below, which sought a detailed approach to understanding the altarpiece.

General review of the community's historic archives and bibliography

Unfortunately the results obtained were not very useful, due to a series of factors, such as the loss of a high percentage of accounts books and books of baptisms, due to fires and evictions undergone by the community.

Search for old illustrations and photographs of the altarpiece, convent and church

The only document found corresponds to a photograph from the early twentieth century, which shows the state of the altarpiece before the addition of the temple-shaped niche, exhibitor and sculpture of the Immaculate Conception.

Historic and aesthetic analysis of the altarpiece

This study was conducted as part of the preliminary analyses. Its results documented the changes and additions to the altarpiece from an aesthetic and structural point of view over different time periods.

Analysis of mutilations to the altarpiece

After observing the photographic evidence, which shows the altarpiece in its original state, it was concluded that the mutilated sectors include the central vertical register of the first and second horizontal registers, as well as the edges on both the left and right sides of the first and second horizontal registers.

Analysis of the system anchoring the altarpiece to the wall

During analysis of the support materials, it was possible to verify the good state of conservation of the wood, despite the passage of time and the additions made to it.

Analysis of the original materials and of materials from prior interventions

This made it possible to determine that the wood originally used was cedar, but the wood used during the interventions was yellow Comino Real wood. Likewise, it was determined that the original pigments were earth-mineral pigments, as well as plant pigments, while those used during the intervention were vinyl or oil paints.

Stratigraphic study and analysis (probe)

Through a direct study of the paint layers, corroborated in the chemistry laboratory using stratigraphic and pigment analyses, it was possible to conclusively determine the characteristics of the materials used in prior interventions.

Temperature and humidity analysis

Based on the experience of a chemical engineer, a series of readings were taken, and fluctuations in temperature and humidity were noted. These readings were taken for approximately two months, 24 hours a day.

Paint sampling

Since the documentary, graphic and photographic research did not prove very useful, we decided to focus our efforts on a scientific process applied directly to the object of study. We took a series of samples mechanically and with the aid of several solvents. We hoped that this study would give us a chronological overview of decorative changes, additions and mutilations to the altarpiece at a structural level.

The results obtained were quite satisfactory. Through them, it was possible to determine changes in the polychromy, starting with the oldest layer, that is, the original paint layer, up to the most recent layer of paint applied to the altarpiece. Once we had thoroughly studied the work and its prior interventions, we decided to conduct further scientific analyses to determine the nature and composition of each of the layers, and thereby select the methods and materials that would be most effective for removing those layers.

Our preliminary studies provided many important details about the main altarpiece, its material composition and building system, as well as information on prior interventions. First of all, the original altarpiece is built of cedar wood of excellent quality. Dovetail joints, reinforced with animal glue, attach its smooth surfaces to one another. Over these pieces is a series of appliqués or carvings, also made from cedar wood.

The joining of the entablatures and the columns is accomplished using a mortise-and-tenon system; all of the mortises and tenons are round. The characte-

State of conservation and previous interventions on the altarpiece

istics of the columns are important to highlight, since even though they correspond to the era when the altarpiece was built, they use a construction system that was uncommon at the time in New Granada. All are hollow and employ a series of small splints glued and joined to form the excellent finished surface for these columns.

The altarpiece has been altered since its original construction, in ways that have affected its aesthetics and structure in general. The most extreme alterations can be observed at the sides of the work of art, where one can see a series of cuts that interrupt the continuity of the friezes, moldings and entablature. In these areas the cuts were made at 45° angles. The pieces fit together in a defective manner and the parts do not match up. There are also some mutilated carved elements that do not correspond to the position in which they are currently found. This shows that the altarpiece had been larger and probably was created for another church. For some reason yet unknown, it was eventually transferred to the presbytery of the Church of the Conception. There are unfortunately few or no documents regarding the altarpiece's origin, creation or possible transfer.

As of the date of the intervention, the wooden structure of the altarpiece showed no signs of xylophagous insect infestation, despite the environmental conditions to which it had been subjected over long periods of time. We only noted an accumulation of dirt on the reverse of the altarpiece due to a lack of maintenance, as well as bird droppings from the pigeons that sometimes nested there. There was also accumulation and residues of cement and bricks left over from previous repairs to the church wall.

Certain sectors of the wood support did have minor infestations of xylophagous insects, although it was determined that the infected wood corresponded to recent interventions, which used a poor quality, yellow-wood, that had not been previously treated and disinfected.

The original design of the altarpiece has also undergone a series of radical interventions. We have noted, for instance, changes and additions made to the first horizontal register, eliminating the altar table and the sanctuary, and closing the opening that led to the accessible niche where the Virgin is housed. These modifications were made in 1933, when the exhibitor was added to the altarpiece.

Another intervention consisted of the mutilation of a large part of the structure located in the central vertical register, the sole purpose of which was to make room for the sculpture of the Immaculate Conception. In this sector, the central part of the entablature was eliminated, along with the carved arch that framed the central niche of the lower register. In fact, the central niches on both the lower and upper registers were modified. As a result of this intervention, several original carvings and appliques were removed and have now disappeared.

Upon analyzing the paint layers, it was determined that the base preparation layer was a mixture of calcium sulfate with a binding medium of animal glue, whose function was to protect and coat the wood, as well as to achieve a completely smooth appearance on the original surface. The surface was polished in order to give it a marbled look.

The original paint layer was based on plant pigments and earth-mineral pigments typically found in the area surrounding the city of Bogotá. Its hue is a bone white used as the background or base of the decoration, over which one finds various shades of blue and red, creating the marbled appearance. This evidences the lack of resources with which the artists of the times had to work, since they had to go out constantly to find and prepare their own materials.

The interventions or repainting on top of the original surface consist of a series of layers of vinyl and oil paints. A light yellow hue covers a large percentage of the altarpiece's surface; the columns are painted over with a light green oil paint. The frieze panels are painted over with a blue vinyl paint, and finally vinyl blues and reds were used for the lower base of the altarpiece along with green enamel.

The gilding suffered losses and partial abrasions, exposing the support in some sectors. On the rest of the surface, repainting of gilded paint or mosaic gold covers a large part of the gold leaf. The aesthetic appearance of this layer has degraded over time, leaving a surface that is now a dark greenish color, devoid of any shine or brilliance.

The assembly that corresponds to the temple-shaped niche and its carvings is made of pine. Its geometric design and decoration are based on sgraffitos and estofado techniques, and there is a carving of the Last Supper and two shields. The niche's state of conservation is acceptable, with the exception of slight damage caused by moisture from flower vases constantly placed in this area. The water that collects there has caused a separation of the base preparation layer, the gold leaf and the paint layer.

We also found a serious problem with the electrical wiring. The wires were exposed, with no type of protection such as PVC tubes or other strong covering. We found wires in poor condition deteriorated by the passage of time, at a high risk of short-circuiting, which could cause a major fire.

Graphic and photographic documentation was made of the current condition of the altarpiece, so as to leave a record of the interventions conducted over time.

Before removing the repainting, it was necessary to evaluate the results obtained by the personnel involved in the work thus far. First, through an analysis and comparison with other churches of Bogotá from the same era, we originally thought the altarpiece was gilded in its totality, yet it turned out to be polychromed, with a marbled appearance. Based on the aesthetic characteristics of the altarpiece's polychromy and its acceptable state of conservation, it was concluded that the change in the decoration was either due to the personal taste of a parish priest, or what was in style at the time, or perhaps the novelty of the materials.

The altarpiece's anchoring system to the wall was in good condition. Furthermore, there were no structural faults, for which reason it was decided not to disassemble the altarpiece, and to perform the work on site.



Detail of the central niche.

Proposed intervention tasks



Detail of the polychromed columns of the altarpiece.

Implementation of the proposed intervention

Analyzing the photography from the 1930s, one can see that the temple-shaped niche and exhibitor were added on and that a few years later the central vertical register on both the first and second horizontal registers were mutilated so that the sculpture of the Immaculate Conception would fit. At the request of representatives of the order and out of respect for the community's views, as well as for the sake of convenience, it was decided not to eliminate the interventions, since they now form an integral part of the work as evidence of the historic past of the altarpiece. Furthermore, any reconstruction of the entablature would necessitate the removal of the sculpture of the church's patron saint from its current site.

Comparative scientific analyses and examinations of the stratigraphic probes revealed that the prior interventions consisted of the application of a thick layer of oil paint in blue, red and cream tones, under which the original paint layer could be found. For that reason, solvents were tested to determine the optimal, most efficient means and mechanisms to remove that layer, without causing any type of damage to the original paint surface.

Once the repainting was removed, it was decided to eliminate the structural additions, since they were not only newly added, but were horrendous in quality, were in poor condition and infested with xylophagous insects, resulting in a visual and structural deterioration.

The structural gaps resulting from the removal of these additions were small in size in proportion to the altarpiece's total surface and were not carved. Therefore these smooth surfaces located at the sides were replaced with pre-treated cedar wood.

Likewise, bearing in mind the guidelines mentioned above and clear evidence that polychromy had been located there, it was decided to replace both the base preparation layer and the paint layer in those areas in such a way that it would be possible to distinguish, from a prudent distance, between the original paint layer and the restorer's intervention.

During the implementation phase, an analysis was made of the best processes to apply and the methodology for doing so. Based on previous analyses, which evidenced that a high percentage of the original paint could be rescued and intervened upon, the totality of the repainting was removed. During this phase, graphic and photographic documentation recorded the level of intervention on the base preparation and paint layers.

The next step consisted of the operational phases of conserving and restoring the various layers of the original polychromy, in keeping with the basic guideline of ensuring a homogenous, harmonious aesthetic appearance for the main altarpiece. A factor that predominated in decision-making for the cleaning process was the possible effect of the main altarpiece's new aesthetic appearance in the eyes of the churchgoers. To counteract this impact, the parish priests and specialized personnel called the churchgoers together to explain the intervention processes and go over the guidelines for the work.

Churchgoers who visit the Church of the Conception on a daily basis actively participated during the implementation of the intervention works, and were kept up to date on changes to the polychromy. Some of them took enough interest to ask questions and become familiar with the true value of conserving and safeguarding Colombia's cultural heritage.

The methodological process had to be broken down into two phases, given the type of tasks involved (the first phase covered the work prior to eliminating the repainting and the second covered the work thereafter).

At the request of the monks of the Capuchin Order, a new carving of the shield of the order was placed in the upper part of the altarpiece, based on a perspective of religiosity and that Order's identification within the Colombian social and cultural context.

Results and general evaluation of the project

Acknowledgments

Financing: Order of the Capuchin Monks

Provincial: Brother Luis Eduardo Rubiano

Guardian: Brother Egidio Henao

Historian: Brother Ernesto Jaramillo

Work Team of the San Agustín Restoration Workshop

Restorer/Director: Rodolfo Vallin Magaña

Restorers: Héctor Oswaldo Prieto Gordillo, Jairo Humberto Mora Contreras, Ariel Figueroa Cuadro, Vicente Rivera Rodríguez

Chemist: Javier Uribe

Photographs: Ernesto Monsalve Pino, Jairo Humberto Mora Contreras

Historic research: Jairo Humberto Mora Contreras

Photographic credits

Héctor Oswaldo Prieto Gordillo

Altarpiece of San José, Tubará, Colombia

78

Eugenia Serpa Isaza



Name of the work of art: Altarpiece of San José
Location: Church of San José de Tubará, Department of Atlántico, Colombia
Owner/responsible party: Religious Community and Reconstruction Council of the church
Authored by/attribution to: Anonymous
Chronology: Eighteenth century
Style: Baroque
Dimensions: 4.00 m x 3.12 m x 0.85 m (height x width x depth)
Typology: Altarpiece and sculptures

Materials and techniques: Carved wood, with gilding, polychromy and flesh tones

Date and duration of the studies/intervention: Studies from March 1 to July 17, 2000, followed by the intervention from March 13 to June 22, 2001

Profile of the study/intervention team: Studies: three movable object restorers, one chemist, one biologist, one architect, one historian and one photographer. Intervention: five movable object restorers, one architect, one restorer, one carver, one carpenter, two gilders, one assistant and one photographer

The altarpiece of San José, located in the northern Colombian town of Tubará, is characterized by the use of estipite columns, typical of the baroque style in that coastal region.

Tubará was an indigenous town with a current population of less than three thousand inhabitants. The townspeople have been deeply involved in the conservation of the altarpiece, whether by initiating the conservation process or participating in the intervention. By their efforts, the townspeople have evidenced their interest in cultural heritage and their sense of ownership of this heritage, which has provided a model for the safeguarding of cultural heritage in the region.

The process currently managed by the Ministry of Culture is structured in two main phases, the studies and the intervention itself. This practice aims to ensure a proper diagnosis and the preparation of accurate budgets, allowing for better and more extensive use of funds invested in the country's heritage.

The conservation and restoration work conducted on the altarpiece of San José de Tubará recovered design components and aesthetic aspects formerly hidden under repainting. As a result, the intervention has restored the altarpiece's original values and authenticity.

The municipality of Tubará is located in the northern coastal region of Colombia, in the southwestern portion of the Department of Atlántico, at an elevation of 275 meters above sea level. Its average temperature is 27.6 degrees Centigrade. The municipality of Tubará experiences a typical tropical hot and humid climate, which is defined by two main seasons, the dry season and the rainy season, with precipitation almost exclusively in the form of rainfall.

There are few descriptions of the town from the era of the arrival of the Spaniards and their occupation of the territory, although some refer to the town as an organizational center¹. Under the Spanish regime, Tubará belonged to the District of Tierradentro of the province of Cartagena, consisting of 14

Physical and historical context

parishes and five indigenous towns, among them Tubará. By 1540 Tubará was one of the largest encomiendas². Each encomendero was responsible for entrusting his respective indigenous town to a monk, brother or priest who would teach the doctrine of the Catholic faith and build a church, since Catholic doctrine was the Crown's strategy for catechizing the indigenous people. The impact of this institution is evidenced by the fact that even after the encomienda system was abolished, the teaching of Catholic doctrine continued.

According to José Agustín Blanco, during the time between the founding of Cartagena de Indias (1533) and the subjugation of the town of Tubará (1540) to the encomienda system, there was great chaos in the administration of indigenous towns throughout the province of Cartagena. This was a period of domination and pillage on the part of the Spaniards, with resistance and sometimes flight on the part of the indigenous people. It was for that reason that the Crown sent a Royal Decree to Bishop Jerónimo de Loaysa, through the governor of Santa Cruz, to place the indigenous people under the encomienda system³.

In the first quarter of the eighteenth century, the economic dysfunction of the encomienda system reached a low point, and Felipe V decided to eliminate that form of administering tribute. The encomiendas in what is now the Department of Atlántico were legally abolished in 1721.

The Dominicans governed the parishes in Cartagena beginning with the founding of the Convent of San José of Cartagena in 1539, whose first prior was Father José de Robles. The convent was dedicated to San José, and the name San José de Tubará probably comes from the Dominican convent. In fact, the Dominican order had a pattern of naming parishes after their respective convents. From 1539 to 1772 the Dominicans managed the church. Since then, the diocese directly administered it. In 1886 the Trial Court Judge of Barranquilla declared that the lands of the reserve of Tubará were vacant, and its lands were sold at a public auction.

The church of San José de Tubará

The first indications of a doctrinal church in Tubará are associated with the times when San Luis Beltrán was in charge of the Christianization effort from 1562 and 1569. It appears that the doctrinal priest of Cipacua and Luis Beltrán decided to build a chapel approximately equidistant from the two towns to facilitate the teaching of the doctrine. According to Blanco Barros, this church is considered to be distinct from the churches of the two towns⁴.

Thus, three different churches have been noted in total. The first, shared by Luis Beltrán and the priest of Cipacua, was called Ermita de San Luis Beltrán, which some people have confused with the church of the cemetery of Tubará. The second is the church of the town of Tubará, and the third is the church of Venta de los Zambos de Nuestra Señora de Buenavista. According to Blanco Barrios, Venta de los Zambos is not documented, and there are no extant remains of that church.

The first detailed records of the church of Tubará date back to 1610. Two doc-

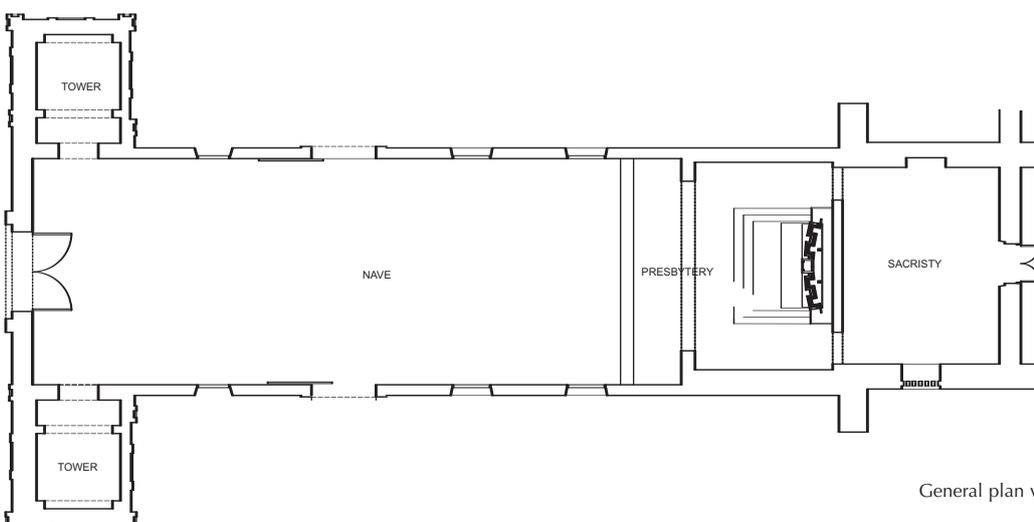
uments exist, but they seem ambiguous. Both clearly indicate the presence of two churches, but it is not clear which is Tubará and which was built by the two priests, and whether either is the one existing today. From 1611 to 1772, there is a gap in documentation on the church. In 1898, José María Revollo, parish priest of the church of Tubará, made reference to the construction of a new building.

The current church of Tubará has features that are characteristic of minor churches built in small towns in the late seventeenth century. It has a single nave, with a transverse arch and a presbytery. There are two large access doors on the sides of the building, and a main door at the far end of the church. The church is located on a small hill overlooking much of the town of Tubará. Religious services take place at the church.

There is an inventory of the church's ornamentation and furnishings from 1610, but no references have been found corresponding to the eighteenth century, which is when the church may have been enhanced with other images and decorations. The altarpiece of San José probably dates to that period, though there is no precise information on how it was acquired or how it arrived in this town.

Even though the date of the altarpiece's arrival in Tubará cannot be pinpointed, its presence and similarity to other altarpieces in the region evidence this art form's traditional constructive and ornamental typologies, as well as a historic continuity in the religious customs of the Caribbean region.

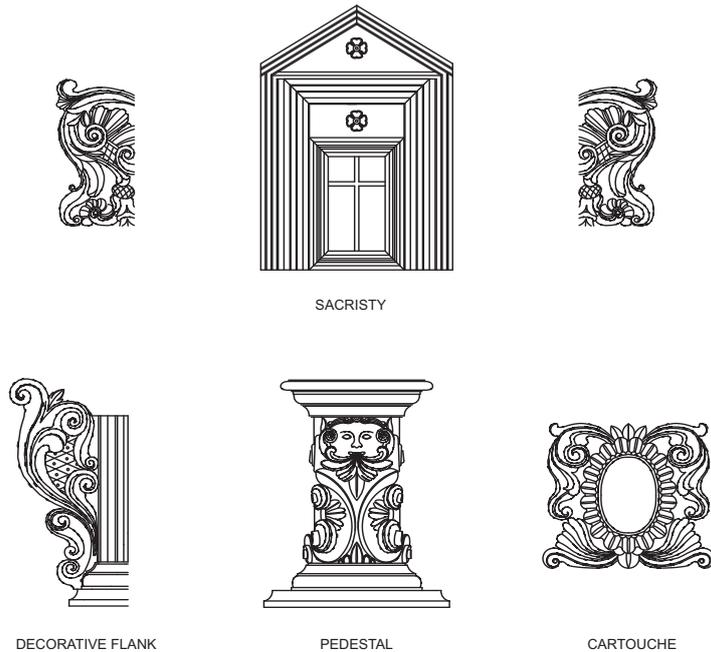
The altarpiece of San José consists of two horizontal and three vertical registers, made up by the lower base of the predella, the predella, the first horizontal register, and the second horizontal register, which crowns the altarpiece. The most outstanding feature of the altarpiece's design is the estipite column, of which six are present.



General plan view of the church.

The altarpiece of San José de Tubará

Components of the predella.



cherub, out of whose mouths flow curved plant carvings.

The first horizontal register consists of the central niche, which houses the image of San José. The niche is framed by carved jambs and joined at the top by a segmental arch crowned with plant carvings and tendrils in the central area. To the sides of the niche, there are vertical registers framed by two estipites, or columns in the form of an inverted pyramid. These columns are crowned by capitals with acanthus leaves, intertwined to fill in the flat spaces, and are adorned on their three sides with appliqués carved in the form of plant motifs, including flowers, fronds and tendrils that fall in clusters, following the same inverted conic form as the columns. Polychromed panels with dark green backgrounds, decorated with gilded undulating ribbons bearing plant motifs, are found between the estipites. These panels are framed by a molding in the form of a decorative arch. On the sides of the altarpiece are decorative flanks, which may also serve as dust protectors.

In the upper part of the first horizontal register is the entablature, formed by a frieze and a cornice, resting on four pedestals, located over the estipites. The two central entablatures are decorated with smiling cherub faces, while those at the sides have floral carvings. Horizontal panels bearing tendrill appliqués, which were decorated using designs similar to those of the predella, separate the upper pedestals from each other.

The second horizontal register, of lesser size, contains a central niche designed

to house an image. This niche is framed by two small pilasters, topped by a trilobed arch decorated with curvilinear floral forms and tendrils. Two estipites, similar to those of the lower register and decorated with plant motifs, are located at the sides of the niche. The central area of the entablature of the second horizontal register is a carving in the form of an interlaced ribbon of elongated leaves and tendrils. On the sides are two pedestals, with carvings of winged cherubs on the columns. The upper part of the arch is crowned with an archivolt of inverted leaves whose points lead to small carved pinecones. Finally, there is an entablature crowned with pinnacles in the form of a pinecone. The simplicity of the pilasters contrasts with the decorative richness of the two columns framing the niche. The pilasters, with an inverted triangular form mimicking the estipites, are decorated on their three faces, in the same manner as the columns of the lower register.

The polychromy on the altarpiece is marked by chromatic variations and contrasts with the predominant gilding on the moldings, carvings and appliquéés. There is a red background for most of the surface of the altarpiece, but a green background for the six columns. The molded panels of the second horizontal register consist of gilded decorations against a green background. The flesh tones of the cherubs contrast with the red backgrounds of the altarpiece's polychromy.

The design of the altarpiece is based on straight lines, with the exception of the arches. The ornamental carvings consist entirely of curved lines with a baroque intent that nonetheless conserve a certain simplicity. Volume, achieved basically by the protruding columns and the cavities of the niches, is complemented with recessed and protruding areas, which provide depth to each of the carvings, in turn aided by the curvature of the ornamental lines.

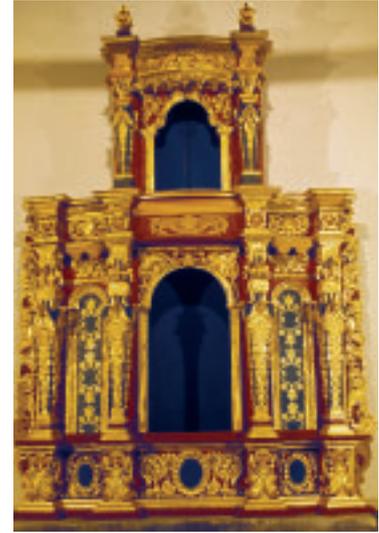
From an iconographic point of view the altarpiece of San José includes a variety of elements in its carvings. On the predella, the oval cartouches vary in size and are bordered by decorations combining both straight and curved forms. The two cherubs symbolize the surrounding spiritual hierarchy. As a complement, on the lower part of the attic, there is a series of fronds, formed by curved plant motifs.

The altarpiece's conception places it with other altarpieces produced in the region during the eighteenth century, and is characterized by the use of one particular expression of the baroque style: the estipite column.

After its original construction, the altarpiece did not undergo any significant interventions. There was one intervention, however, when a layer of mosaic gold was applied, altering the intensity of the gilding. As the years went by, the mosaic gold degraded to the point of darkening. Later, as tastes changed, the entire surface was covered with a final coat of dark brown repainting in approximately 1955, which was in full view prior to the restoration. The main niche was also modified, eliminating the central part of its entablature.

Despite this last intervention, which affected its chromatic and general aesthetic aspect, the altarpiece of San José had maintained its original form and decorative polychromy.

General view of the altarpiece, before and after the intervention.



Construction techniques

The building system of the altarpiece is based on the layout of the various components, where the single-piece horizontal elements – the predella, entablatures and attic – support and connect the vertical elements, such as columns, panels and pinnacles. From a construction point of view, the altarpiece lacks an anchoring system to ensure its stability. No evidence was seen of any such system in the form of marks on the wall.

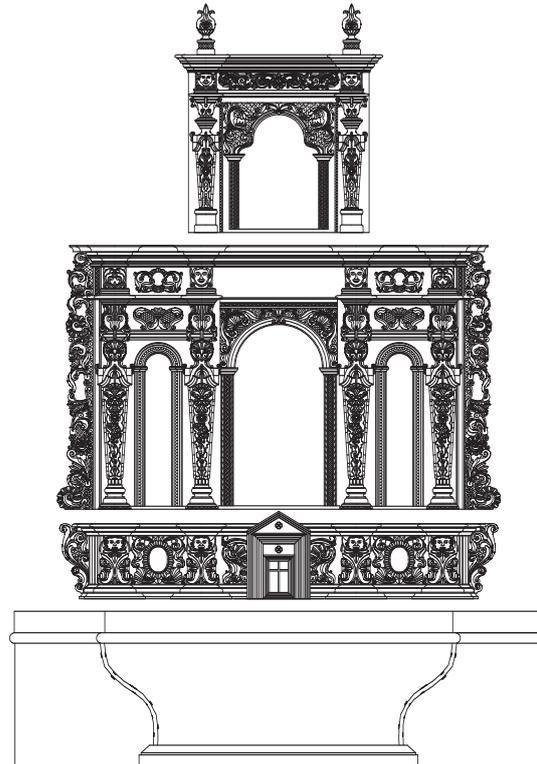
The altarpiece rests upon a brick base, which acts as an altar table and supports the predella, with no type of fastening system. This base also supports the four columns, niche, panels and upper entablature of the first horizontal register. That entablature, in turn, plays a role in supporting the elements of the second horizontal register, which is formed by two columns, a niche and an attic.

The joining of the horizontal and vertical pieces is mostly achieved through tight-fitting mortise-and-tenon joints, sometimes supported or reinforced with forged iron nails or wooden wedges made from coroso and chonta palm trees. Exceptions to this pattern are found in the panels of the niche of the attic and the main panels, which are assembled by a system of half lap joints. All of the columns and pinnacles use cylindrical tenons, while the tenons of the panels are rectangular in shape.

All the altarpiece's constructive and carved elements are made of cedar wood. The marks left on the wood are evidence that the elements were made by cutting and carving the pieces of wood by hand, using an adze, gouges and chisels to shape the various elements of the altarpiece's structure. Outstanding among the carving work are the columns, which are made in a single piece of wood, as well as their various appliqués and decorative elements. The flanks and the pinnacles are also made in one solid piece.

The altarpiece is decorated with moldings and carved relief, attached to the supporting structure and finished with gilding and polychromy. On the support, a thin white base preparation layer was found, made of gypsum and calcium carbonate, with a smaller proportion of animal glue as a binding medi-

um. The polychromy includes reds, greens and blues, alternated with gold leaf and the flesh tones of the cherub faces. The polychromy uses scarlet lacquer for the red, and Prussian blue for the blue-green background of the columns. The gilding employed gold leaf, applied with water gilding. In some of the background areas of the altarpiece, such as the upper part of the niches and the flanks, lines were drawn in the shape of rhombuses and decorated in the center, with the aim of giving these surfaces a different texture. This design was made with incision cuts and pricks, using a punch point.



Structure of the altarpiece.

More than seven years ago, the community of Tubará took the initiative in requesting the intervention of the Centro Nacional de Restauración (National Restoration Center), a Service of the Ministry of Culture, in the conservation of San José altarpiece. This request was led by the Reconstruction Council of the Church of San José de Tubará out of concern for the advanced state of deterioration of this important heritage object, which holds symbolic significance for the community as its only altarpiece.

The Council worked with departmental entities (the provincial government) and national authorities (the Ministry of Culture), along with the religious community and town as a whole, to make the funding of the conservation possible through the Ministry of Culture. An investment of US\$33,884 was contributed by the Ministry of Culture for the preliminary studies and intervention, who also provided the needed human resources for supervision of the work activities. The collaboration and hospitality of the town and parish was also fundamental for the project's success.

Origin of the project

The intervention took into consideration all the values the altarpiece represents for the community at large, which range from its design characteristics and extensive decoration, to its original values and the aesthetic and symbolic value of this stylistic trend seen all along the northern Colombian coast.

Project development

86

The project was developed in two different steps. The first phase included the preliminary studies, the establishment of the diagnosis and the drafting of the intervention proposal. The proposal outlined a work schedule considering human, technical and economic resources. The second phase was the intervention phase, during which all technical processes of conservation and restoration, aimed at recovering the original values of the artwork and its structural stability, were carried out.

Initially, as a result of the preliminary studies, it was proposed that the altarpiece be sent to Bogotá for the intervention phase. In considering this possibility, the community asked the townspeople for their opinions, which revealed opposition to the altarpiece's disassembly and transportation. The town requested that the provincial government ask the Ministry of Culture to have the intervention take place in Tubará. As it turned out, that decision had already been made by the Ministry of Culture, in consideration of the importance of community participation, and the fact that an on-site intervention would increase the townspeople's involvement and appreciation of the conservation and recovery of the altarpiece's original state. An on-site intervention was also understood to reduce costs and risks of the work.

Preliminary studies

The first step of the preliminary studies was to create an inventory of the collection of cultural objects within the church of Tubará, coupled with historic, aesthetic and iconographic studies. A detailed planimetric survey was taken of each piece of the altarpiece to determine their state of conservation and investigate the causes of deterioration. An analysis was made of the techniques used to construct and decorate the altarpiece, based on scientific analyses of stratigraphic cuts, pigments, mediums, bindings and base preparation layers. This sampling also made it possible to analyze previous interventions, as well as identify the state of conservation of the original underlying polychromy. This, in turn, allowed for the development of a pre-restoration diagnosis and the definition of the level of intervention required.

Finally, the intervention proposal was made, establishing the intervention's guidelines and methodology, and specifying the needed materials, equipment, number of professionals, duration of the work and the intervention's actual cost.

State of conservation

The altarpiece had been repainted with a coat of dark brown paint. Applied on top of the original paint and the later mosaic gold treatment, this layer covered up all the gilded zones of the moldings, carvings and appliqué, markedly altering the altarpiece's chromatic and volumetric composition.



Detail of the predella, before and after the intervention.

Through the preliminary studies, it was found that the entire supporting structure had suffered an insect infestation. Although it was determined that the infestation was inactive, this had caused a weakening and loss of some of the altarpiece's structural and decorative components, especially in the columns and the entablature of the first horizontal register. After removing the repainting, the real magnitude of the deterioration was seen. The insects had created extensive damage and destroyed elements of the carvings, especially in the columns of the first horizontal register. On the bases of the capitals, backs, and sides of the outer columns, patches of plaster from previous repairs were found to be completely degraded. The pieces forming the attic, as well as its pilasters, were in an advanced state of deterioration. Cracks were found in some areas of this upper register, especially in the right-hand column and the pinnacles.

A significant alteration was found in the niche of the first horizontal register, whose height had been extended to house a larger image. This changed the niche's proportions, the unity of the altarpiece as a whole and the perception of the altarpiece. The modification in question also notably affected the entablature of the first horizontal register, since that area had been cut and eliminated.

Over time, other components had disappeared, had been displaced or destroyed, among them the flanks of the second horizontal register, as well as the pinnacles of the first horizontal register. The lower area of the right flank of the predella was gone, along with the frond of the opposite flank. Additional elements that did not belong on the altarpiece were found. A sanctuary, made of gilded cement, was covering up the cartouche located in the center of the predella.

The intervention proposal was then elaborated, based on the following fundamental guidelines:

- respect for the originality and authenticity of the altarpiece
- elimination of additions and modifications that alter or distort the altarpiece's aesthetic and historic interpretation

- stabilization and consolidation of degraded elements, replacing them only when their state of integrity and structural function so required
- relocation of elements that had been physically separated from the work but clearly belonged to the altarpiece
- reconstruction of elements that had disappeared, but were clearly identifiable, based on other technically and stylistically analogous altarpieces. Elements should only be replaced when there was a graphic or photographic reference, or when made possible by analogy
- all replaced elements must be distinguishable, easily identifiable and differentiable from the original elements
- compatible materials should be used, that are reversible and stable, and that guarantee a lasting duration of the intervention
- reintegration should strictly be limited to the zones with gaps. Whenever possible, the original should not be covered up
- active community participation should be encouraged by raising awareness and providing access to information.

The restitution of the altarpiece elements was to take into account the fact that an altarpiece is a three-dimensional work of art, for which chromatic aspects and shape must be considered together. The restoration of the formal aspects of the altarpiece permitted a clearer reading of the altarpiece in all of its details, and as a whole, even without the complete restitution of all its chromatic values.

The on-site intervention has encouraged active community participation and supervision. Such an approach is highly recommended when intervening on an altarpiece, or any other object of cultural heritage, which is still deeply incorporated in the daily life of a community and its religious practices. This approach has also increased the community's appreciation of the altarpiece, and raised its awareness of the importance of the cultural objects comprising its heritage, by reinforcing its sense of responsibility.

Intervention

To allow the intervention work to be carried out in Tubará, space and facilities had to be created. The second floor of the rectory was converted into a workshop, which conveniently provided access to the townspeople so that they could directly observe the restoration process.

The altarpiece had to be disassembled. Prior to doing this, the pieces were classified and marked, both on the plan of the altarpiece and directly on the pieces themselves. The structural pieces were numbered, as were the decorative carved elements and appliquéés. Before proceeding with the disassembly, survey measures were taken of the various levels, to provide a reference for the height of the predella, horizontal registers and attic.

The disassembly procedure consisted of pulling apart the altarpiece, piece by piece, element by element, starting with the attic and working down, one horizontal register at a time, until reaching the predella, where the cement sanc-

tuary was removed. Some elements were removed in one piece, such as the attic and the predella. The columns were disassembled from the entablatures.

Consolidation of the support was accomplished by applying Paraloid B-57, prepared in concentrations of 10% and 20%. This solution was applied to the back of the panels and non-polychromed elements with a brush, and was injected into holes and gaps along the front side. The pieces were wrapped in sealed bags to prevent rapid evaporation of the solvent and ensure the consolidant's penetration.

The supporting wood structure of all the altarpiece's elements was treated by applying special Xilamon TR with a brush or syringe, following the same procedure used for the consolidation. The pieces were also wrapped in sealed bags to ensure the product's success.

The following main actions were undertaken to remove previous disturbing interventions: the central niche was reshaped, the cement sanctuary was withdrawn and the plaster renders in the columns were removed.

Various structural and design components were replaced to restore the altarpiece to its original composition and form. Reconstructed elements were carved by persons from the region, based on information present in the altarpiece, taking into consideration the symmetrical composition of the altarpiece, marks on the altarpiece where original elements had been cut off and fragments of original elements being reused in other areas of altarpiece.

Major intervention tasks included the restoration of the entablature of the first horizontal register and the reshaping the niche, which had been mutilated. Various pieces comprising the entablature, which had been cut and reused in other areas, such as the upper ceiling of the niche, were set back in place. This work also included the replacement of one section of the frontal panel. For the niche, the arch was set back in place, along with the two pilasters, one of which was found in the church's storage room.



Detail of the entablature and predella during the intervention process.



Other replaced elements were: the lower part of the right flank of the predella, the frond on the opposite flank, the decorative elements crowning the vertical registers and sides of the altarpiece, some moldings of the entablature on the first horizontal register, the large cornice of the predella where the sanctuary had been anchored, the ends of the cornice, the central panel of the entablature frieze on the first horizontal register and a carved piece located above the archivolt.

Although mortises for connecting additional flanks to the second horizontal register were visible, these flanks were not restored, since no records were found upon which to base their reconstruction.

The removal of repainting in the flat background areas was accomplished using cloths soaked in thinner, after first conducting tests to determine how long the cloths should be applied and to control their effects. Removal of the repainting was accomplished chemically, and also mechanically, with the aid of a scalpel. The mosaic gold layer, previously applied over the gilding, was removed using thinner and dimethyl formamide, which did not cause abrasive wear to the gold leaf.

The cleaning made it possible to detect numerous hidden deteriorations under the paint layer, such as in the predella, whose lower molding had no polychromy, as well as in the columns and pinnacles. Once the repolychroming or repainting had been eliminated, rabbit glue or Primal AC-33 in a 30% concentration was applied to fix the original paint layers.

Insect tunnels were filled with a patching paste consisting of sawdust, 5% Paraloid solution, and calcium carbonate in a low proportion to restore the wooden support and provide a level surface for the base preparation layer.

The final aesthetic touch was accomplished by applying gold leaf to small losses in the gilding. Color was integrated where losses existed in the base preparation layer, and the backgrounds were polychromed. A yellowish stain or bole was applied to the decorative elements, such as moldings and appliques that had been replaced with exposed wood. Carvings and decorative high relief with gilding losses were integrated using a water gilding technique with 22-carat gold leaf, after first applying the base preparation layer and the bole.

Before assembling the altarpiece in its place of origin, some works on the church building were performed. The altar table was leveled, for instance, and a windowpane was placed in the skylights at the top of the lateral walls to minimize the entry of light and keep out bats. In addition, the altarpiece's illumination was upgraded, by installing three halogen lamps on the back of the transverse arch.

The pieces of the altarpiece were fitted and joined while the altarpiece was still disassembled. Once the work on the church was finished, the altarpiece was assembled and reinstalled, after which the entablature cornices and the horizontal parts of the friezes were adjusted. Finally a 3% Paraloid protective coating was applied to the entire surface of the altarpiece.

The restoration of the altarpiece and its aesthetic aspects was challenging, since there was a need to approximate the altarpiece's original features while respecting its authenticity. Fortunately, the restoration work succeeded at integrating the new elements with the altarpiece's original parts. Nonetheless, not all the missing elements were replaced, especially in those cases for which there were no references.

The replaced pieces were based on existing elements wherever the altarpiece's symmetrical composition so allowed. The intervention work was developed to a point where these pieces will be easily identifiable as the product of a current intervention, in order to respect the altarpiece's authenticity and originality, so that when the altarpiece is viewed it will not look as if it is a recent creation.

The intervention on the altarpiece involved community participation through various institutions of Tubará, such as the Restoration Council of the church, City Hall and the Cultural Association.

Parallel to the restoration process, work to share information and activities to raise the awareness of the community was carried out. Among other measures, the workshop was permanently open to the community, to receive its input, respond to its concerns and provide any necessary information. In addition, craftspersons from the town and the region were incorporated into the work team. This was an important factor that facilitated the integration of the conservation professionals with the community.

The fact that the work was performed on-site allowed the townspeople to become familiar with the field of scientific restoration. At the same time, it allowed the work team to become familiar with the cultural characteristics of the community for which the restoration work was performed.

The townspeople were actively involved in the project, through ongoing supervision by the Restoration Council and churchgoers, as well as the participation of community representatives in discussions and decision-making. This level of participation demonstrates their clear sense of responsibility to the altarpiece, and their cultural identification with it, given their significant, fundamental role in the restoration process.

The altarpiece of Tubará is a historic piece of documentation, illustrative of the baroque era in which it was conceived, from the mid-seventeenth century to the first half of the eighteenth century. The fact that it still forms a part of daily life and has a connection with the town's inhabitants contributes to a better understanding of the history of Tubará.

The church is connected to the history of each inhabitant of the town and the region, creating a sense of cultural identity and responsibility from generation to generation, and a unique cultural tradition of its own.

Community participation

Cultural significance

The altarpiece of San José, as the only existing example of its kind in the town, is appreciated and recognized by the community as a part of its cultural legacy. It is present in the collective imagination of the town and is associated with traditions. Its presence brings the town together around the celebrations of religious holidays, which also bring in persons from the neighboring towns.

The altarpiece corresponds to one of the last formal representations of the baroque style, from the era in which the estipite column was used. Its aesthetic and design characteristics make this altarpiece a unique, representative example of Colombia's movable heritage in terms of altarpieces from the colonial period. From the time of its creation to the present, the altarpiece has been used in living religious practice. It is the most representative religious reference point for Tubará and the towns nearby.

According to the information gathered in the studies, if a comparison is made between the altarpieces produced in the Spanish colonial period in Venezuela with those of Cartagena and Atlántico, one finds a similar iconography. In fact, it appears that they even date to the same period, that is, the eighteenth century. The arrival of the altarpiece of San José must have been subsequent to 1739, the confirmed date of completion of the first altarpiece with estipite columns in Venezuela. Factors such as the altarpiece's location, geographic factors and trade patterns among the coastal cities of New Granada and Venezuela, particularly from the provinces of Cartagena and Santa Marta to the islands and continental regions of the Venezuelan coast, might indicate that the altarpiece is Venezuelan in origin.

Now that the altarpiece has been restored, Tubará has a potential as a sustainable center for tourism, which could help it generate income. The church could be included among the town's sites of interest and used as one of its major attractions for cultural tourism.

Acknowledgments

I would like to thank the work team that performed the studies and intervention on the altarpiece of San José de Tubará, as well as Aracely Morales López, Minister of Culture, Katya González Rosales, architect and heritage director, the Restoration Council of the Church of San José de Tubará, its two parish priests, and the town in general for its hospitality.

Work team

Preliminary studies:

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Héctor Oswaldo Prieto Gordillo, restorer and photographer

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Germán Franco Salamanca, architect

Luis Fernando Molina Londoño, historian

Claudia Montagut Mejía, historian

Herbert Guerrero, biologist

Javier Uribe Suárez, chemist

Intervention work:

Juan de Jesús Guerrero Gómez, director

Ernesto Bocanegra Ramírez, restorer

Isabel Cristina Quintero, restorer

Margarita Acosta, restorer

Waleska Massi, restorer

Luz Delia Bohórquez, restorer

Mompox Workshop School, gilders

Photographic credits

Photographs were provided by the Dirección de Patrimonio del Ministerio de Cultura.

Notes

1. Tubará means “meeting” in the Mocaná language. This name is given to the meeting place of caciques and local representatives from Guaimaral, Cipacua, Palvato, Oca, Yaguaro and Cibarco, who were met by Pedro de Heredia on his expedition in the north of Barlovento, shortly after the founding of Cartagena, that is, in the latter half of 1533. See Pedro María Revollo, *Nombres geográficos indígenas en el Departamento del Atlántico, Barranquilla*, published by Litografía de Barranquilla, 1932. pp. 22-23. In this book, Revollo cites the report of Juan José Nieto (1839) who in turn had cited Diego de Peredo's report of 1772.

2. The encomienda is defined as a concession by the king, in favor of a Spanish subject, of tribute or work that indigenous subjects had to pay to the Crown. The encomienda was granted to the encomendero for life, and sometimes to one or two generations of his heirs. In exchange, the encomendero was responsible for instructing and Christianizing the indigenous people.

3. José Agustín Blanco Barros, *Tubará, La encomienda mayor de Tierradentro*. 1st Edition, Bogotá. Publisher: Centro Editorial Javeriano, 1995. p. 89. All information regarding the encomienda of Tubará cited throughout the article is taken from this book by Agustín Blanco Barros.

4. José Agustín Blanco Barros, *Tubará, La encomienda mayor de Tierradentro*. 1st Edition, Bogotá. Publisher: Centro Editorial Javeriano, 1995. pp. 134 and 142.

Restoration of the altarpiece of San Francisco Javier, the Church of the Company of Jesus of Quito, Ecuador

94

Diego Santander Gallardo



General view of the San Francisco Javier altarpiece in the church's northern transept, after reconstruction of the parts damaged by the fire but before application of the gold leaf.

Name of the work of art: Altarpiece of San Francisco Javier
Location: Church of the Company of Jesus, Quito, Ecuador
Owner/responsible party: Company of Jesus, Church of the Company of Jesus Foundation
Authored by/attribution to: Brother Marcos Guerra
Chronology: Seventeenth to eighteenth centuries
Style: Baroque
Dimensions: 16.00 m x 9.60 m x 2.00 m (height x width x depth)
Materials and techniques: Carved, joined and glued cedar wood, with gilded and polychromed decorations, as well as other applications. The pictorial layer consists of oil and gold leaf

Date and duration of the studies/intervention:

- **Studies:** 1989-1990, for the general project; February 1996, studies after the fire
 - **Intervention:** July 1995 to January 1996, first restoration; February 1996 to February 2004, restoration after the fire
- Profile of the study/intervention team:** three institutional representatives, two architects, 16 conservators, two chemists, one historian, six craftsmen and two laborers

The restoration of the altarpiece of San Francisco Javier has been a unique conservation experience. It was a ten-year intervention project, which began in 1995 and was completed in 2004. Diverse sets of challenges were encountered during this intriguing and noteworthy intervention. The project was a multidisciplinary, inter-institutional task, all of whose participants shared the objective of restoring the altarpiece's original imagery and symbolic content.

Following the earthquake of March 1987, which damaged the historic center of Quito, a comprehensive restoration process was begun in the Church of the Company. Given the nature and sheer volume of those activities, they have yet to be concluded. The intervention on the altarpiece of San Francisco Javier forms a part of this overall endeavor.

Before 1996, considerable damage was noted on the altarpiece due to varied deterioration over time. Severe moisture absorption, owing to the microclimate of the church, had caused parts of its carved wood pieces to rot. More recently, the effects of electrical installations had caused additional damage. On January 31, 1996, a tragic fire caused the loss of at least half of the altarpiece and markedly weakened its structure, demanding an intervention that was both conceptual and practical in action. The problems were overcome through years of continuous work.

The restorers' accomplishments have been many. Day by day, the original appearance of the altarpiece was restored. The institutions whose representatives participated in the project have gained collaborative work experience. Exhaustive documentation was prepared to support the intervention proposal. Traditional practices and techniques were preserved while new materials were used innovatively, and a preventive conservation plan is now being implemented. Appreciation of the altarpiece as a cultural object was enhanced, and, above all, a collective effort contributed to ensuring the long-term survival of significant cultural property.

Origin of the project



The Church of the Company, undergoing a comprehensive restoration after the March 1987 earthquake, has a dynamic aspect with the presence of restorers, concentrating on their technical task, and of visitors, who are admiring the beauty of Quito's baroque style and the conservation efforts.

96

Project management

In March 1987, a major earthquake, whose epicenter was located in eastern Ecuador, affected the entire city of Quito, particularly the ancient heart of the capital. In response, the national government formed an Executive Technical Committee, with participation from several different institutions who contributed their resources and expertise in a timely, effective manner to overcome the disaster. This organization succeeded in diligently executing restoration and reconstruction work, and also validated the process of strengthening collaboration among institutions representing a wide range of interests.

The Banco Central del Ecuador (Central Bank of Ecuador) was initially placed in charge of the restoration project for the Church of the Company, where the altarpiece of San Francisco Javier is located. Its first efforts focused on urgent protective measures and identification of parts affected by the earthquake. Once this first challenge was met, the bank, which had experience in similar projects, laid out a work plan to respond promptly to restoration needs, drawing on its ten years of experience in restoration work throughout the country. That experience led the bank to focus its approach on a comprehensive response, as it was not enough to deal only with the effects of the earthquake itself. The scope of the intervention would have to encompass all the work needed by the church's heritage property. The first step was to perform all the preliminary studies in order to ensure their survival for current and future generations.

Several institutions participated in the conservation of the altarpiece of San Francisco Javier, establishing multidisciplinary teams, capable of fully responding to the complex needs of the altarpiece. Since 1978, the Instituto Nacional de Patrimonio Cultural (National Cultural Heritage Institute) has been responsible for preserving Ecuador's cultural heritage. It received a contribution from the national government in response to the fire that damaged the altarpiece, specifically earmarked for its restoration, and supervised the work of reconstructing the pieces that disappeared as a result of the fire, which had been created by highly qualified artisans. The Instituto also played an important role by safeguarding and delivering gold leaf for the restoration, acquired in Florence with UNESCO funds.

Created in 1987 in response to the earthquake of that year, the Fondo de Salvamento del Patrimonio Cultural del Distrito Metropolitano de Quito (Cultural Heritage Preservation Fund of the Metropolitan District of Quito) is a local administrative and technical entity of the municipality, which administers funding set aside from the property tax of Quito's residents. Its active, outstanding participation in the intervention project, dating back to 1994, includes valuable contributions by its own qualified technicians, as well as the supervision and oversight of works commissioned to various contractors, including the restoration of fire-damaged pieces.

Also participating in the project is the Church of the Company Foundation, created in 1993 by the Jesuit community with the purpose of assisting and contributing to the church's restoration. The Foundation is fulfilling its own goals of collaboration on the restoration activities and the maintenance of the finished works. Since 2001 the Foundation has also administered tourism and

cultural activities as well as disseminating and promoting the various tangible and intangible values that the church conserves, making the Foundation a technical body that works together with the Jesuit community, which is dedicated to religious and counseling services.

A Technical Follow-up Commission, an inter-institutional, multidisciplinary entity, brought together representatives from these three institutions, along with professionals contracted for conducting the studies and implementing the restoration phase. This commission developed into a proficient professional body and was an accessible source of consultation. It served as a core body for major decisions, principally technical in nature, and for resolving other restoration issues through a coordinated consensus process.

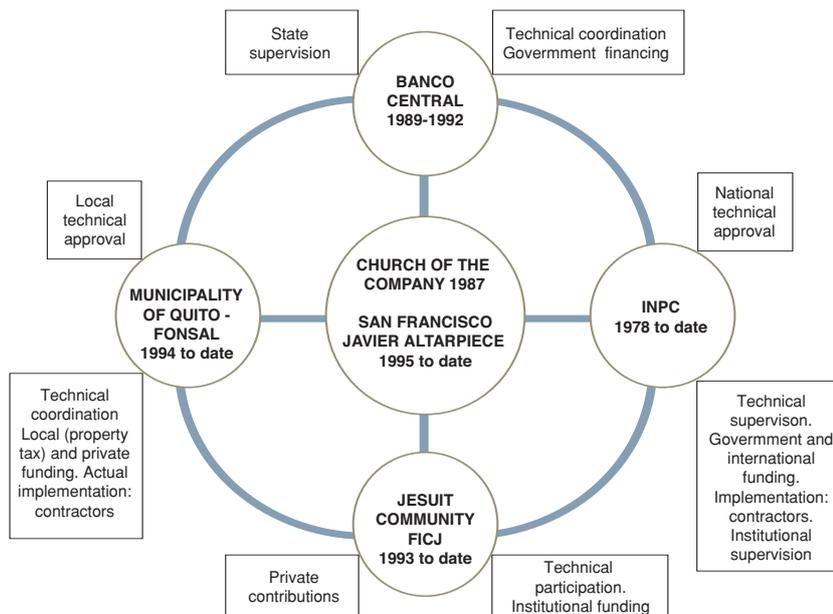
For both the studies and restoration tasks, the work team included the participation of institutional representatives, an average of 16 restorers, two architects, two chemists, one historian, six craftsmen, and two laborers, among other professionals. This work team had to respond to the technical challenges of the case using a multidisciplinary, inter-institutional approach.

Funding was provided by the city of San Francisco de Quito, through taxes paid by its inhabitants, as well as the budgets of government institutions, contributions from private companies such as the Banco del Pichincha Foundation, and international organizations such as UNESCO.

The altarpiece of San Francisco Javier is one of eleven magnificent altarpieces that adorn the interior of the Church of the Company of Quito. The construction of the church altarpieces dates back to the late seventeenth and early eighteenth centuries. Of note is the main altarpiece of the presbytery, whose niches house the images of the founders of the four religious orders that arrived in

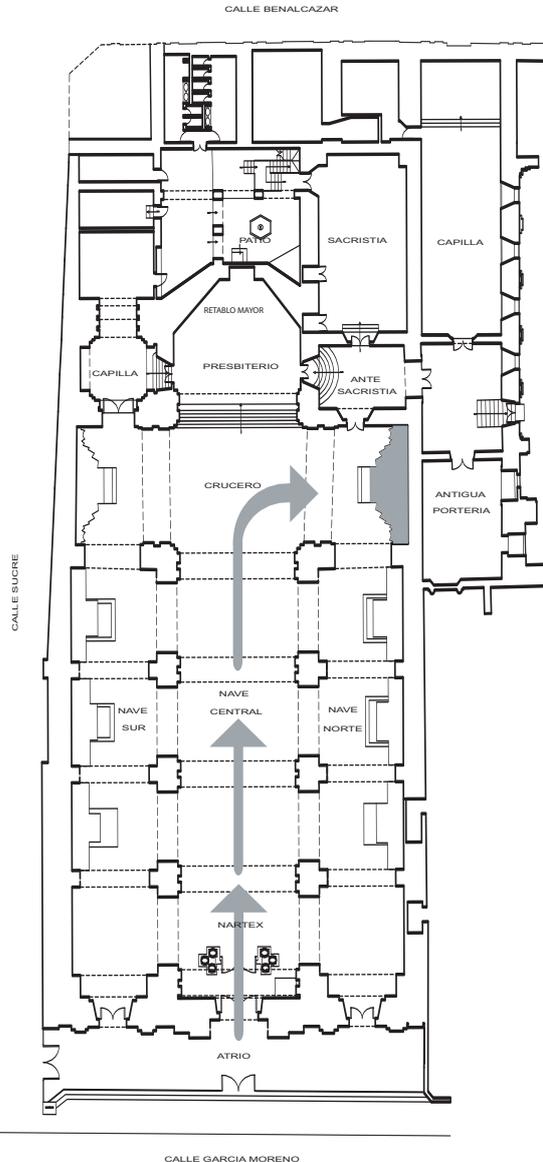
History and cultural significance of the altarpiece

Organizational diagram



the city prior to the close of the sixteenth century. Six small chapels, three per lateral nave, each house their own altarpiece. The two closest to the church doors represent the Jesuit saints San Estanislao de Kostka and San Luis Gonzaga respectively. The sacristy holds a somewhat smaller altarpiece, no less beautiful than the others, fashioned using similar techniques, and dedicated to the founder of the Company of Jesus, San Ignacio de Loyola. The chapel of the south was dedicated as an offering to the Ecuadorian saint, Mariana de Jesus. It is presided over by a neoclassical altarpiece from the late nineteenth century, and includes a free-standing image.

Located on the epistle (or right) side of the church, across from the altarpiece of San Ignacio, who was the founder of the Company of Jesus, the placement of the altarpiece of San Francisco Javier is representative of the Jesuit community's appreciation of him, as well as the value they placed on him within the church. San Francisco Javier and San Ignacio are the two most exalted saints within the order, while San Francisco Javier is particularly exalted as



Layout of the Church of the Company of Quito, with the location of the altarpieces in the chapels of the lateral naves, presbytery, sacristy, and chapel of Santa Mariana de Jesus. The altarpiece of San Francisco Javier is highlighted. Image provided by Diego Santander Gallardo.

the most prominent Jesuit missionary who crossed seas to conquer India, Japan, and China, evangelizing and converting millions to Christianity.

Both these works unquestionably show clear evidence of influence from the altarpieces of Rome's Church of San Ignacio, created by Jesuit Father Andrea Posso and whose books, well known in Quito during that era, originated the idea of building the stunning altarpieces of this baroque church in Quito.

The altarpiece of San Francisco Javier was built in the late seventeenth century and is attributed to the Jesuit brother Marcos Guerra, who also made notable contributions to the architecture of the church and adjoining Jesuit building. The altarpiece was gilded in the eighteenth century by an Italian Jesuit named Jorge Vinterer and Quito's excellent artist Bernardo de Legarda may have also participated in the work. It is known that the Congregación de la Buena Muerte (Congregation of the "Good Death") commissioned the altarpiece's gilding, and also contributed to the building of the altarpiece. No information is available on any interventions that may have taken place on the altarpiece of San Francisco Javier prior to this present project¹.

The altarpiece's single horizontal register stands out against a backdrop of lateral panels and a circular upper frame with a window in the middle. As such, the overall appearance is one of two horizontal and three vertical registers, although from an academic standpoint, there is only one horizontal register, with wooden carvings and relief. Like a great number of altarpieces, the altarpiece of San Francisco Javier was built of cedar, one of the high quality woods found in eastern Ecuador. The structure was principally assembled using wood-to-wood joints, though some pieces are glued. For decoration, the pieces were gilded, with polychromy being used for the various sculpted elements and panels. Several decorative appliqué elements are also present. The pictorial layer is predominantly gold leaf, but oil paint was used.

Despite its size, the detailed work on each element of the altarpiece is flawless, bearing witness to the painstaking care with which it was created. The altarpiece's profuse decoration and its rich depiction of the life of the saint was fundamental for evangelizing the people of Quito. The altarpiece's aesthetic expression represents the finest of baroque art, while also incorporating a unique architectonic element: the four Salomonic columns that flank the figure of the saint. The altarpiece as a whole is a very beautiful architectural showcase.

The Church of the Company is a space of religious faith, for which Ecuadorians, and especially the people of Quito, have a great affection. The altarpiece of San Francisco Javier has perhaps become the most emblematic of all the altarpieces in the church, given its intriguing history. On the one hand, the artwork itself displays powerful symbolism. On the other, the devotion of the participants in the restoration process to their work and the relationships developed during the conservation project has added a social dimension to the experience. The altarpiece of San Francisco Javier is a work of beauty, with religious significance, academic value and cultural content. Its history, the demanding human effort entailed in its conservation both by individuals and collectively, and the great sense of achievement, all contribute to an altarpiece that represents the historic past and continuity in the art experience and artistic style known as the school of Quito.



The left side of this image depicts Father Andrea Posso S.J.'s design for the altarpiece of San Luis Gonzaga in the Church of San Ignacio in Rome, which served as a model for the altarpiece of San Francisco Javier in the Church of the Company of Quito, on the right.

Iconography:

The central niche of the main horizontal register of the altarpiece houses the sculpture of the saint in a contemplative pose watched over by angels and cherubs. In the lower left panel, an angel shows Francisco Javier a map of the cities to which he will be traveling in fulfillment of his evangelizing mission.

Above these two figures is that of Jesus, breaking through the sky among the clouds. In the upper left portion, the panel narrates the miraculous story of the crab that returned the crucifix, a well-known event of Francisco Javier's life, while the upper right panel of the scene displays one of the voyages embarked upon by Francisco Javier in the company of three Paravian seminarians. On the right, in the lower panel, is one of the most representative depictions of this Jesuit saint—the image of the saint guarded by an angel and baptizing unbelievers. Several acanthus leaves form the backdrop for each of the altarpiece's elements and cherubs flank the sculptures, with carvings and relief that narrate the saint's life. These scenes capture the spirit that characterized San Francisco Javier throughout his life.

Preliminary studies

From 1989 to 1990, the Banco Central del Ecuador, through the Directorate of Museums, prepared a document entitled *Proyecto de restauración de la Iglesia de la Compañía, Informe del estudio de bienes muebles - maderas* (Restoration Project for the Church of the Company, Report on the Study of Movable Objects - Wood). This study forms a part of the volumes prepared as a basis for the church's comprehensive restoration project and includes the altarpiece of San Francisco Javier.

The specific document pertaining to the studies on the altarpiece, *Estudio Técnico del Retablo de San Francisco Javier* (Technical Study of the Altarpiece of San Francisco Javier), consisted of the following sections:

- identification of the altarpiece, based on general information
- detailed description of every element of the altarpiece
- technical history
 - location and environmental conditions
 - state of the altarpiece and prior interventions
 - state of conservation of and previous interventions on the support, preparation and polychrome layers
- diagnosis and conclusions
- restoration proposal
 - guiding principles
 - restoration proposal document
 - methodology for implementation.

After the fire, new studies of the altarpiece of San Francisco Javier were carried out in 1996, while several urgent actions were taken simultaneously to prevent its further deterioration. The documentation supplied by the Banco Central del Ecuador was invaluable, providing a sound basis for all subsequent projects.

State of conservation of the altarpiece

The comprehensive study of the church and its contents conducted by the Banco Central del Ecuador identified a number of significant problems affecting the altarpiece of San Francisco Javier. As a frame of reference, it is important to emphasize that profound alterations to the building were detected due to the passage of time, which had been exacerbated by the 1987 earthquake. A critical finding was that cracks and structural damage to the church's vaults, cupolas and walls encompassed other problems and deteriorations that could be traced back to the filtration of rain water. This was reflected in marked water absorption by the wood of the altarpieces in the church and the murals on the walls, also due to a significant alteration of the microclimate needed by these objects for their ideal conservation over time. The moisture had caused the wood of the altarpiece to rot, and some of the pieces which were fastened to the wall were about to collapse.

The altarpiece had suffered from massive xylophagous insect infestation, and large areas of it had been repainted. Some elements of the altarpiece were incorrectly located on the altarpiece, resulting from previous interventions,

while several pieces were on the verge of falling down, due to the poor state of their anchorage. Many of the electrical installations had also deteriorated.

After the 1996 fire, the damage to the altarpiece and to several nearby artistic elements and artwork up to 40 meters away were much more severe. The flames and high temperatures damaged 60% of the altarpiece, as well as the nearby gallery decoration. In the main cupola, damage was incurred by the wood decoration and murals. The only two canvas paintings were completely consumed by the fire, and all of the gilded decoration of the Mudejar designs that form a part of the vaults and cover the arms of the transept were damaged. The mural decoration of the lateral naves and even the metal pipes of the organ, situated in the choir over the narthex of the church, whose silver and gilded decoration now display blistering, were affected.



Additional damage was caused by the water and other fire-fighting substances sprayed over the altarpiece, resulting in extreme harm to the altarpiece.

Approximately 50% of the altarpiece's elements were disassembled at the time of the fire, out of danger. The relief of the crown was safe, as was the sculpture of Francisco Javier, and several other carved and gilded pieces. This resulted in a heterogeneous situation, with three radically different states of conservation, posing new theoretical and technical problems involving management and methodology issues.

In the document entitled *Evaluación de los deterioros producidos en las tallas doradas y esculturas por efectos del incendio del retablo de San Francisco Javier* (Evaluation of deteriorations to the gilded carvings and sculptures, due to the fire that damaged the altarpiece of San Francisco Javier), which was drafted by a private workshop, the following problems were identified. The high temperatures had provoked cracks of various sizes. The supports had become detached, as well as deformed; there were detachments, separation and cracking of the preparation and paint layers. Blistering was seen in the paint layer. Soot covered 90% of the surface, and melted polyethylene had adhered to the gold leaf. The worst deterioration was to the flesh tones and polychromy of the sculptures, given their delicate production techniques and their materials, which were very sensitive to the high temperatures of the fire.

High temperatures during the fire damaged the relief of the four evangelists that decorates the shells of the main cupola. This image shows St. Mark on the left and a charred angel on the right.

Based on the analysis conducted after the fire, the pieces of the altarpiece were classified into three categories, prior to their disassembly. This was an urgent task, given the risk of collapse of the altarpiece. The classification was grouped as follows: charred pieces in a state of ruin, whose form and decorative techniques were undecipherable; pieces whose form was preserved, but that were burnt at the support level over more than 50% of their surface; and pieces that conserved their form and were decipherable in terms of volume, whose finish may have been altered in whole or in part.

At the time of the fire, the Church of the Company had undergone intensive interventions on its architecture, a renowned mural and its movable cultural objects, so that the physical surroundings of the altarpiece were suitable. Major architectural work had been carried out, although certain supplementary work remained unfinished, such as the laying of the transept's floor, and the lighting, security and museography for the altarpiece. Dramatic additional interventions were than needed. Activities to control external agents of deterioration, principally heavy vehicular traffic that generates constant vibrations and the presence of contaminant gases, are still pending and will be addressed in the final phase of the church's restoration.

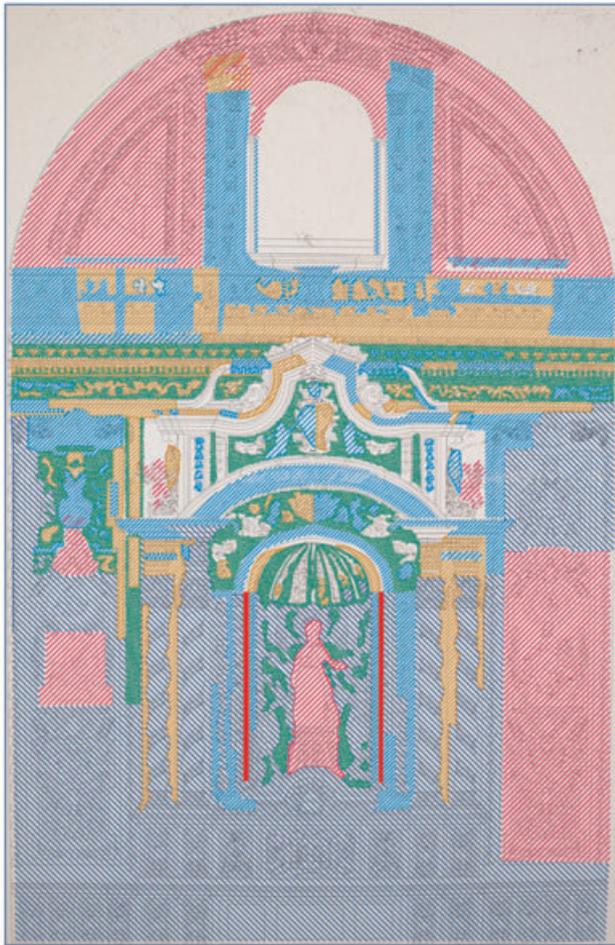
Guiding principles and proposed action

The general principles for the intervention on the church's cultural assets, and on the altarpiece of San Francisco Javier in particular, are as follows:

- The restoration must make no attempt to falsify the altarpiece's artistic and or historic value.
- Since this is an inventoried, catalogued object meriting absolute protection, respect for its antique elements and authentic parts is a fundamental guideline.
- The intervention must seek to conserve the aesthetic and historic values of the altarpiece and surrounding context.
- Modern techniques should be used if their effectiveness has been scientifically demonstrated and guaranteed by experience, when traditional forms of intervention are inadequate.
- The existing construction system must be respected, and new materials must be correctly used and handled.
- A work system must be implemented that ensures the full application of the Occupational Health and Safety Standards in effect in the country.
- The information produced should be organized and systematized through publications that allow experiences to be shared with professional architects and restorers, among many other specialists of the disciplines brought together for this type of intervention.
- The need for ongoing maintenance of cultural property should be institutionalized, in order to counteract sustained processes of deterioration.

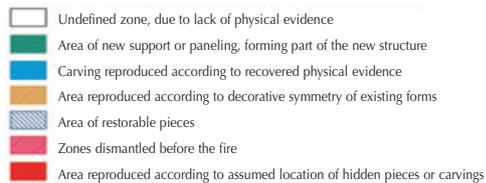
Based on these guiding principles, the proposed action for the conservation of the altarpiece prior to the fire included:

- photographic survey



Graphic illustration of the intervention proposal, in terms of conservation, restoration and reconstruction.

Image provided by Diego Santander Gallardo.



- documentation and studies
- fumigation
- elimination of foreign elements
- cleaning of the surface
- disassembly of pieces and elements harmed by the wall's moisture
- consolidation of structural and decorative wooden parts
- replacement of missing and mutilated parts
- withdrawal of added parts and repositioning of misplaced pieces
- consolidation of the preparation and polychrome layers
- cleaning and removal of mosaic gold repainted over the gilding and polychromy
- gilding and retouching of the polychromy
- application of final protection layers to various areas
- inauguration of the restored altarpiece and submission of documentation produced in relation to the intervention.

After the fire, the decision was made to rebuild undecipherable carvings, which form part of the architecture of the altarpiece, based on existing graphic documentation and using the presence of its counterpart, the altarpiece of

San Ignacio, as a reference. It was also decided to conserve the other carvings of the architecture that had lost their gilding but maintained their form, since their imagery was constituted by both the volumetric component and the gilding. In the decision to partially reconstruct the altarpiece, great weight was given to the altarpiece's value as an element used in current religious practices.

Subsequently, the following actions were required:

- identification of the status of the damage
 - general analysis of the altarpiece
 - quantification of losses from the fire
 - assembly of the altarpiece using the remaining saved and charred elements to determine the precise situation of whatever remained from the original altarpiece after the fire
- compilation of existing graphic and documentary information on the altarpiece
- graphic survey
 - planimetric and altimetric survey and photographic recording, before, during and after the intervention
 - tracings prepared on site from the altarpiece
 - elaboration of templates of the original designs, using several types of support media
- testing of various types of cleaning and consolidation techniques on the charred wood elements
- decision-making: after several sessions of debate, the members of the Technical Commission decided that the fundamental objective of the intervention would be to restore the altarpiece to its original appearance. This meant the reconstruction and gilding of all the parts of the altarpiece that had been lost. Based on this decision, the following actions were defined:
 - production of new carvings for all the architecture of the altarpiece that had been lost and the mounting of these reconstructed parts
 - restoration of the bust of San Francisco Javier
 - restoration of the decorative panels
 - repositioning of the polychromy that had been lost from different elements
 - gilding of the new carvings and re-gilding of the original carvings whose gilding had disappeared, in order to achieve a uniformity in aesthetic expression
 - writing of the final report.

Methodology of the implementation

The intervention methodology established in the proposal document has been followed in the undertaking of all actions so that any work on the altarpiece would be conducted based on an analysis and testing of the materials, in keeping with a detailed plan for the processes to be followed. A daily work log would be kept, as well as a photographic log so that the progress of the work and the changes could be visualized. When all the work was finalized a report would be issued, describing:

- the technical processes employed, with recommendations and precautions
- human resources
- time
- term of intervention
- budget
- materials, tools and team, basic team support, office supplies, photographic materials and labor.

Standardized forms to record work priority and state of conservation were filled out for the entire altarpiece and its immediate context, the decoration on the east and west walls. The study also included a stratigraphic analysis of 18 samples.

105

In sum, aspects of the proposed conservation treatment process worth highlighting include:

- development of a methodological proposal based on identifying the factors of alteration
- description or interpretation of alteration mechanisms and their indicators
- research using documentary sources to provide information for any proposed decision.

It is also important to note that the decision-making process for this project has been collaborative and on-going, always taking into consideration the guiding principles outlined above. Throughout the project, the Technical Follow-up Commission continued to meet weekly. The professionals involved at any given time from the various specialties met, along with representatives from the participating institutions (the Fondo de Salvamento, the Instituto de Patrimonio Cultural, the Church of the Company Foundation) and the contracted technicians. Discussions were always intense, given the positions taken by the various parties. Topics ranged from historic conservation to an aestheticism sustained on religious values still in effect in the church.

Intervention work on the altarpiece of San Francisco Javier began in the second half of 1995 and should have been completed in January 1996. Tragically, on the very day that the restoration work was being completed, an occupational accident started the damaging fire. As a result, a second intervention was necessary, which began immediately, with a completely different approach. The first interventions were based on updates of the original studies conducted by the Banco Central del Ecuador, while the diagnosis and proposed intervention were completely revised.

Intervention

Before the fire, the intervention was faithful to the proposal and consisted of the following:

- cleaning of dust and dirt from the surface
- removal of trash

- deep cleaning of decorative metals using two methods: one mechanical, with a scalpel and/or swabs, and another chemical, with the application of a solvent. This work also involved the removal of tarnished varnish.
- the taking of probes to determine the state of the polychromy and find out whether or not repainting was discovered
- deep cleaning of exposed wood, principally where fungus infestation and rotted wood could be detected
- applying a protective coating
- treatment of the separation of the paint layer, with priority being placed on the gold leaf
- elimination of foreign materials such as nails, rings, etc.
- disassembly of sculptures and decorative pieces, basically to better perform the treatments, after first identifying the pieces with a code to ensure their proper placement at a later time
- wood preservation, standard consolidation or consolidation by impregnation. The latter two processes were only employed on pieces whose mechanical resistance was compromised, and that had also been attacked by xylophagous insects. On the pieces that did not require consolidation, only the preservative was applied.
- assembling and fastening of pieces to reinforce the joints, using plates
- grafting double dovetail joints on disassembled pieces to block cracks
- patching and blocking of cracks with wooden wedges and sawdust putty
- substitution and restoration of pieces, eliminating those in which the wood had already rotted
- removal of repainting, after first conducting tests for its removal.

To respond to the new situation present after the destructive fire, the following process was adopted:

- the damage was quantified
- destroyed pieces were ordered and classified, so that they could later be replaced in a suitable fashion
- wood that was not affected was consolidated, by impregnating and injecting it with various concentrations of Paraloid B72
- burnt wood that had not lost its original form and volume was consolidated using Butvar B98
- structural reinforcement work was performed, followed by assembly of the pieces and application of a protective top coat, which was possible thanks to the fact that the pieces had not suffered major damage
- the report was written, describing the work performed.

Reconstruction of the pieces lost to the fire was based on a study of the charred pieces, as well as existing documentation compiled by the Church of the Company Foundation and a study of the counterpart altarpiece, dedicated to San Ignacio.

The gilding of the new pieces began in June 2003, together with the gilding of the northern transept's vault. This task was entrusted to highly qualified craftsmen with extensive experience. The gold leaf was acquired at the request of the Instituto Nacional de Patrimonio Cultural from Florence, with a donation from UNESCO, and was delivered daily to the work site.

A new group of approximately 25 persons, among them carvers, stuccoers, gilders and polishers, under the direction of restorers and assistants, carried out this important work. They were backed by professionals from each of the participating institutions.

This final intervention phase on the San Francisco Javier altarpiece completes a unique case of cultural object conservation. Significant forms of intervention came together in this work due to the multiple agents of deterioration that affected the altarpiece. The intervention was intended to, and to a large extent has succeeded in, faithfully restoring original appearances in an aesthetically uniform manner, while fully respecting their values and content. Numerous challenges in the life of the altarpiece have been overcome, in order to pass down a legacy that is dignified and consistent with our era. As a part of this overall intervention, the restoration of the San Francisco Javier altarpiece has been characterized by its varied, rich, diverse aspects.

In practice, the coordination made it possible to ascertain technical information in the study phase and decide upon the specific intervention for the altarpiece, based on the initial proposal. Multidisciplinary, inter-institutional participation made it possible to exchange experiences and improve methodologies. Some of the results of these joint actions include:

- the current state of restoration of the altarpiece
- gaining new scientific knowledge
- the use of new products demanded by the condition of the altarpiece after the fire
- the development of a preventive conservation plan
- inter-institutional response capacity in technical and economic terms, as well as a collective capacity, characterized by solidarity, in response to the fire.

In overall terms, the work system implemented guarantees optimal intervention, although not without difficulties when it comes to finding common ground for agreement.

Practice has shown that the only way to reach the desired results in terms of successfully intervening on the architectural and artistic heritage of monuments is for institutions to join forces and truly cooperate. This is precisely what has taken place in the effort to restore the altarpiece of San Francisco Javier.



Application of the bole and gold leaf.

Results and overall evaluation

Acknowledgments

The restoration work involved several institutions who joined forces to accomplish the set objectives. The following participant institutions were involved:

YEARS	WORK PERFORMED	PROFESSIONAL PROFILE	PARTICIPATING INSTITUTIONS	FUNDING SOURCE
INTERVENTIONS FOLLOWING THE EARTHQUAKE OF MARCH 5, 1987				
1989-1990	Project: Restoration of the Church of the Company. Report on the Study of Movable Objects - Wood (Altarpiece of San Francisco Javier).	In-house personnel: architects - restorers	Banco Central del Ecuador (Planning)	Ecuadorian Government
1995-1996	Restoration of the altarpiece	Conservators - restorers	FONSAL (Technical Supervision)	Property Tax
INTERVENTIONS FOLLOWING THE FIRE OF JANUARY 31, 1996				
1997-1999	Conservation of the altarpiece	Conservators - restorers	Banco del Pichincha Foundation FONSAL (Technical Supervision)	Private Property Tax
1998	Special structure of the altarpiece	Conservators - restorers	FONSAL (Technical Supervision)	Property Tax
1998-2000	Carving of new pieces and their mounting on the altarpiece	Craftsmen	INPC (Technical Supervision)	Ecuadorian Government
2003-2004	Gilding of the new carvings and damaged pieces	Restorers - craftsmen	FONSAL (Technical Supervision) INPC (Technical Supervision-Logistics) UNESCO (Donation of gold)	Property Tax Ecuadorian Government International Entity
CONSERVATION AND MAINTENANCE				
1999 to date	Preventive Conservation	Architects - conservators	Church of the Company of Jesus Foundation	Private

Photographic credits

Luís Subia

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Notes

1. Many of the documents providing historical data on the Church of the Company and the altarpiece of San Francisco Javier are not readily available in Ecuador today, since the Archives of the Company of Jesus, which are the principal source of information on the construction of the church, are located in several different cities throughout the world, including Quito, Lima, Rome and several in Spain. Furthermore, when the Jesuits were expelled from Ecuador in 1767 by the Spanish government, their accounting books were confiscated and many were lost. Existing documentation suggests that the Church of the Company was built in six phases, from the early seventeenth century to the eighteenth century. Source: "Introduction," in Proyecto de Restauración de la Iglesia de la Compañía de Jesús de Quito, Informe de la investigación histórica-estética (Banco Central del Ecuador).

Altarpiece of Our Lady of Assumption, Colmenar Viejo, Madrid, Spain

110

Ana Carrassón López de Letona



Main altarpiece of Our Lady of Assumption, of Colmenar Viejo, Madrid.

Name of the work of art: Altarpiece of Our Lady of Assumption

Location: Parish church of Colmenar Viejo, Madrid, Spain

Owner/responsible party: Parish church of Colmenar Viejo

Authored by/attributed to:

- **Sculpture:** Francisco Giralte, Francisco Linares, Juan de Tovar
- **Painting, gilding, and estofados:** Alonso Sánchez Coello, Diego de Urbina, Hernando de Ávila

Chronology: 1566-1584

Style: Renaissance of the Castilian School

Dimensions: 12.50 m x 11.60 m (height x width)

Typology: Altarpiece with paintings and polychromed sculptures

Materials and techniques: Gilded and polychromed wood, with metallic fastening elements

Date and duration of the studies/intervention: The studies were conducted concurrently with the intervention. The restoration intervention took place from 1991 to 1995. The illumination study was conducted after the restoration work was finalized in 1995.

Profile of the study/intervention team: The study was conducted by technicians of the Instituto de Conservación y Restauración de Bienes Culturales (Institute for the Conservation and Restoration of Cultural Objects, ICRBC): two chemists, two historians, one physicist (lighting), one biologist (environmental conditions) and one architect. Coordination and direction of the work: two painting and sculpture restorers. Intervention: COROA Company contracted, with six restorers, one specialist carpenter and one photographer.

The decision to intervene on the altarpiece of Our Lady of Assumption at Colmenar Viejo was fundamentally motivated by the work's uniqueness. Many other altarpieces have been restored, but none bring together the variety of factors found in this one. Both this altarpiece and the San Eutropio altarpiece of El Espinar have contributed a wealth of technical information to conservation science and art history, on aspects of construction and painting techniques.

This paper discusses the project's implementation, which used the services of an interdisciplinary team, the auxiliary devices employed, the collaboration of community members and specialists, findings, and unforeseen circumstances that arose. The altarpiece of Colmenar Viejo continues to serve as a reference, due to the information it provided on techniques of execution and the intervention methodology used.

The request by the Community of Madrid to restore the Our Lady of Assumption altarpiece at Colmenar Viejo was included in the pilot plans for restoration of unique works under the ICRBC (now the Instituto del Patrimonio Histórico Español - Spanish Historic Heritage Institute) of the Ministry of Culture. This request coincided with the finalization of the restoration works conducted on the altarpiece of El Espinar, Segovia, in which some of the artists who worked on the Colmenar altarpiece also participated: Francisco Giralte and Alonso Sánchez Coello. The altarpiece of El Espinar, Segovia, was built between 1565 and 1577, while the Colmenar Viejo altarpiece was built between 1560 and 1580. This circumstance provided the ICRBC with an opportunity to study and compare two works with similar characteristics, even though the challenges posed were very different, as was seen during the intervention work.

The objective of restoring the altarpiece of the Assumption was to secure its stability. Therefore conservation took priority over restoration. Nonetheless, such an objective is not always possible to achieve, sometimes because correcting the problem is an impossibility, and sometimes because the object is studied as an isolated, independent element, without bearing in mind its relationship to its surrounding environment.

Introduction

In the case of the altarpiece of Colmenar Viejo, several circumstances involving human and material factors supported its conservation. The parish priest was open to collaboration; the City Council contributed part of the funds for the scaffolding; and a fascinating communication was established with the neighboring residents, the Casa de Cultura, and other institutions of the town¹. Furthermore, the church's roof was mended before the restoration, so there was no problem with dampness or bio-deterioration, and the persons in charge of the church were open to all of the ICRBC technicians' proposals regarding the building's installations.

The ICRBC took charge of the project, directing the work, studies and scientific analyses, and also establishing intervention guidelines. The project's implementation was entrusted to a team of restorers, some of whom had worked on the El Espinar altarpiece, and it involved a team of seven restorers, one specialist carpenter, a construction worker, a photographer and a painter/decorator for the new altar frontal². The project also made use of scaffolding and certain necessary auxiliary devices.

All studies were conducted at the ICRBC. Participants included technicians from the department of photogrammetry and from the chemistry, biology, physics and X-ray laboratories; two historians; an architect; a painting restorer; and another sculpture restorer in charge of directing and coordinating the project as a whole.

The intervention was complex and costly. The total cost of the project was € 300 506, with an estimated duration of two years. This made it necessary to divide the project into three successive phases for administrative purposes. The actual intervention work lasted from 1991 until July 1995, due to, among other reasons, a fire on November 28, 1992, after the first phase of the intervention had been concluded. The fire affected the scaffolding and one of the sculptures, making a second, repeat, intervention necessary in the area of the third horizontal register and the attic.

Preliminary work

Before beginning the work, plans were made to prepare the scaffolding's layout, the lighting, and water installations on one of the platforms. In order to ensure that the scaffolding would meet the project's needs, a restorer was involved in designing it, making sure that disassembled pieces of the altarpiece could be worked on on the platform itself, thus avoiding the risks entailed in transportation. No vertical elements were placed in front of the six panel paintings or the tabernacle, since they were intended to be disassembled. Calculations of the platforms' width and weight ratings were made to allow sculptures, panels and other elements to be placed on them. The width of the scaffolding also made photography possible, with a focal distance more suitable to the size of the pieces, which avoided distortions associated with the use of wide-angle lenses.

For reasons of safety, the lighting wiring was placed at the back of the scaffolding. Each technician had enough light at the correct angles to eliminate shadows while work was in progress. Each platform was equipped with inde-

pendently powered safety lights. Finally, the system had a control panel near the scaffolding entry, facilitating the general control of lighting by the technicians as they entered or left the scaffolding platforms.

One of the safety measures taken, with approval from the parish authorities, was storing solvents in a room at a distance from the altarpiece and from public access. Only those quantities needed for the daily work were kept on the scaffolding. This measure was taken at a time when better equipment and safety measures were required for restoration. Although this made the projects more expensive, it also enabled specialized studies, analyses and interventions to be made that were more professional and performed under better working conditions.

The restoration work was also preceded by a rigorous study of the altarpiece's building system and of the painting procedures used. This approach led to the development of treatments better suited to the materials and techniques employed in this work of art, and ensured that the altarpiece's historic and artistic values would be maintained.

Actions aimed at stabilizing, halting or limiting the altarpiece's deterioration were complemented with a study of the causes of past changes and potential new ones. Along these lines, a new lighting system was considered, which would better suit the objects contained in the church, as well as a new heating system, already planned.

In order to reduce the installation time for the scaffolding, and the duration of the work, in a parish where numerous celebrations and religious ceremonies were scheduled to take place in the church, the studies were conducted at the same time as the restoration work was being carried out. This reduced the risks associated with successive assembling and disassembling of scaffolding and equipment.

The alterations and deterioration in evidence on the altarpiece had a variety of causes. The instability, losses, breakage, separation of paint layers, accumulation of smoke particles, etc were caused by several factors, some independent and some interrelated, contributing over time to a significant deterioration of the altarpiece. In general terms, the alterations consisted principally of the following:

- deterioration, reflected in the separation of pieces of wood and delamination of paint layers, as well as losses of layers of gilding and polychromy
- construction failures, which caused a loss of stability in the upper left area, as a result of which poorly positioned elements became deformed, and some pieces were lost or out of place. Shoddy application of the bole led to the loss of gilding fragments in the lower area of the architectural elements
- constant manipulation, primarily cleaning and repair, to which one must add mistreatment during the Spanish Civil War, and deterioration of the tabernacle and altar table associated with changes in religious rites. The tabernacle casing was poorly positioned and had lost its backboard. The

State of conservation

panel paintings had come out of their original encasements, with breakage in the frames due to having been disassembled and restored

- the relief crowning the altarpiece was loose. Most of the sculptures from the first and second horizontal registers had disappeared, replaced by images from other altarpieces. The sculptures that were conserved had numerous breakages in the hands, feet, folds of clothing, and part of the faces, due to being thrown to the ground during the war
- the traditional use of candles, combined with the altarpiece's varnish, led to a thick layer of smoke accumulating on the surfaces, as well as wax and tar-nished varnish
- some of the deterioration was due to moisture that had damaged the building, but fortunately, the necessary repairs had been made some years earlier
- the wood used to construct the altarpiece, *Pinus silvestris* (common pine), did not display damage or alterations from bio-deterioration. The altarpiece's points of support on the altar table and the connections between the supporting structure and the church were in an optimal state. The spacing between the back of the altarpiece and the wall aided its ventilation and probably contributed to its good state of conservation. Nonetheless, we noted that the nails that joined the altarpiece's architecture to its back structure had given way in some places, due to a detachment of the wall's plaster layers, which, over time, had wedged between the pieces and pushed them apart. This caused some elements to shift and sag, which led to damage and breakage of adjacent pieces
- the custom among the local young people, fortunately abandoned, of climbing to the top of the altarpiece, had caused the damage of, among other things, the supporting crossbeam of the Assumption's encasement, on account of which it was badly dislodged.

Studies

When the project began, the Institute's documentation specialists invited participation from historians specialized in altarpiece authorship. The photographic archives of the ICRBC and Casa de Cultura of Colmenar were also consulted, which provided photographs from 1910. The documentary sources were not clear and were few in number. Nonetheless, in the case of the altarpiece of El Espinar, the work on the gilding and the polychromy made it possible to delve deeper into their study and analysis. This laid a basis for comparative testing of the polychromy between the two works.

In collaboration with an architect, the functionality of the structural and construction system was studied. In addition, environmental conditions were studied to set maintenance guidelines. Finally, a lighting study was planned for the church's entire interior.

The team of restorers was given the job of an exhaustive examination of the altarpiece, encompassing two aspects:

- compilation and analysis of data on the technical and construction characteristics of the structure, architecture, carvings, panels and sculptures of the altarpiece and their corresponding processes for the ground, bonding, gilding, polychromy and painting layers

- compilation of data on the state of conservation of the structure, architecture, carvings, panels and sculptures of the altarpiece and their corresponding layers of bonding, gilding, polychromy and painting.

In order to systematize the restorers' work, three different standardized forms were designed for recording data collected on technical characteristics, state of conservation, and treatments applied. We used the same format throughout the four years of work on the project, which served as a summary when we drafted the final report. During this project, a substantial collection was made of direct tracings of motifs of estofados and sgraffitos, with a view towards creating a database on these decorations. In fact, we had proposed such a measure when we were working on the altarpiece of El Espinar. For this purpose, we designed a simple form, which was attached to the tracing, recording the location of the motif, a brief description of its elaboration and a photograph of the selected detail.



Documentation through tracing of the motifs from the altarpiece's estofados.

Intervention on altarpiece supporting system

Upon analyzing the various factors involved in the sagging and slumping of the altarpiece's left side, the idea of dismantling it was rejected³. Intermediate solutions were attempted that did not involve its disassembly, even though that meant that we would not succeed in completely correcting its unevenness. The space between the altarpiece and the wall of the church provided us with access to the central area of the altarpiece, despite the fact that the two side registers were practically abutting the wall.

The solution was to progressively correct the altarpiece's obvious sagging and deformations, by consolidating its architectural components and securing them to the supporting structure on the back of the altarpiece, in order to provide a sufficient guarantee of stability. The slumping of the cornices was resolved. Columns and pillars were checked. Panels, relief and the backs of slumping niches were reinstalled in their correct positions. To accomplish this, the scaffolding was used to hang the encasements, sculptures or panel parts when they were disassembled or hoisted and placed back in position.

At all times these actions conserved and respected the altarpiece's own systems of assembly, anchorage and reinforcement. The original nails were not replaced or removed and we made sure that any new pieces added were recognizable.

Lost elements of the altarpiece were replaced if so doing would help achieve the altarpiece's structural stability. For example, we replaced part of the lost frame of the Annunciation so that it could be properly placed in its encase-

Intervention

Setting process used on broken sculptures.



Intervention on the altar table

The deterioration observed in the tabernacle and the altar table required other measures, which were undertaken once the restoration was concluded and the scaffolding had been disassembled. The frontal of the altar table is the result of an eighteenth-century intervention, and did not have lateral panels. The tabernacle encasement was 10 cm lower than its original level and was propped up by two piles of bricks without any mortar. In order to restore and consolidate this piece, it had to be disassembled. A series of moldings were removed that were not originally part of the tabernacle, and the back, which had disappeared, was replaced, thereby providing it with greater solidity. Next, the altar table was repaired. It was first made level, and then set on four wooden rails, which would support the tabernacle, thus restoring its proper height and positioning. These rails were built with a treated wood to protect the altarpiece against potential humidity.



Photograph from 1910, showing the tabernacle with the relief of the Last Supper, which has now disappeared. Photo courtesy of Rosa María García Blázquez, Colmenar Viejo.

The ICRBC readily accepted a request made by the parish authorities, of moving the altar frontal to the altar situated in the center of the presbytery. As a result, a new solution had to be found to cover the area left empty. The church assumed the cost of installing a new panel painted to resemble marble, which blended chromatically with the lower base of the altarpiece.

Intervention on the polychromy

The re-setting of the base, gilding, and polychromy layers employed the traditional animal glue technique. This operation, along with cleaning the thick layer of smoke and tarnished varnish, took the longest time to complete. The operation was extremely delicate. Moreover, there were complications on account of the fire.

The large number of losses allowed the various layers of the polychromy to be seen with the naked eye: wood, bonding, bole and gilding. Different systems were used to restore each layer. When the losses reached these areas, different solutions were adopted:

- wood: the area was not restored
- bonding: the polychromy was retouched with a watercolor wash
- gilding: the polychromy was treated using *tratteggio* to attain a chromatic vibration
- *estofados*: the lines of color were adapted to the shape of the motifs.

These solutions were adopted because they succeeded in adapting to the reflection, opacity or transparency of the various surfaces. Furthermore, they provided an overall aesthetic equilibrium in keeping with the diversity of textures and volumes. Although there were a high percentage of losses, the intervention took into consideration the relationship between the size of the altarpiece and the fact that the losses were small in dimension and quite scattered.

Change and substitution of sculptures

The original images from the first and second horizontal registers of the altarpiece were destroyed and substituted on several occasions during the twentieth century. The result was a striking disequilibrium of styles, of iconography and of the sizes of the figures in proportion to the niches that housed them. This problem created some controversy when solutions were proposed.

A commission was created with participation from ICRBC technicians, as well as several specialists, some of them associated with the municipality, and the parish priest, as a representative of the Church, to study potential solutions and establish joint guidelines for the activities.

Photographic documentation from before the Spanish Civil War was evaluated, along with the iconography and a comparison of the marks, such as numbers or symbols, found on the niches to those found on the sculptures to obtain location information. It was concluded that if all the figures no longer in their original position were relocated, the result would be a severe disequilibrium of the two horizontal registers of the altarpiece, exacerbated by the destruction of the sculpture of Santo Domingo of Guzmán during the 1992 fire.

Finally, in July 1993, it was agreed to remove any sculptures that did not belong to the altarpiece. Some of these were returned to their respective altars. The rest were deposited in the church museum, with the exception of the Resuscitated Christ in the central niche, since it is contemporary to the altarpiece. Sculptures originally belonging to the altarpiece, whose location had been changed after the war, were left in their post-war positions, since these better matched the representation of the iconographic repertoires. This solution was criticized by some of the churchgoers, although over the course of time this decision was accepted by all, and no new changes were made.

Intervention following the arson

The arson in the church altered the intervention plans. Before dawn on November 28, 1992, the altarpiece caught fire. This took place during a period between the first and second phases of the restoration.



Detail of the cleaning of the face of the Virgin of the Calvary.



Sculpture of Santo Domingo de Guzmán,
before and after the fire.

The firefighters sprayed water to put out the flames on the scaffolding, thinking that what had caught fire was the structure of the altarpiece. It was announced that the altarpiece had been lost, but fortunately, it was found that what had caught fire were only the canvas and the wooden platforms. As it was, the fire damaged one of the panels and the sculpture of Santo Domingo de Guzmán, which had been disassembled on the scaffolding.

When it was possible to get inside the church, the altarpiece seemed to be a gray ghost, covered with ash and soot. The flames had only reached the lower right-hand edge, which had caused some blistering in the polychromy. The water sprayed by the firefighters had collected at that same point. Luckily, the area damaged was one that had already had many losses, and as such the fire's devastation was less severe than it could have been. The arsonist had intended to burn the altarpiece. The scaffolding door had been opened and gasoline-soaked rags had been placed on the scaffolding's end panels, on a relief of the predella, and on the altar frontal. The predella and altar frontal did not catch fire, however. Shortly afterward, the culprit was arrested and expelled from Colmenar Viejo.

Upon completing the first phase of the intervention, we had applied a light coating of varnish, and were expecting to soon finish the following phases. The third horizontal register and the attic had been covered with paper to protect them from dust, but a few days earlier we had removed part of the paper to take photographs. If the flames had come closer to the surface of the altarpiece, the paper might have contributed to spreading the fire, but since that did not happen, it helped keep the covered parts from being damaged by the soot. The fact that the solvents had been stored away from the scaffolding kept this incident from having even more serious consequences.

The incident had another curious outcome. The panel paintings had been restored using watercolors, and, in certain limited areas, Maimeri pigments. The fire's high temperature did not affect the paint surface, but did cause an intense oxidation of the restored Maimeri, making it very dark. The damaged areas that had already been restored had to be re-treated.

Findings of the studies and intervention

Work conducted on the altarpiece led to the discovery of a hidden early sixteenth-century mural, and contributed to a better understanding of the altarpiece's construction and assembly, as well as the painting and polychromy techniques used in its decoration.

Discovery of the mural

When the panel of the Annunciation on the first horizontal register was being disassembled, behind the encasement of St Peter we observed a plaster arch, over which a depiction of a crucifix appeared and a vegetal motif. Along the interior of the arch the corner of a painted scene aroused curiosity. An unsuccessful attempt was made to view it with mirrors and flashlights. An attempt was also made to reach it by disassembling the back of the niche, but the spa-

ce was too narrow. After evaluating the challenges, it was decided that the only way to gain access was to cut the lower tenon of one of the columns. The panels had to be taken down to prevent a possible collapse at that spot. The necessary materials were prepared, as well as a camera to record the find. A small plasterwork ogee arch, full of dust, was found displaying a mural of the Mass of St. Gregory. Its right side had been destroyed during the assembly of the altarpiece.

After reviewing the state of the mural, which was free of blistering, dust, or flaking, it was decided not to apply any treatment. The find was photographically documented, the components of the altarpiece were set back in place, and the painting was hidden once again. We received some criticism for this course of action, but at the time it seemed too risky to allow it to remain exposed.

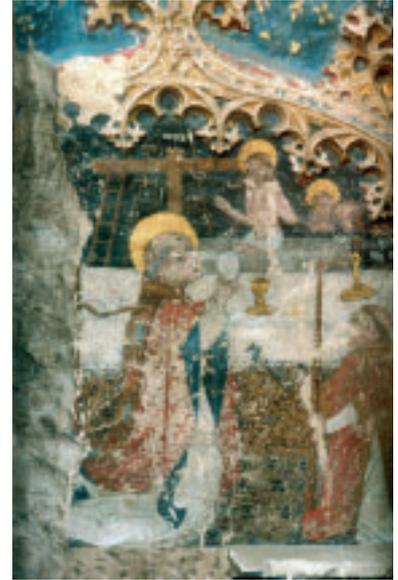
The study of this painting, conducted later by Áurea de la Morena, indicated that the painting was from the early sixteenth century. Its style was that of the final Gothic period, with a Flemish influence, but it also had a certain sense and spirit of the Italian Renaissance, while adding a special value of its own. "... To date this is the only known, surviving example of mural painting of this period in the Community of Madrid"⁴.

Art history studies

The main altarpiece of Our Lady of Assumption is one of the most monumental and representative works of the sixteenth century in the province of Madrid. It is also one of the most notable pieces of Spanish art classified into the school of Toledo, both on account of its typology and the artists involved in its making. The altarpiece's location of the parish church of Colmenar Viejo was, at the time, the most important villa of Real de Manzanares. Located close to Madrid, Colmenar Viejo today has 30,000 inhabitants. A cattle-raising tradition and small-scale industry exist side by side, giving the town a rural flavor.

Colmenar Viejo formed a part of the artistic sphere of Toledo, the ecclesiastic jurisdiction to which it belonged. The exact authorship of the design and sculptures is unknown. Indeed, the documents that were conserved are confusing and have created much doubt as to whom this work should be attributed. The Diocese of Toledo commissioned the altarpiece, and, based on existing documents, some of the persons involved in the works are known, especially those involved in the painting, gilding and estofados: Alonso Sánchez Coello, Diego de Urbina, Hernando de Ávila, Rodrigo de Vivar and Santos Pedril.

Francisco Linares and Juan de Tovar are known to have been involved with the sculptures, based on the evidence of a payment letter. The specialists consider these persons to have mostly been involved as craftsmen. Historians attribute the design and part of the sculptures to Francisco Giralte, a disciple of Alonso de Berruguete, even though his name does not appear in any of the documents conserved. Margarita Estella points out, that even though the carving still bears the mark of Toledans Vázquez and Vergara, the work of Giralte in Colmenar Viejo better resembles the work he created in the altarpiece of



Detail of the mural found behind the altarpiece.



The doors of the tabernacle. On the exterior the scenes are in relief, and on the interior, estofados. Below, a detail of estofados dated 1579.

the Chapel of the Bishop in Madrid, but with a more developed style and more classical approach⁵.

Regarding the panel paintings, Trinidad de Antonio notes that the altarpiece of Colmenar Viejo is one of the rare examples conserved in the region from the late sixteenth century⁶. She notes that it bears testimony to what painting was like in that era: an Italianized flavor is coupled with the marked influence of Trento, the Italian city that formed the juncture between the sixteenth-century school of Toledo and artists in Madrid connected to court officials.

Through laboratory analyses, it was determined that the panel paintings were mostly in oil paint. In contrast, the altarpiece of El Espinar was still employing tempera and emulsions. It must be borne in mind that this was a transition period between the mixed techniques of tempera and oil, and Venetian-style oil painting, which started to take root at that time⁷. In the Colmenar panels, the presence of several authors was also evidenced by differences in technique from one panel to another. Styles varied from a greater archaism in the form of tiny brushstrokes to depict certain details, on one end of the scale, to a much looser technique on the other.

Trinidad de Antonio's studies attribute the six panels to the following authors: the Annunciation is the work of Diego de Urbina; the Birth and the Epiphany could be the work of Sánchez Coello; the Presentation in the Temple and Jesus before the Doctors are the work of a single author, both of them attributable to Hernando de Ávila given the similarity of the models and techniques and the identical design of the figures on the first level; the Visitation, whose conceptual approach and execution are different from the rest, could correspond to the style of Luis Velasco and is the work of the lowest quality in the entire altarpiece. It may correspond to this painter's younger years.

Áurea de la Morena concludes that the paintings on the inside of the doors leading to the Sanctuary are the work of Hernando de Ávila, since they are similar to book illustrations, and he was an illustrator for the El Escorial library⁸. These paintings, conceived as miniatures, are made over gold, using the combined technique of brushwork and sgraffitto, and include among the decorations the date of 1579.

Construction of the altarpiece

The documents conserved have left much doubt as to authorship of the works. It is clear, however, that the altarpieces were the product of collaboration among several masters and workshops overseeing numerous craftsmen. Thus, in the majority of cases, it would have been very difficult to indicate which part corresponds to which author.

Since several elements of the Colmenar Viejo altarpiece had to be disassembled, and there was ample space between the altarpiece and the wall, it was possible to gather a wealth of information regarding the altarpiece's construction. Work systems for the construction of altarpieces remained practically unvaried throughout the sixteenth and seventeenth centuries.

Each element or module of the altarpiece was built in the workshop of the sculptor or assembler. The pieces were joined to one another there, and later integrated into and positioned in the altar for which they were designed. At that point, the altarpiece was assembled “blank” without bonding materials or polychromy. The altarpiece normally remained in such a state for several years until the contract was signed for the painting, gilding and estofados. This interval of time also allowed the wood to stabilize before the bonding materials and paint were applied. Once the polychromy work was awarded, the pieces would be taken down and transported to the painter's workshops, where imperfections were repaired and the preparation, gilding and painting was performed. After those operations were concluded, the altarpiece would be reassembled in its place of destination.

The altarpiece of the Assumption has a trapezoidal floor plan, a center section and two wings, to adapt to the church's stone apse. It is divided into eleven vertical registers and their separating divisions. Horizontally it consists of the lower base of the altarpiece, a predella, three levels with classic orders (Doric, Ionic, and Corinthian) and an attic crowning the piece. The center section of the altarpiece is separated from the wall by 80 cm, but as one approaches the sides, the separation gradually reduces, until the altarpiece eventually touches the wall.

As was common in large altarpieces until the seventeenth century, the back of the altarpiece has a supporting structure comprising a framework with eight girders and four rows of crossbeams. The structure replicates the architectural layout of the altarpiece. Vertically, two of the girders each line up with one of the vertical registers whose niches have the greatest projection; horizontally, the wood coincides with the cornice of each horizontal register. The structure is seated upon the altar table and is secured by insertion of the ends of the horizontal pieces into the wall.

Once the framework was set in place, the assembly of the altarpiece was commenced. The elements comprising its architecture were superimposed on the structure from bottom to top. First, the central encasement of the first horizontal register was built, to which the other elements were attached on each side. The same process was continued on the higher registers, until reaching the attic. At the same time the modules were installed, which were secured to the structure using forged iron nails. The seating of the altarpiece on the altar table means that the lower base of the altarpiece functions exclusively as a finishing touch. It barely supports any weight whatsoever, even though it would appear to do so, given the great volume of its consoles.

Assembly of the altarpiece

The assembly method for the backboards of the encasements or niches and for the panel paintings is a grooved system. A mortise-and-tenon system was used in the pillars, for the joints between the bases, shafts and capitals; the columns have round tenons that fit into the entablature.

The panel paintings, formed by three panels, assembled edge-to-edge and reinforced with dovetail joints, have an approximate thickness of 2 cm. Their



Front and back of the painted panels, depicting the Annunciation.

edges are beveled to fit into the groove of the frame. The reinforcement cross-beams are pegged through the front with wood tenons and their sides are narrower to avoid excessive force on that weakest part of the panel.

The study of the altarpiece made it possible to record numbers, letters and markings on the components for their identification in the altarpiece as a whole, which were written in ink directly on the wood or on paper glued to the wood. Using this system, the free-standing sculptures are ordered from left to right with capital letters; the panels, for example, using lower case letters, are ordered from bottom to top on the left-hand side, and from top to bottom on the right. The final operation was to mount the sculptures in their encasements and niches hanging from iron eyebolts, with their bases nailed into the pedestals.

The pedestals of the columns on the third horizontal register are constructed using a grooved system. The three vertical panels fit into the grooves along the base and the top. In addition, the inside of these encasements has a vertical board assembled using a mortise-and-tenon joint as reinforcement.

Painting and polychromy techniques

For application of the polychromy and painting of the panels, the process was begun by impregnating animal glue on the wood, after which strips of glue-treated canvas were placed over the joints and openings and, in the case of panel paintings, the entire surface was covered with tow. On the back, the tow only appears at the panel joints. The plaster bonding used a first layer of impure gray plaster, followed by layers of matte plaster. The bole is a red clay, rich in iron oxide and animal glue. Two or three layers of bole were applied, over which the burnished gold leaf was laid.

If up to this point a comparison of the technical characteristics of the altarpiece polychromy at El Espinar versus Colmenar Viejo does not yield especially significant results, when it comes to the use of colors, certain differences are seen.

With respect to the polychromy, the magnificent estofados follow the traditional systems for this technique, using egg in Colmenar Viejo and an emulsion of egg plus linseed oil in El Espinar⁹. The colors were generally applied in thin layers, except for the layers of indigo used in Colmenar Viejo and the azurite blues and malachite greens of El Espinar. The main difference observable between the two altarpieces is a greater frequency in the use of azurite and malachite in El Espinar as compared to Colmenar Viejo, where indigo is more prevalent. In the painted panels at Colmenar Viejo, over the layers of bonding and the upper impregnation of glue, there is a gray primer comprising lead carbonate and a black plant substance, while in El Espinar the primer is more beige in hue, since it also includes minium (red lead) in its composition.

In many cases, the painters not only worked on the painted panels, but also took charge of the estofados and flesh tones of the altarpieces' carvings. They were skilled at estofados, which they performed freehand, and they filled the various spaces of an altarpiece using all types of techniques: simple colors, iridescent colors, gold leaf, lacquers, creating motifs with false estofado, sgraffiti



Detail of the flesh tones of the Christ, which is of matte finish and rough texture, and of the Virgin, which is polished, although her eyebrows, the wrinkles on her forehead and around her eyes, and hair are painted with a paintbrush.

or a combination of both techniques. As such, the variables proliferated when it was time to prepare the estofados of an altarpiece's surface. In Colmenar Viejo we found a motif transferred with a carbon pencil. It would appear that tracings of the estofado motifs were only used for the altarpiece's most significant images, where the estofados were more complex or more innovative.

Flesh tones on both altarpieces, as was customary in the second half of the sixteenth century, have a polished finish. The pigment binding was linseed oil, sometimes with a few drops of varnish added. In order to produce a polished flesh tone, the base color was first applied with a brush. Next, details were added (shading, blush). While the base color was still fresh, a strip of kidskin or animal gut tied around a finger or paintbrush handle would be rubbed over the surface, using just the right pressure to achieve a perfectly stretched surface without any marks, as is characteristic of these polished flesh tones. After the polished flesh tones had dried, hair, wrinkles and eyebrows would be painted in, using a paintbrush. On the Colmenar altarpiece there are several exceptions to this technique. The flesh tones of Christ of the Calvary, as well as the beards and shaved hair of the saints are rough surfaces, accomplished using a brush over a layer of very dry or well set color, to lend greater realism to the dead body of the Christ and to the shaved hair of the saints.

Ten years have passed since this restoration work was completed. The experience has served to reaffirm certain guidelines and adjust others for purposes of undertaking new activities.

The restorers' work, resources and mentality have changed. Now, technicians are required to have better training, studies of the works of art are expected to be more complete, resources are more sophisticated and safety measures are stricter. But there are aspects where integral methodological programs are still lacking. Indeed, the restoration of cultural objects, and particularly of altarpieces, must not be considered in an isolated fashion, but as a part of a building and its surrounding environment.

This approach to interventions on heritage objects is not new, even though it has yet to take hold in society. During our four-year stay at Colmenar Viejo, several lectures were given in an attempt to instill this new outlook. An open house was also organized for the altarpiece, and a photographic exhibition was held after the works were completed. We were convinced that by sharing information on the project with churchgoers and the community, we would raise their awareness of the conservation and restoration accomplished on their altarpiece and build their interest in its subsequent care. Through this effort, many residents of Colmenar Viejo provided us with oral information, which enriched the data we had on certain interventions.

Our jurisdiction over the altarpiece ended once the restoration was complete. Nonetheless, since we are aware of the need to establish long-term conservation plans, our final report included a chapter devoted to guidelines for the altarpiece's care and maintenance. Whether those guidelines will be put into practice depends upon the persons in charge of the church. The advice

Conclusions

involves simple measures, such as not wiping the polychromy or gilding with wet rags. It was also recommended, for instance, that broken windows, leaks, etc be promptly repaired, and that a professional be called in should a problem arise.

Making those in charge aware of the long-term advantages of these strategies in the object's periodic maintenance is the principal objective in the conservation of our heritage. Not only would proper conservation of the object be achieved, but the high costs entailed in overall interventions would also be reduced. When inspecting the state of the work of art during cleaning, we would be given an opportunity to evaluate the methods applied during the restorations.

The Church, for its part, has guidelines regarding matters such as the transporting of works, and protection of the assets during future projects on a building. The Church's guidelines also address how to get the most out of the knowledge that technicians accrue during an intervention in order to facilitate decision-making, since it is feasible to maintain a relationship with those technicians.

Such measures would help prevent activities that could be detrimental to the conservation and maintenance of the works of art. For example, subsequent to the intervention, it was suggested that the walls and vaults needed to be painted to maintain the church and improve its appearance, but the need to protect the altarpiece during the painting was not taken into account. A proper approach would have prevented the altarpiece from being covered by a layer of gray dust.

A positive example is the time when the parish priest consulted the Instituto del Patrimonio Histórico Español, a few years later, about a professional's request to remove the hidden mural behind the altarpiece. It was surprising how this professional failed to propose a rigorous analysis of the risk entailed in an intervention such as this, which necessarily requires the altarpiece's disassembly. This occasion was used to give practical classes, preventing serious damage and allowing the work to be conserved in its integrity.

Acknowledgments

My special thanks go to Concepción Cirujano Gutiérrez and Teresa Gómez Espinosa, IPHE, for their work on editing this article.

ICRBC work team

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X-Ray Laboratory: Tomás Antelo, photographer / Araceli Gabaldón, Physicist / María Yravedra, restorer

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Department of Photogrammetry: José M. Lodeiro / José Sandoval / Alejandro Almazán

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Project Direction and Coordination: Ana Carrassón, restorer

Contracted team:

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Painting of the New Altar: Luis Prieto, painter-decorator

Photography: José F. Lorén, photographer

Scaffolding: YDE

Electrical Installations: City of Colmenar Viejo

Collaboration:

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Áurea de la Morena Bartolomé

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Faustino García Moreno and Antonio García Rubio, parish priests of the Parish Church of Colmenar Viejo

Photographic credits

Photos provided by the Fototeca de obras restauradas del Instituto del Patrimonio Histórico Español, N° Registro; *In situ* 1101.

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Notes

1. Later the ICRBC had to bear the entire cost of the scaffolding, since the city council, in keeping with its budget cuts policy, withdrew its co-operation. On the other hand, the people of Colmenar provided us with information regarding the altarpiece, based on memory or direct experience, such as when they saw the altarpiece cleaned with an onion or when, during the war, the altarpiece was protected up to the first horizontal register with bags of earth, etc.

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Altarpiece of Santa Eulalia, Parish Church of Marquínez
and altarpiece of San Bartolomé, Parish Church of Olano,
Álava, Spain

126

Rosaura García Ramos



Altarpiece of Santa Eulalia, Parish
Church of Marquínez, Álava.

Name of the work of art: Altarpiece of Santa Eulalia

Location: Parish Church of Marquínez, Álava, Spain

Owner/responsible party: Diocese of Vitoria

Authored by/attribution to:

- **Sculpture:** José de Frías and others
- **Gilding:** Santos de Torres

Chronology: Late sixteenth century

Style: Álava Renaissance

Dimensions: 9.80 m x 5.80 m (height x width)

Typology: Carved altarpiece, with sculptures

Materials and techniques: Polychromed and gilded wood

Dates and duration of the studies/intervention:

From July 1988 to November 1994

Profile of the study/intervention team: Restorers, with support from the Architecture Department of the Diputación Foral de Álava (Council of the Autonomous Community of Álava, DFA).

External conditions can significantly influence decisions on treatment and hence the final results and future of a work of art, even when processes, criteria and requirements similar to a parallel project are followed. The two examples from Álava are used to demonstrate this finding.

Altarpiece of Santa Eulalia, Marquínez

The restoration project for the altarpiece of Marquínez began in 1987, shortly after the Restoration Department of the Diputación Foral de Álava was first established. The altarpiece was found completely disassembled on the floor of the sacristy of the parish church of Marquínez. This had been done by the townspeople few years earlier, given its extremely precarious state of conservation and the condition of the building.

In 1988, the building was declared a ruin and incapable of housing the altarpiece again. Keeping in mind the impossibility of saving the building, the principal objective was centered on saving the work of art. Preliminary reports and studies were conducted to investigate the possibility of housing the altarpiece in a special place, reconstructed at full size. It was concluded that the altarpiece could be reassembled in one of the lateral naves of the Neo-Gothic cathedral of María Inmaculada de Vitoria.

The altarpiece of Marquínez is of great artistic quality, outstanding among the artworks of Álava from this period, and was the reference point for festivals of the area's patron saints. The altarpiece was constructed specifically for the parish church of Marquínez, and if it were not for the adverse circumstances that caused its deterioration, the altarpiece could be declared a Monument of Cultural Heritage due to its close relationship to the building. Currently we are studying the possibility that the Basque government consider officially declaring this work of art an Object of Cultural Heritage in its own right.

Origin of the project

Significance of the altarpiece



Parish Church of Marquínez: General view of church and interior in ruins.

Intervention proposal

State of conservation

To understand the decay suffered by the altarpiece, it is important to note the church's progressive deterioration. Located on top of a small hill in the town center, the building started to deteriorate after a shift in the terrain. This caused damage to the building's foundations and the opening of numerous large cracks in the walls and vaults, impossible to repair and leading to the progressive collapse of a large part of the church's vault and even larger cracks in the walls.

The altarpiece's parts were scattered over the floor of the sacristy and were at risk from the possible collapse of this part of the building as well as theft, due to the lack of protection and easy access to the various altarpiece elements. The wooden supports of the reliefs and of the free-standing sculptures and other decorative elements were extremely dusty, and infested with fungi and xylophagous (wood-eating) insects, particularly termites (50%). The polychromy had also been damaged by insect burrowing and by fungus infestation affecting the paint's ground layer. Nevertheless, no lifting or losses of great significance were seen.

Approach

When the Restoration Department began work in 1987 a study was conducted of the general condition of the altarpiece and church in collaboration with the

Architecture Department of the Diputación Foral de Álava. The Restoration Department conducted studies on the building to investigate potential solutions. Conditions were extremely adverse, as noted above, and the best solution was sought in order to meet the challenge. The Restoration Department concluded that only the altarpiece could be saved.

Attention focused on studying the influence of environmental conditions on the future conservation of the altarpiece, so that its new location would not adversely affect its state of conservation.

An analysis of the mechanical resistance of the supporting structure was also conducted in collaboration with the Architecture Department. The state in which the altarpiece was found would not allow it to support its own weight once reassembled. The Architecture Department designed an anchoring system to keep the higher pieces from bearing down on the lower ones.

Rigorous chemical analyses were proposed in order to determine the characteristics of the materials of the altarpiece. However, given the limited budget, these analyses were postponed. Nevertheless, since the polychromy did not display any particular problems, failure to identify its chemical components did not create an obstacle for its treatment.

In order of priority, given the urgency of the case, the following treatments were proposed:

- protection of each of the pieces of the altarpiece so they could be transported for their restoration
- cleaning of the surface and protection of the polychromed elements
- removal of insects and disinfecting of the supports
- consolidation of the supports
- repair and reconstruction of areas that had lost wood
- fixing of the polychromy at specific points
- elimination of retouching
- stuccoing and reintegration of areas with losses
- final protective layer
- design of an anchoring system
- assembly of the altarpiece in the cathedral
- final inspection of the assembled work and review of the finishing on the altarpiece.

The designated objectives were met satisfactorily. Now moved to the cathedral of María Inmaculada de Vitoria, the altarpiece forms a part of the collection of the Diocese Museum of Sacred Art of Vitoria, where it is protected by the cathedral's security systems. Although environmental conditions are not the most suitable for its conservation and periodic maintenance treatments are required, the new setting allows the altarpiece to be visited by the faithful, by tourists, and art historians and other researchers.



Altarpiece of Santa Eulalia, Marquínez: destruction caused by termites.

Proposed action

Intervention

Altarpiece of San Bartolomé, Olano, Álava, Spain

Significance of the altarpiece

The restoration project for the altarpiece of Olano was prompted by a visit from the principal author of the List of Monuments of the Diocese of Vitoria, who called attention to its poor state of conservation and the great quality of this work of art, hidden under innumerable layers of crude repainting that considerably modified the original iconography of the altarpiece.

The altarpiece of Olano has a particular cultural significance, because it is the only altarpiece of this era, principally consisting of panel paintings, conserved in Álava, and its composition is of very high quality. Dedicated to San Bartolomé (the town's patron saint), it is the principal focus for the festivals of Olano and the only existing religious object associated with this celebration.



Name of the work of art: Altarpiece of San Bartolomé

Location: Parish church of Olano, Álava, Spain

Owner/responsible party: Diocese of Vitoria

Authored by/attribution to: Anonymous

Chronology: First half of the sixteenth century

Style: End of the Gothic era

Dimensions: 7 meters in height, approximately

Typology: Altarpiece with sculptures and panels

Materials and techniques: Polychromed and gilded wood

Dates and duration of the studies/intervention:

- **Intervention:** Ongoing since February 1995; completion had been projected for 2003, yet due to the problems outlined below, treatment still continues

Profile of the study/intervention team: Restorers, chemists, biologists and historians

In addition, the altarpiece has been legally declared a Monument of Cultural Heritage, since it was built specifically for the parish church of Olano, constructed at the end of the fifteenth century, which is in a very good state of conservation. For all these reasons, the altarpiece is a unique work of art in this region, worthy of being included on the Basque Country's cultural tourism routes.

Simple and very well conserved, the Gothic building that houses the altarpiece has also been declared Cultural Heritage. Its interior displays clear indications that painted murals can be found under the layers of lime on the walls.

In the past, environmental conditions in the church were somewhat extreme due to broken windowpanes and leaks from the roof. The average temperature was 8 - 10° C and relative humidity was 70 - 80%. These problems have been solved, however, and the church is now safe and stable. Lighting is still limited, consisting only of a small window next to the church's apse, facing north-east.

Today the people of Olano, proud of their religious and artistic heritage, celebrate mass in their church assiduously in order to defend their rights. Since Olano is a sparsely populated town at a distance of 1.5 km from another, more densely populated town, before the restoration was begun, the doors of the church were only open for worship once a year, on the Feast Day of San Bartolomé. In the rest of the year, mass was held in the neighboring municipality of Zaitegui. Security for the altarpiece is no different than what could be offered to any other work of art under the same circumstances (church located in town, with thick walls, small windows, and difficult for outsiders to access). Once the altarpiece is restored, however, an alarm system will be installed to help prevent attempted theft or vandalism.

A further difficulty has developed over where the altarpiece will be permanently placed after the conservation intervention is completed. More than twenty years ago, the Basque government transferred jurisdiction over the Conservation and Restoration of the Heritage of the Historic Territory of Álava to the three Diputaciones Forales (Autonomous Community Councils). As such, the Restoration Department sets guidelines in conservation and restoration matters, although the owners' opinions are borne in mind, provided that

Context

they are not in violation of applicable legal norms. Periodic meetings of the Mixed Commission of the Office of the Archbishop - Council of the Autonomous Community of Álava are held to encourage communication and joint decision-making between both institutions.

For the altarpiece of Olano, the Restoration Department set guidelines and also bore all the expenses of the intervention until 1998, at all times abiding by the agreement with the Commission and the terms of the Historic Heritage Act of Spain and the Basque Cultural Heritage Act. Since 1998, the Office of the Bishop of Vitoria has contributed money to the intervention, in addition to the annual funds allocated by the Diputación Foral de Álava for general restoration plans for movable heritage. Unfortunately, since 1998 disagreements have arisen over whether the altarpiece will be returned to its original setting after intervention, as required by Government Decree 273/2000, or if it will be exhibited in the Museo Diocesano de Arte Sacro of Vitoria, as the office of the Bishop wants.

Intervention proposal

History and state of conservation

The altarpiece itself was severely altered by a partial transformation in the eighteenth century, when a local painter was commissioned to modify the iconography of the altarpiece's panels. Possibly aiming to solve the altarpiece's conservation problems (losses and lifting of paint layers), the artist took that opportunity to change many of the scenes, following the liturgical dictates of the times.

This intervention gave the work of art a confusing appearance, while also hiding the quality of the altarpiece. Historians have confirmed that this intervention was crude and incompatible with the partially visible painted areas remaining from the sixteenth century.

During the eighteenth century, a baroque-style sanctuary was also placed in the centre of the altarpiece's predella.

In general, the condition of the altarpiece was quite precarious before intervention. It suffered from a range of problems, including fungus infestation and xylophagous insects, deformations of the supports, major losses in parts of the



entrecalles (or divisions between the vertical registers) and some canopies of the panels and reliefs, deformation of the architectural structure, causing concern over its stability, dislodgment of one of the small panels of the predella, and moisture caused by the leaking roof.

As for the paint layers or polychromy, the panels were in the worst state of conservation, with numerous enormous losses and lifting of paint layers. Blistering reached 1.5 cm in height. Although the oak support for the panels was in very good condition, with almost no xylophagous infestation, during its restoration we observed its enormous capacity for absorbing moisture. This will unquestionably affect the future conservation of the work of art, as well as maintenance efforts and the control of environmental conditions.

Approach

As with the altarpiece of Marquínez, a study of the condition of the altarpiece and its environment was conducted by the Restoration Department, together with the Architecture Department of the Diputación Foral de Álava. Climatic conditions in the church were quite adverse, and it was concluded that the church had to be immediately upgraded, before finalizing the restoration work on the altarpiece. This has been satisfactorily accomplished.

Special emphasis was placed on studying environmental conditions, so that the altarpiece's subsequent relocation to the church would not adversely affect its state of conservation. This effort was initiated before the first restoration activities and has continued. The study also focused intensively on the state of conservation of the softest wood of the altarpiece (pine), especially in the canopies, entrecalles, and some of the carvings. These elements were extremely fragile, due to infestation by fungi and xylophagous insects.

A main concern was the lifting of the paint layer on the panels and on some of the polychromy of the sculptures. The problem on the sculptures was less severe, but the panels' paint layers, almost totally separated from the support, had the stability of a house of cards. To better understand the panels, the National Research and Technology Institute of Agrarian and Food Sciences (INIA) conducted studies to identify the panel wood (oak), and dated it to the sixteenth century by dendrochronology.



Altarpiece of San Bartolomé, Olano:
Compositional change caused by the repainting.



Altarpiece of San Bartolomé, Olano: The martyrdom of San Bartolomé, before and after removal of the repainting.

Finally, attention was focused on eliminating the eighteenth-century repainting. Since the repainting did not respond to the solvents that could conserve the paint and polychromy from the sixteenth century, the composition of both the original paint layers and the repainting was chemically analyzed. It was concluded that the only way to eliminate the repainting was by hand with a scalpel and binocular microscope (25x - 16x).

Proposed action

134

To develop the intervention proposal, a multi-disciplinary commission of specialists was created, which informed the Office of the Bishop of Vitoria of the results of the studies. In formulating the treatments described below, the poor state of conservation of the altarpiece and the decision to eliminate the eighteenth-century intervention were the two most important factors considered, as well as the fact that the altarpiece of Olano is the only sixteenth-century altarpiece with a mixed supporting system and unique iconographic details conserved in Álava. Based on the particularity of the case, the criteria that were considered most sensible were then adopted.

In order of priority, the following treatments were proposed:

- protection of each of the pieces of the altarpiece for disassembly and subsequent restoration, with particular attention to the panel paintings, given their poor state of conservation
- disassembly of the altarpiece
- on-site fixing of paint layers and consolidation of elements of the entrecalles and canopies, since they were extremely fragile. Partial transporting was proposed, so that only pieces that needed to be restored at the workshop and treated at that particular time were transported
- decontamination of insect life and consolidation of the supports
- repair of the supports and reconstruction of areas that had lost wood, to restore the unity of the piece as a whole
- deep fixing, under a microscope, of the paint layers and polychromy
- compositional analyses of the original paint layers and repainting
- elimination of the eighteenth-century repainting (decision made after several meetings with the director of the Restoration Department and other restorers, historians and the owner of the altarpiece)
- stuccoing and reintegration of areas with losses
- final protective layer
- reassembly of the altarpiece
- final review and retouching.

Intervention

The actions are being carried out as described above, although numerous problems have arisen in fixing the paint, given the instability of the panels and difficulties encountered in eliminating the repainting. Efforts to restore the original iconography of the panels, which have unusual elements, have been worthwhile, even though enormous losses in the original paint layer have appeared below the eighteenth-century repainting. The reintegration phase has been difficult on some of the panels due to a lack of information.

It has been concluded that the altarpiece, wherever it is subsequently located, must be inspected at least once every two years, since the panels have a high moisture absorption capacity, which could provoke new lifting and losses of the paint layers.

From a technical point of view, the designated objectives were reached for both altarpieces. But in terms of the permanent locations of the altarpieces, the two situations are quite distinct from one another. For the altarpiece of Marquínez, we had to give up on restoring the altarpiece to its original site. Even though the work of art has lost its original setting and its classification as a monument in relation to the building that used to house it, the altarpiece itself was saved, and today can be enjoyed in one of the side chapels of the cathedral of Vitoria.

The opposite situation is seen in Olano. The Office of the Bishop of Vitoria wants the altarpiece to be permanently placed at the Museo Diocesano de Arte Sacro, arguing that the town of Olano has few inhabitants to safeguard and/or appreciate the altarpiece. The Restoration Department's responsibility, however, is to defend the interests of the work of art from the heritage point of view, preventing the altarpiece from being permanently removed from its original context. In fact, such removal would violate the Basque Cultural Heritage Act - LPCV 7/1990 and the Basque Government Decree 273/2000 of December 19, 2000, which declared this work of art a Monument of Cultural Heritage, thereby granting the altarpiece maximum protection as cultural property.

The Restoration Department also has a responsibility to protect the cultural interests of the town of Olano. Indeed, if the altarpiece is not returned to its church, it will no longer be the reference point of the town's patron saint festivals and will thus lose an important component of its cultural and historic significance.

In addition to all of the above, the church of Olano is currently in a perfect state of conservation with stable climatic conditions, to which the altarpiece's various parts, now restored, have become accustomed. In fact, no significant lifting of the paint layers has been observed. Also, due to the nature of the altarpiece and its anchoring system to the wall, it would be difficult for the altarpiece to be stolen, so the altarpiece is in fact very safe in the town of Olano. This contradicts another of the arguments used by the Office of the Bishop to defend its position.

These two case studies have demonstrated the significant impact that external conditions can have on the future of a work of art, even when similar processes, criteria and requirements are followed. Conservation's methodological approaches must be able to adapt to these conditions, whether environmental, such as the degradation of the Parish Church of Marquínez, or social, as in the disagreement between heritage and religious institutions in the Olano case, in order to accomplish its objectives and respect applicable laws, especially when they defend and protect heritage above special interests.

Considerations

Photographic credits

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The main altarpiece of the Royal Chapel of Granada: A research methodology for altarpiece intervention

136

María José González López ¹



Name of the work of art: Altarpiece de los Santos Juanes (Altarpiece of the Saints John)

Location: Royal Chapel of Granada, Spain

Owner/responsible party: Office of the Archbishop of Granada. Royal Chapel Council

Authored by/attribution to:

- **Altarpiece:** Felipe Bigarny, sculptor; Antón de Plasencia and Alonso Salamanca, polychromers; Andrés Solórzano and Martín Bello, carvers; and Jorge Fernández, Jerónimo Quijano, Francisco de Baeza, Maestre Sebastián, Bernal Miguel, and Martín Bello, masters and apprentices
- **Sculptures of the Praying Kings:** Diego de Siloé, sculptor

Chronology: 1520-1522, with the exception of the sculptures of the Praying Catholic Kings (1528-1530)

Dimensions: 16.35 m x 9.27 m (height x width)

Typology: Wooden architecture, sculptures, sculptural groups and relief

Materials and techniques: Carved, gilded and polychromed wood

Date and duration of the studies/intervention:

- **Studies:** January to June 1998
- **Intervention:** January 1999 to June 2000

Profile of the study/intervention team:

- **Project writing team:** one conservator-restorer coordinator, one technical adviser on preventive conservation, one art historian, one photographer, two chemists, one biologist
- **Collaborating companies:** Map Line S.A. (photogrammetric surveying and restitution)
- **Conservation-restoration team:** six conservator-restorers
- **Study of the architectural structure of the reverse of the altarpiece:** one architect, two architectural technicians, two draughtsmen

To create a customized pre-intervention information-gathering methodology for altarpieces, consistent with their myriad of idiosyncrasies and our still limited understanding of this art form, the Instituto Andaluz del Patrimonio Histórico (Andalusian Historical Heritage Institute, IAPH), an organization administered by the Cultural Council of the Regional Government of Andalucía, Spain, has recently conducted a research project on the main altarpiece of the Royal Chapel of Granada. The process of understanding altarpieces goes well beyond the traditional perspective of the altarpiece as a cultural object composed of a series of more or less complex materials with a given pathology. Rather, the altarpiece must be conceived of as an integrated whole, forming a part of a broader context that needs to be evaluated a priori. Transcending physical, material and even intervention criteria, this context also encompasses social and cultural aspects, as altarpieces, in the majority of cases, continue to play a significant role in community life. The work methodology must also choose and adapt tools that ensure the technical and administrative viability of the proposed intervention.

The Dirección General de Bienes Culturales de la Consejería de Cultura de la Junta de Andalucía (Cultural Property Bureau of the Regional Government of Andalucía's Cultural Council), as a part of the Programa de Conservación y Restauración de Bienes Inmuebles (Program for Immovable Object Conservation and Restoration), began the works for the conservation of the Granada Cathedral Complex in 1990. This project's objective is to consolidate the cathedral complex overall and engage in unique acts of intervention, both on the building per se and on the cultural objects housed in its interior.

One part of this initiative is the research and intervention project on the main altarpiece of the Royal Chapel of Granada, conducted and directed by the Instituto Andaluz del Patrimonio Histórico². This project comes under the agreement entered into during November 1997 by the Cultural Council of the Regional Government of Andalucía, the Fundación Caja Madrid (Madrid Cultural and Social Fund), and the Office of the Archbishop of Granada. The total cost of the project was €498 840.04, which allocated funding to cover the expenses of the research project designed to determine and define the inter-

Origin of the project

vention (€43 873.89). Funding for the project was received from the Fundación Caja Madrid (€330 556.65), the Council for the Royal Chapel of Granada (€60 101.21), as well as the IAPH (€108 182.17).

Cultural significance of the work

The Royal Chapel of Granada is one of the most exemplary architectural spaces in Spain, given the quality of its architecture and the importance of Andalucía as a historic and artistic center. The chapel's interior houses the collections of personal property that the Catholic Kings bequeathed to the city. These objects are of great historic, artistic and symbolic value for the city of Granada and for all of Spain. Among these objects is the main altarpiece, one of the most distinguished examples of altarpiece art in Spain. This work served as a fundamental reference in the evolution of this art form, and its simplicity and austerity exemplify the era's manner of understanding religiosity. The altarpiece work site also brought together leading masters of the time. As such, the altarpiece conveys a new style of aesthetic expression.

There are three characteristics of form that make this altarpiece an exceptional work of art. For the first time, Roman elements are present in an altarpiece that was created in Andalucía, sculptural iconography is used throughout the altarpiece and finally, its proportions are systematized within an ordering reminiscent of the Gothic tradition. With respect to its techniques, this altarpiece is one of the few examples known in Andalucía that combines the traditional polychrome techniques of the era common to the Mediterranean geographic area (gilding, estofado techniques, sgraffitos and punchwork) with Nordic polychrome techniques imported from the Netherlands, such as applied brocades³. Magnificent examples of this Nordic technique are seen in the garments of the sculptures and sculptural groups. All these factors, without question, are powerful reasons for this altarpiece to have become an indispensable model for artists of subsequent generations.

Description of the altarpiece

The main altarpiece of the Royal Chapel, architecturally conceived on a monumental scale, is divided into three horizontal registers, the lowest of which is subdivided into two levels to form the altar, and an attic that rises to a very high elevation in its central area. The horizontal divisions are defined by cornices of varying thickness, which make for an accentuated stratification, highlighted by the treatment and size of the sculptural groups. The vertical divisions are formed by three calles and two entrecalles, outlined by pilasters whose thinner width contrasts with that of the cornices. The different thickness of the horizontal and vertical elements play a fundamental role in the perception of the altarpiece, subtly compensated by the visual weight of the large cornices and by the horizontal subdivision of each of the two side vertical registers, such that the smaller-sized niches to the right and left merge along their inner edges into the predella and are independently crowned by the attic, providing a framework with a notable density in terms of structure and composition that serves as support for the central scenes. In this way, one's attention is drawn to the dramatic representation of the Passion, which is thereby accentuated.

The construction of the altarpiece faithfully responds to this horizontal and vertical grid, whose external definition is achieved by means of panels, cornices, thin columns and moldings, forming a system that articulates the niches as if they were great vaults projecting inward, towards the enclosing wall of the apse. In this way, a notable depth is attained in which to house the sculptures and sculptural groups composing the scenes.

In the field of conservation, altarpieces are cultural objects with unique characteristics, due to their very conception as architectural, symbolic and decorative elements. Thus, altarpieces have three basic features: the integration of the altarpiece into the building for which it was conceived, the specific context provided by the setting and, finally, its technical complexity, as well as the diversity of building systems, materials, and elements involved in its construction (supporting structure, architectural case, paintings, sculptures, decorative elements, etc).

All these intrinsic characteristics are crucial for studying or intervening on altarpieces, or for any proposed action, due to the interrelation between the work of art, its surrounding environment and the setting. As such, the state of conservation of these objects is known to be influenced by complex factors such as the following:

- factors related to the altarpiece itself (the evolution of the altarpiece's materials, the physical response of the altarpiece's components to its surrounding environment, the role that the altarpiece plays, etc)
- factors directly and indirectly resulting from the state of the building in which the altarpiece is housed (infiltration of water, deficient security, inadequate lighting systems, lack of maintenance, etc)
- factors related to the condition of those areas of the altarpiece in direct contact with the building, i.e. the wall against which it rests and the floor upon which it sits (infiltration of moisture, ineffectiveness of anchor points, sagging and collapsing due to faults in the foundation, etc).

These factors call for an a priori awareness of the fact that studies and interventions on altarpieces must be conceived of with a comprehensive vision that contemplates both the setting where the altarpiece is housed, and the condition of the altarpiece itself, so that the actions and treatments demanded by the work of art and its context may be identified and proposed during the research phase, as well as executed during the intervention phase.

Conscious of the particularities inherent to altarpieces, the IAPH is developing a specific methodology for these cultural objects, starting with the main altarpiece of the Royal Chapel of Granada¹. While staying within the framework of the general methodology employed by the IAPH for other cultural objects, this methodology is adapted to the unique factors entailed by altarpieces. This methodology is based on the following premise: any study or intervention carried out on cultural objects in general, and on altarpieces in particular, cannot be approached from a merely operational viewpoint. Rather, it must be preceded by a rigorous research phase applied to the concrete case being stu-

The methodology and its application

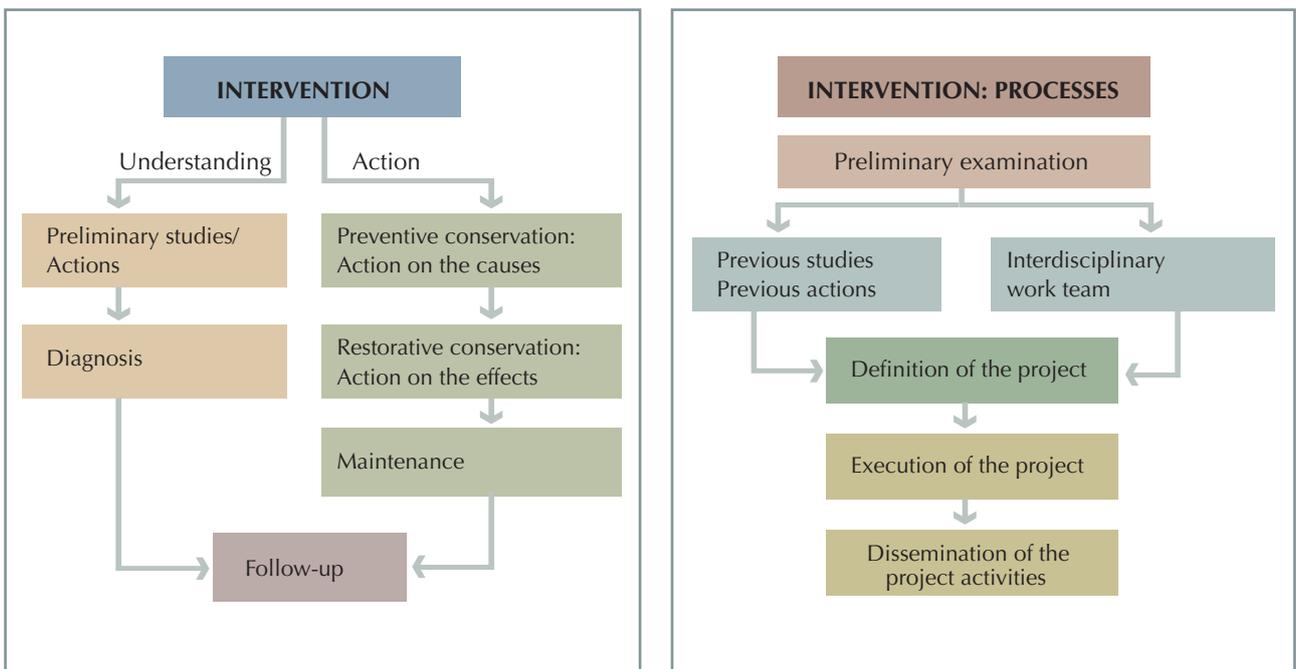
died, so that the intervention can be defined in a manner consistent with the cultural object's characteristics and needs; in other words, one must understand an object in order to intervene appropriately.

Application of this principle calls for a work methodology divided into two phases, which may be complementary or sequential, depending upon the circumstances. The first phase is cognitive and includes the studies and activities needed to identify deterioration factors, risks, pathologies, compositional materials, constitutive techniques, etc. The second phase is operational, in which the actions defined during the cognitive phase are carried out.

The “learning process”, from this perspective, is aimed at providing the necessary tools to develop a prioritized schedule of actions demanded by the cultural object, based on its particularities. This calls for a detailed evaluation and consideration of all the risk factors. In this way, correct conclusions are arrived at by making an in-depth study of the dichotomy between the proposed objectives and the inherent constraints of the work of art itself.

In synthesis, the methodology for understanding the object's physical condition, along with preliminary analytical studies, constitute a filter, to screen and prevent interventions that are destructive or that could alter the object. In this way, respectful, minimal interventions are guaranteed, using state-of-the-art techniques and treatment processes. This is the principal objective sought by the IAPH through application of this methodology, so as to ensure that all works of art upon which it acts will be conserved and transmitted to future generations in the best condition possible. As we know, actions will only be 100% effective if the causes of alterations are known beforehand and eliminated. Furthermore, the necessary technical, human and economic tools and means must be available, for direct intervention on the cultural object and for indirect actions needed by the surrounding environment to ensure their conservation and facilitate the viewing and maintenance of the work of art.

Process of studying and intervening on cultural property at the IAPH.



In the specific case at hand involving an altarpiece, the basic processes to be used in accordance with the IAPH methodology in order to achieve these objectives can be summarized as follows.

Tools

Interventions on cultural property by public institutions, such as the IAPH, if they are to be conducted and managed in an effective and expeditious manner, call for the prior development of a series of technical and scientific data collection and processing tools that make it possible not only to meet the objectives set for the item being studied or treated, but also to optimize available human, technical, and economic resources, as well as transfer the results to society, which in our case is the community of Andalucía. For altarpieces, which are complex in terms of the techniques and structures involved, and which contain a number of elements or works of art, a series of particularly useful tools can be adapted. They make it possible to do the following:

- standardize the contents, information and documentation generated in connection with the study or intervention process
- control the quality of information, documentation, intervention, etc
- provide an overview of the progress of activities on the altarpiece, systematizing the intervention operationally and chronologically
- facilitate the documentary treatment of the information gathered, with a view towards archiving, providing consultations with and/or disseminating that information.

The “Project”: an information-gathering tool

The “Project”, understood as a pre-intervention instrument for gathering information on cultural property, is the tool used and approved by the IAPH to plan its actions on cultural heritage. The document generated as a result of the “Project” implements this Institute's philosophy regarding intervention on cultural property, by addressing technical, scientific and economic concerns in keeping with the advocated methodology and the requirements of law.

The “Project”, understood in this light, contemplates the two phases mentioned above: cognitive and operational. Given this interplay, the “Project” document is both an information-gathering instrument and a work tool for developing sound proposals and correctly planning governmental intervention policies on cultural property. Furthermore, it serves as a means for the scientific, rational application of the treatments and actions called for by the cultural object and its surrounding context. This approach ensures that the action proposed and carried out will be suitable, of high quality and in keeping with basic intervention guidelines for the conservation and enhancement of the presentation of the cultural heritage in question.

There is an increasing trend for public and private institutions to place a fundamental emphasis on developing sound planning and management policies for intervention on cultural property through such projects. Such a tool is

valid, because it is founded upon three basic pillars of knowledge-gathering applied to intervention: research, interdisciplinary action and the definition and economic quantification of the intervention. Likewise, this approach allows the intervention to be sustained upon a scientific basis that contemplates the basic guidelines for the intervention, which are diagnosis, action, presentation and dissemination.

The minimum content that must be contemplated by a “Project” according to the legal requirements of our Autonomous Community⁵ are the identification of the cultural object; diagnosis of its condition; the proposed action, from a theoretical, technical and economic point of view; and a description of the methodology to be used. This content is clearly contemplated by the intervention project for the altarpiece in question. Furthermore, the altarpiece’s intervention project meets the requirements of law for Cultural Property (Bien de Interés Cultural, B.I.C.)⁶; the methodological requirements of the IAPH; the technical and conservation needs of the altarpiece itself; the administrative requirements of the Cultural Council of the Regional Government of Andalucía; and the approval of the Heritage Commission⁷.

Defining the scope of the “Project”

In keeping with the integral approach commented on above, this “Project” contemplates the preliminary studies and research necessary prior to the intervention on the following cultural property:

- main altarpiece
- stonework (walls) of the areas adjoining the altarpiece
- epigraphy and heraldry of the apse
- diagnosis of the altarpiece’s altar frontals.

Parallel to this project, an architectural project is being drafted to determine the intervention on the stairway and railing that provides access to the altar. That project is signed by architect Pedro Salmerón Escobar, and is being carried out in conjunction with the “Project” for the altarpiece.

All these studies and actions are being carried out with the aim of obtaining unity in terms of the conservation, form and presentation of the altarpiece subsequent to intervention. In keeping with the theme of the workshop, this article will be limited to addressing the altarpiece itself. Below, we outline the general approach taken in the diagnostic phase, and specifically, in developing the content of the “Project”.

**STRUCTURE OF THE “PROJECT” FOR INTERVENTION ON
THE MAIN ALTARPIECE OF THE ROYAL CHAPEL OF GRANADA**

- I Introduction
- II Objectives
- III General “Project” methodology
- IV Preliminary studies
 - IV.1 Photogrammetric survey
 - IV.2. Art history studies
 - IV.3. Scientific and analytical research
 - IV.4. Determination of the microclimate and levels of illumination
- V State of conservation of the altarpiece: diagnosis and factors of alteration
 - V.1. State of conservation and diagnosis of the back side of the altarpiece
 - V.2. State of conservation and diagnosis of the front side of the altarpiece
 - V.3. State of conservation and diagnosis of the walls and heraldry
 - V.4. State of conservation and diagnosis of the altar frontals
 - V.5. Direct and indirect agents of alteration influencing the current state of conservation of the altarpiece
- VI Proposed intervention
 - VI.1. Work methodology
 - VI.2. General and specific criteria for intervention and maintenance
 - VI.3. Proposed intervention on the altarpiece: description of treatments, products, and methodology for action on each of the elements comprising the altarpiece
 - VI.4. Proposed intervention on the walls and heraldry: description of the treatments, products, and methodology for action on each of their elements
 - VI.5. Proposed intervention on the altar frontals: description of the treatments, products, and methodology for action on each of its elements
- VII Economic itemization of the intervention
 - VII.1. Economic itemization of personnel
 - VII.2. Economic itemization of basic equipment and infrastructure
 - VII.3. Economic itemization of fungible materials
 - VII.4. Economic itemization of graphic and photographic documentation of the intervention process.

Currently, all institutions dedicated to understanding, researching and conserving cultural property recognize the value of a multidisciplinary approach. The approach should be joint, conducting those multidisciplinary studies whose results contribute solutions to the unknowns posed, with a persistent objective of determining the intervention most consistent with needs. In the case of the main altarpiece of the Royal Chapel of Granada, preliminary studies were formulated and performed during the “Project” (or cognitive) phase, either on site or at the headquarters of the IAPH. These studies defined the scope of the actions developed during the intervention phase, in terms of conservation and in economic terms.

The preliminary studies carried out on the altarpiece were as follows.

**Cognitive phase:
preliminary studies**

Photogrammetric survey and orthophotography

The photogrammetric survey and restitution of the main altarpiece at a scale of 1:20 made it possible to determine the true dimensions of the altarpiece, thanks to the topographic information provided by the front and side views needed to determine the altarpiece's exact size and surface area. Beyond the traditional use of this type of survey, its application was extended to other complementary fields, always related to understanding the altarpiece and the challenges its conservation poses. In this way, we were able to ascertain the state of conservation of the architectural structure, specifically of the central part of the predella, which had experienced a slight collapse in its central part as the result of the withdrawal of the altar. This survey also served as a base document to elaborate thematic and technical maps of the pathologies that were present.

A complementary study with orthophotography was carried out, which provided us with a view of the front of the altarpiece and of each of its architectural or decorative elements.

Study of the altarpiece's rear side and supporting structure

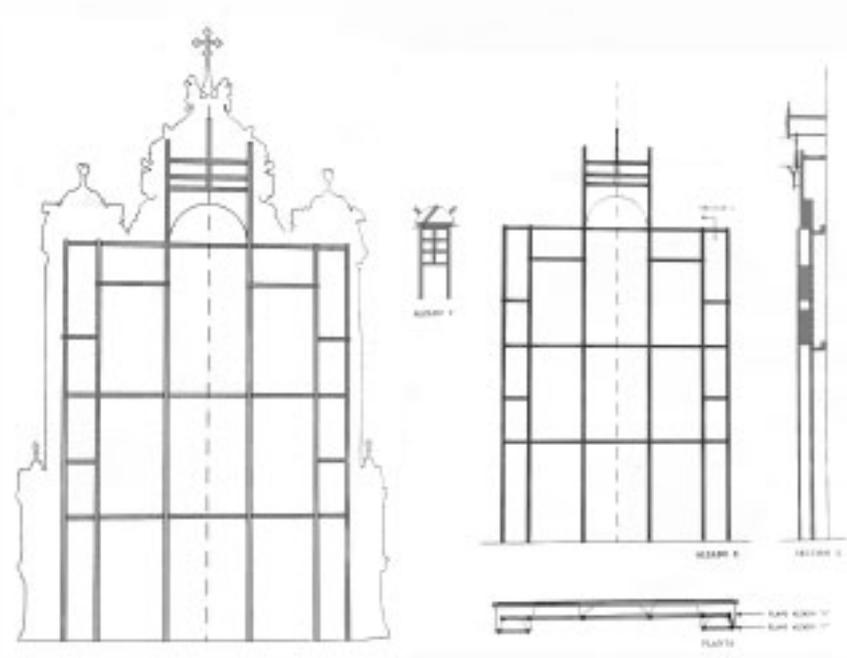
Access to the rear of the altarpiece can be obtained in three ways: from the central part of the lower base of the altarpiece, up to the height of the first horizontal register; from the opening in the structure of the highest horizontal register; and from the attic. In these two latter cases one may descend only as far as the first horizontal register, since the altarpiece is too close to the wall of the apse to allow a continued descent to the floor.

The main altarpiece of the Royal Chapel has a supporting structure, situated in an intermediate area between the exterior of the altarpiece and the wall of the apse. This supporting structure consists of a grid of square pieces, carefully selected and connected to one another to attain the stability of the structure. The grid logically follows the patterns imposed by the altarpiece's composition, such that the vertical beams coincide with the pilasters and the horizontal beams with the cornices.

The position of the structure, slightly separated from the wall, demands a bracing that connects it to the wall to ensure the rigidity of the structure. The problem is solved using support beams that lean against the wall, which are met there by round wooden beams built into the wall. The support beams coincide in height with the beams of the altarpiece's principal structure, allowing them to be easily joined. The presence of these anchored support beams probably facilitated the erection of the altarpiece, because once they were in place, it was not necessary to anchor the altarpiece into the wall. Rather, it was possible to join the structures using small "wood to wood" braces.

The panels, moldings, free-standing pillars, etc that form the exterior case of the altarpiece act like a "skin". They have a secondary structural function, which is nonetheless fundamental to the behavior of the structure. Indeed, these elements transfer stress to the principal structure, have a self-supporting

role and furthermore directly receive the weight of the sculptural groups. On the other hand, there is a mutual interaction based on the construction system itself, which employs “weak” joints or connections for the elements comprising the shell as compared to a more rigid supporting structure situated in an intermediate plane. The niches face inward, practically touching the wall, while the thin columns and cornices jut outward along the most external plane.



Supporting structure and anchoring system of the altarpièce.

Art history research

During the cognitive phase, studies focused on documenting the construction and physical history of the altarpièce, based on information found in archives, libraries and periodical collections. The objective of these studies was to establish hypotheses on the identities of the artists and to reconstruct the history, type and extent of interventions on the altarpièce, from when it was first built until the present. The conclusions of this phase provided information of great importance, especially in terms of understanding the state of the polychromies, gilding and supports. The most significant conclusions are described below.

Among the documented restorations and modifications to the main altarpièce, cleaning processes stand out due to their importance. Based on their extent and content, these processes are classified into two types. The first is a systematic cleaning which was superficial, eliminating only dust and candle smoke. This type of cleaning was documented in 1590, 1592, 1594, 1642, 1649, 1729, and 1804. The second type of cleaning, referred to in the copy of the records from 1559, was done more carefully by specialized persons, who cleaned and enhanced the colors and gilding of the sculptures and altarpieces. The intervals between these more extensive cleanings were greater.

According to the documentation found, the altarpiece was regilded on two occasions. The first such process, in 1632, sought to make the altarpiece similar to the reliquary altarpieces of the Chapel that had just recently been completed. That intervention was performed on the sides of the altarpiece displaying the Gospel and the Epistles. The second intervention on the gilding took place between 1704 and 1705. The sums paid to the master gilder suggest that the entire structure was regilded.

The main altarpiece also underwent four carpentry repairs during the eighteenth century and one other during the nineteenth century. The documents do not state which areas or pieces were repaired; they only note the materials and time it took to perform the work. During the eighteenth century, two interventions were carried out to clean the altarpiece and make repairs to the reliefs and sculptures. One of these interventions was carried out by sculptor Juan González. In addition, three interventions were performed during the eighteenth and twentieth centuries, principally to make changes and extensions to the altarpiece.

Scientific and analytical research

The analytical studies addressed two complementary fields: the characterization of the materials used in the altarpiece, and the identification of biological agents of deterioration that could negatively impact the altarpiece's conservation. The techniques employed and the principal results obtained are described below.

Characterization of the wood: Seven samples in total were extracted from the architecture and sculptural elements of the altarpiece, in order to establish the principal species of wood employed in the altarpiece's construction and ornamental and sculptural decorations.

Methodology: Observation of the wood under a stereoscopic microscope; extraction and preparation of the samples; the cutting of sections (transversal, longitudinal-radial and longitudinal-tangential); observation of the samples under an optic microscope with transmitted light; and identification of the species.

Results: Based on the results obtained in the analyzed areas, it was determined that the architecture of the altarpiece, including the attic, was made of cherry (*Prunus avium l.*), while the overlaid decorative elements (or garlands) used common pine (*Pinus silvestris l.*). In the sculptures, various species were used, depending on the sculpture's function and size. Accordingly, common pine was detected in the accessory parts, such as the cross of Calvary or in the base of the sculpture of St Ambrosio. Walnut (*Juglans regia l.*) was used in the small, free-standing sculptures (such as Saint Ambrosio), while common pine was used in the large sculptural groups, based on the results of the sample from the decapitated St John the Baptist.

Characterization of other constitutive materials: Thirty-one samples of the polychrome complex were taken from significant areas in order to identify the

principal materials used in the decoration (such as fillers, pigments, binding media, etc), both from the original strata and from those added at later times. In general, extractions were designed to answer questions on the polychrome techniques employed in the architecture and decorative elements (applications, sculptures, groups and reliefs), particularly on the significant areas of flesh tones, gilding, estofados and applied brocades.

Methodology: Preliminary examination of the sample under a stereoscopic microscope; extraction and preparation of the samples; observation of stratigraphy under an optic microscope with reflected light; micro-chemical analysis and study under a scanning electron microscope (SEM); elemental microanalysis through Energy-Dispersive Analysis of X-rays (EDAX); followed by study and interpretation. The applied brocades and meccas (or toned silver gilding) were also analyzed using infrared spectrometry and gas-phase chromatography.

Results: Following the sequence of the application of the polychromy, we determined that the preparation layer of the architecture and sculptures was white in color, with a calcium-sulfate and animal-glue base applied in several layers. Over that base, depending upon the specific sample, bole was directly applied, upon which brocades or metal leaf (in our case silver or gold), or polychromes, were laid or adhered.

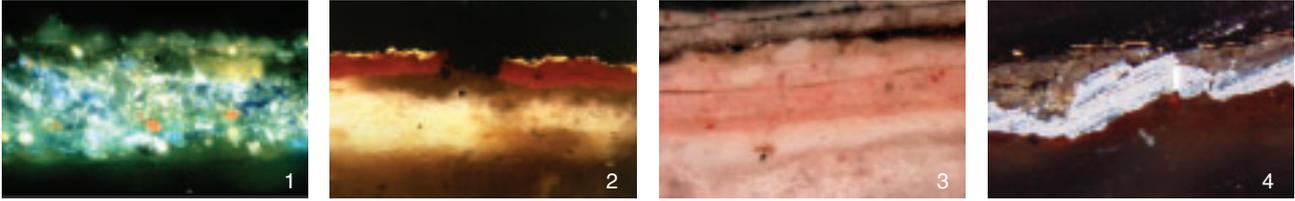
The metallic decorations differ in technique depending upon the area of the altarpiece in question. In the case of the architecture, burnished gold appears alone over a white background, while the sculptures combine a variety of techniques. As such, one can see matte gilding (for the hair), polished gilding, estofado or mecca techniques over silver, along with applied brocades (for the garments). The brocades are placed either over the layer of bole or over the mecca. In both cases, the following sequence of strata is present: mass of the fill (wax or wax-resin mixed with calcium carbonate and colored with lead-based pigments, iron or earth oxides), tin plating, mixtion, gold leaf and then color or glaze.

With regard to the chromatic spectrum employed in the flesh tones and polychromy, we note the identification of the following pigments: lead white, red earth, vermilion, red bole and lacquer, earth tones, azurite (always applied over a layer of black), smalt, and charcoal black.

Identification of biological agents of deterioration

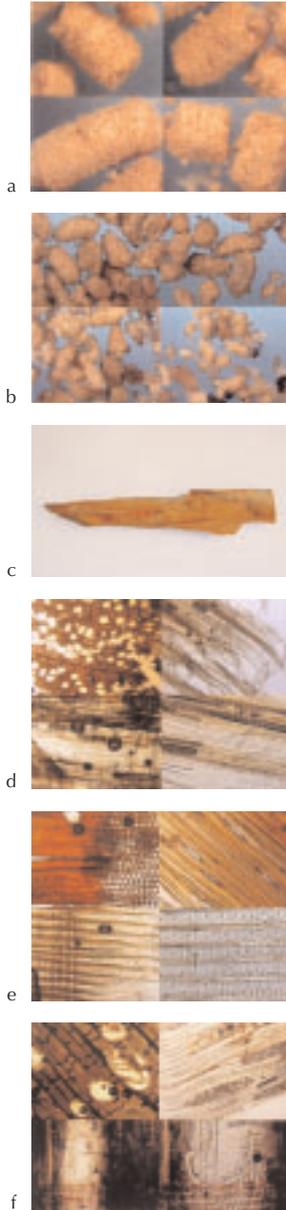
Micro-organisms: Identification was accomplished by studying the samples extracted from the architecture and sculptures, using the following methodology: taking of samples in sterile tubes, cultivation, incubation and assessment of the results. No micro-organisms were detected in the altarpiece.

Insects: Analyses of excrements, dust and sawdust, and examination of existing exit holes revealed evidence of an attack by insects of the Cerambycidae family, namely House Longhorn beetles (*Hylotrupes bajulus*), and the Anobiidae family, namely furniture beetles (*Anobium punctatum* De Geer), although neither species showed signs of being active at present.



Identification of constitutive materials.
Stratigraphic study of samples.
1: Applied brocade on the dress of the
"Santa Mujer"

2: Blue outer layer, sgraffito of a star with
a golden underlayer
3: Blue of the Virgin's cloak
4: Flesh tone of the neck of Queen Isabel
la Católica.



Biological study and study of
biodeteriorating agents.
a. Excrement of Cerambycid beetles
b. Excrement of Anobiid beetles
c. Passageway for Cerambycid beetles
d. Cherry wood (*Prunus Avium L.*)
e. Pine wood (*Pinus Silvestris L.*)
f. Walnut wood (*Juglans Regia L.*)

Documentation

Exhaustive documentation of the altarpiece has been carried out in relation to the following aspects: technical data and building systems, previous alterations and interventions, process of study and infrastructure, as well as follow-up on the intervention. The following techniques were employed:

Photographic documentation: General and detail photography with normal light, grazing light and ultraviolet light; microphotographs and macrophotographs. Slides (35 mm and 6 x 6) and color prints were produced.

Graphic documentation: Graphic documentation has been prepared regarding the architecture as a whole and each of the decorative sculptural elements. For the architecture, photogrammetry was used as the base document. For the sculptural elements, illustrations were drawn to scale. In both cases, thematic maps were developed, on which data was recorded according to IAPH standards.

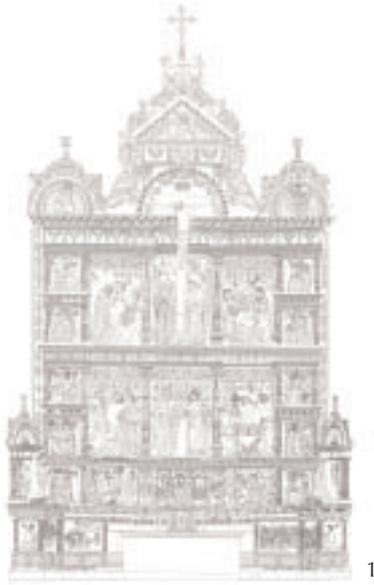
X-ray and infrared reflectography examinations

X-ray examination is the only study commented upon here that was not conducted during the cognitive phase of the project. The reason for this was simply that sufficiently safe scaffolding was not available for mounting the X-ray equipment, and it was not considered advisable to disassemble and transport the sculpted figures to another location. Rather, the X-ray study was conducted on site during the intervention phase using the scaffolding set up for intervention activities. Sculptures or sculptural groups were X-rayed when it was deemed necessary and advisable to do so in order to attain greater knowledge of their internal structure, given their technical or constructive characteristics, or the pathologies they displayed.

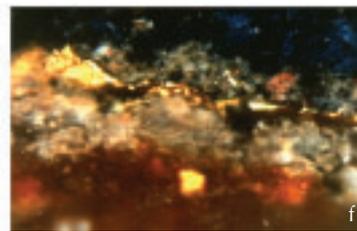
Likewise, a general examination using infrared reflectography was performed on the sculptures during the diagnostic phase. That study, however, did not contribute significant data.

Environmental context

In order to ascertain the microclimatic conditions of the Royal Chapel, and hence of the main altarpiece, a series of measurements were taken using a digi-



Technical documentation:
 1. Photogrammetry
 2. Orthophotogrammetry
 3. Natural light photography.



Photographic documentation and examination techniques:
 a. Before intervention
 b. U.V. illumination
 c. Applied brocade after intervention
 d. After intervention
 e. Radiography
 f. Stratigraphy of applied brocade.

tal thermo hygrometer. Those readings were subsequently compared to the results of the climatic study conducted in 1991 by the IAPH and the Istituto Centrale per il Restauro (Central Restoration Institute, ICR) of Rome⁸. In those studies, a central control with 48 microclimatic probes was used to monitor various areas in the Royal Chapel, including the apse, where the altarpiece in question is located. Relative humidity near the central space of the altarpiece was 68.2%, while the temperature was 17°C.

Upon comparing the results of the two periods of study, the conclusion was reached that the microclimate of this environment does not negatively impact the altarpiece's state of conservation, and that, in general, the Royal Chapel maintains an environmental equilibrium. Variations are only seen during the hours when the Chapel is open to the public, due to the heavy flow of visitors from 9:00 a.m. to 1:00 p.m., and from 2:00 p.m. to 7:00 p.m. During those two time intervals, the temperature increases, and then begins to drop again at closing time.

Diagnosis



1



2



3

1. Radiography of pieces in situ.
2. Restoration workshop in the choir.
3. Scaffolding and exhibition.

The altarpiece's artificial lighting system shines symmetrically from two electrified rails that run vertically along the sides of the cross. There are three types of lamps present: metal halide (6 units), low-voltage halogen with an aluminum parabola (4 units) and halogen filament lamps (4 units). A luxometer, ultraviolet meter and radiometer were used to measure specific parameters, and it was found that the levels of illumination are 350 lux, 300 °K and 0 UV. Thus, we can state that the lighting does not negatively impact the altarpiece's conservation or chromatic appearance, since there is no distortion of color or harmful radiation.

Infrastructure

The study of a work of art as monumental and complex as the one in question demands that a suitable infrastructure be available, so that the study and intervention phases of a project can take place in a manner consistent with the needs of the altarpiece. In this case, the infrastructure also had to be adapted to the layout and installations of the Royal Chapel itself, since the proposed work was based on the premise of on-site intervention.

Accordingly, a restoration workshop was installed in the choir of the church⁹ and adjoining areas. This provided a large central space for the activities of the preliminary studies, the preparation of documentation, and work on the elements of the altarpiece. In two adjacent areas, a warehouse was set up for materials and other products, and a dining area was designated for personnel.

A scaffolding system was installed in two phases. The first coincided with the cognitive phase of the project. Its objective was to provide access, or at least allow personnel to get as close as possible, to every element of the altarpiece, within the limitations inherent to preliminary in situ work. During this phase, no piece was displaced or moved from its original position. The second scaffolding coincided with the intervention phase. It was designed as a workshop for restoring the elements of the altarpiece to be intervened upon in situ, such as the architectural case and the large sculptural groups. The remaining pieces, of lesser size, were restored at the workshop installed in the choir. This second set of scaffolding, in addition to incorporating legally required safety features, was equipped with a voltage converter, electrical outlets, water inlets, and drainage, as well as a system for hoisting or lowering materials or pieces. This scaffolding provided full access to the altarpiece, thanks to its cross-like design, and the proximity and suitable height of the various work platforms.

State of conservation

The altarpiece's state of conservation was determined through a visual inspection using normal light, grazing or tangential light, UV radiation, and in some cases, under 20x and 40x magnifying glasses. The following parameters were studied:

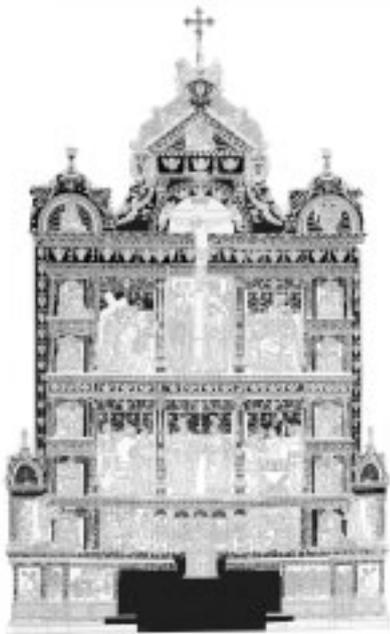
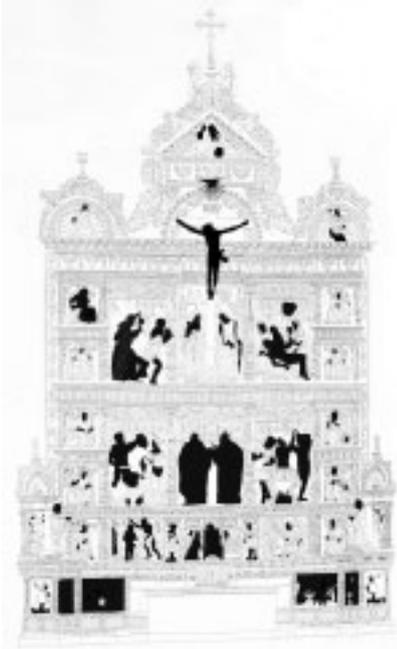
- techniques and building systems
- deterioration factors

- pathologies present, with a determination of cause and effect, as well as of the pathology's location and distribution throughout the altarpiece.

All this information has allowed us to determine the overall condition of the altarpiece, and the specific state of conservation of each element of the altarpiece, so that we could define and plan the intervention based on the priority and/or complexity of any given task.

Our work methodology has allowed us to employ an interdisciplinary approach, and to define from the start a common language for use by the team in gathering, reviewing and coding information, and in generating textual, graphic, photographic or multimedia documentation. Specifically, this consisted of:

1. *Coding each constitutive element.* This coding system was employed by all the technicians and specialists involved in the project (art historians, restorers, photographers, chemists, etc) in order to standardize criteria for naming and facilitating searches.
2. *Graphic and photographic documentation* of the most significant and representative aspects of the altarpiece, in terms of techniques and construction, and in terms of conservation. In both cases, this task was organized according to the altarpiece's inherent nature (one set of documentation for the architecture and another for the sculptures). Documentation for the cognitive and intervention phases is sequential for each of those elements.
3. *Registration and classification of the photographic documentation* produced, in order to control and systematize the documentation.
4. *Mapping* the altarpiece and its elements. This map served as a basis for the graphic representation of technical data, previous alterations and interventions on each of the constitutive strata:
 - architectural structure of the altarpiece
 - support (wooden/stone)
 - decoration/polychromy.
5. *Cataloging the decorative motifs* present in the estofados and applied brocades that decorate the altarpiece's architecture and sculptures, with a reproduction of the module to actual scale.
6. *Studying the polychrome layers* by examining losses, taking samples and studying the stratigraphy of particular areas. This has allowed us to clearly distinguish between the original polychromy and repolychroming in each element and sculpture.
7. *Testing*, in order to adapt delicate cleaning treatments during the course of the intervention. Specifically, the *methodology for cleaning* polychromed and other decorated surfaces consisted of taking samples and conducting solubility tests to determine the various levels of cleaning. Samples were taken from several areas of the altarpiece, particularly those areas whose material composition or techniques necessitated a customized work methodology for the intervention, such as areas with gilding, applied brocades, meccas, flesh tones and estofados.
8. *Diagnosing the state of conservation of the altarpiece's sculptural elements and architecture.* To this end, technical reports have been written, documenting



Graphic documentation of conditions based on photogrammetry.

the characteristics of the altarpiece's decorative techniques and construction, as well as the state of conservation of each of its elements. The reports have been structured as follows:

- structure-architecture
- sculptural groups
- free-standing sculptures
- panels.

Each of the respective reports includes the following aspects:

- technical summary sheet
- historical studies
- technical data and state of conservation of the support
- technical data and state of conservation of the polychromy, gilding and protective layers.

Pathologies

The following is a very brief summary of the principal pathologies detected in the altarpiece, organized according to their location in the work.

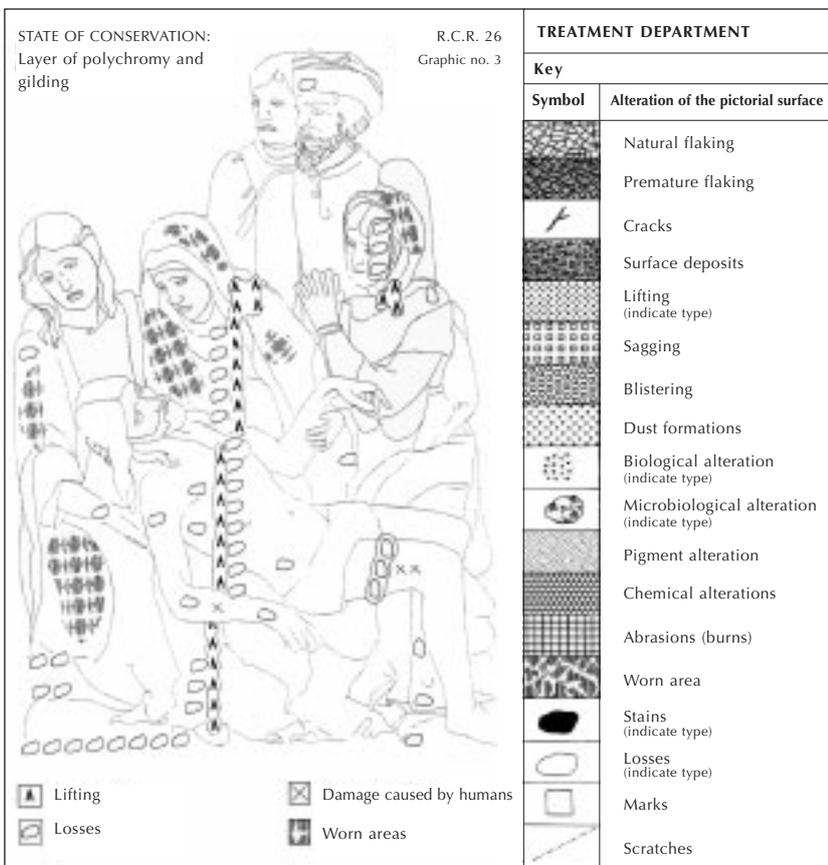
Supporting structure: The part of the supporting structure that was examined is in good condition. There are no major structural problems. The nodes of the grid do not appear to have pathologies in their interlacings. Some problems are present, however, in the fastening of the attic, which is not unusual in altarpieces, given that the attic juts out over the plane of the top of the principal structure. This altarpiece, as is customary, uses bracings attached directly to the wall. The only breakage of the supporting structure noted is of some thin exterior columns, while warping has been seen in certain other ones, all of which has little effect on the stability of the structure. A medium-intensity attack of xylophagous (wood-eating) insects was seen, though they are currently inactive.

Architectural components: There is a major loss of architectural elements, as well as the presence of metallic elements that were not a part of the original altarpiece. Two dozen original ornamental fragments that came off the altarpiece and were misplaced have been recovered, and replaced in their original locations during the course of the intervention. Lifting of the preparation and color layers was seen on the entire surface of the altarpiece, with a serious danger of flaking. This pathology is aggravated, due to the fact that repolychroming using the same tone covers the entire background surface. Localized repainting was also seen in the flesh tones of children and cherubs. The remaining alterations are less significant, although an alteration and darkening of protective coatings and old varnishes, as well as the presence of losses in the gilding and polychromy on 5% of the total surface area, is of note. Finally, there is a heavy overall accumulation of deposits on the surface, principally of dust and candle smoke.

Sculptures: There are certain alterations of the sculptures that are of slight significance. Most notable are those that resulted from previous interventions, such as poorly glued pieces with overflowing adhesive, original pieces that had broken off and non-original pieces placed to raise or stabilize the figures,

depending upon the particular sculpture. There are also alterations resulting from the original construction techniques employed. As such, some of the original metallic elements employed for fastening the pieces are now visible. Separations between constitutive pieces, cracks and, to a lesser extent, losses in the wood, which are generally seen in the most fragile, most accessible areas, have also been observed. This fact is reflected by statistics on the breakage of the fingers and toes of the sculptures in-the-round ($\pm 25\%$) and the losses of folds of cloaks, or iconographic attributes ($\pm 2\%$).

Important alterations of the sculptures are seen mainly in the lifting of preparation and color layers. Though this problem is not very significant in overall terms (it is calculated that 5% show a risk of flaking), it is nonetheless the worst pathology given the risk of loss that it entails. There are also localized losses, principally in the brocades that decorate the sculptures' garments (approximately 10%) and in the gilding and polychromy (approximately 10%). Without question, the prior repolychroming was the most significant and selective intervention, as it covers almost the entirety of the sculptures' flesh tones. In contrast, the decoration involving metals that adorn the garments, with a few exceptions, have remained intact. Finally, it should be noted that there has been a heavy accumulation of surface deposits on 80% of the total surface area of the sculptures, and an alteration and darkening of previous varnishing and protective coatings that cover and mask the totality of the sculptures' polychromy.



Graphic documentation of alterations of the sculptures. Application of standardized graphic symbols.

Photographic documentation of pathologies.
 1 & 2. Alterations of the support:
 3. Anchoring system
 4. Mutilation of the support
 5. Patinas, irregularities
 6. General state



Proposed action

In defining the proposed action on this altarpiece, various factors have been taken into consideration. The first set of factors are legal and ethical in nature, since the work of a public institution on protected property must abide by prevailing legislation¹⁰ and international recommendations.¹¹ Secondly, the conservation needs of the altarpiece were evaluated based on the diagnosis made, as well as the results of all of the research and studies conducted. The following framework was used to establish the general criteria for the activities to take place during the intervention phase.

Supports

- Concerning the replacement of lost parts, only architectural elements whose loss disrupts the general harmony of the altarpiece, given their size, importance or location, will be replaced.
- Interventions on the wooden support will be kept to the indispensable minimum, so as not to disrupt the equilibrium of the already stabilized wooden support.
- In cases where the wooden support is in good condition but there are fissures, unfastening of pieces or missing pieces, the correction will be made using wood with the same level of moisture as the original, following methodologies that have already been refined in practice.
- Small ornamental elements or sculptures will not be reconstructed when there is no reliable data upon which to do so.
- Actual pieces and fragments that have broken off will be re-mounted in their respective original locations.
- Pieces or groups that were displaced will be returned to their original locations.

- Treatment will be applied in areas that were attacked by xylophagous agents. Tested treatments will be employed for this.

Polychromy, decorative, and protective layers

- The strata comprising the altarpiece's polychromy will be fixed and consolidated. The most suitable adhesives will be used in keeping with the constitutive materials and the techniques employed in its original production.
- Cleaning methods will be selected after tests are conducted to determine appropriate methods (mechanical, chemical or mixed), solvents, mixtures, and proportions, depending upon the material to be eliminated.
- Balanced cleaning among the various parts that comprise the altarpiece will be carried out, bearing in mind that there are differences in the state of conservation among parts. Surface deposits, non-original protective coatings and localized, altered and overrun repainting will be removed.
- None of the partial or total repolychromy covering the elements and sculptures of the altarpiece will be removed. Indeed, in most cases, it has been ascertained through historical documents that such polychromy uses the same materials as the original work, and furthermore, the original underlying layer is in a deficient state.
- Reintegration will be based on a critical interpretation of the loss. It will be restricted to the indispensable minimum so that the altarpiece's overall appearance and chromatic and aesthetic perception will be as harmonious and balanced as possible.
- The final protective layer will use a material compatible with the nature of the polychromy, sufficiently resistant, yet easily reversible over time, using non-aggressive means for the pictorial film. The matte or shine of the altarpiece's original zones will also be respected.

The principal actions and treatments that have been performed on the altarpiece's various elements, as well as on the areas adjacent to the altarpiece, during the intervention phase are briefly outlined below.

- **Treatment of the stone material (walls, epigraphy and heraldry) located in the apse of the chapel:** General cleaning and consolidation; elimination of non-original elements of the walls and epigraphs; sealing of cracks and small cavities in the walls; fixing of gilding and polychromy in the epigraphic frieze; and chromatic reintegration.
- **Preliminary conservation treatment for the main altarpiece as a whole:** Fixing of polychromy and gilding on the architectural ornamentation and the sculptures with the greatest risk of flaking; elimination of dust deposits; and treatment to disinfect for xylophagous insects.
- **Dismounting** of the small sculptures (niches) and their transfer to the restoration-conservation area.
- **Conservation-restoration treatment of the altarpiece's architecture and ornamentation:** Cleaning of dust deposits; removal of non-original metallic elements; correction of support; replacing and gluing of original fragments

and pieces found during the study phase; setting of original cloth on the support; elimination of pieces of wood that do not belong to the altarpiece; construction and placing of certain lost architectural elements; cleaning and consolidating of areas with burns; fixing of gilding and polychromy to the support; cleaning of gilding and polychromy; chromatic reintegration; and application of protective layer.

- **Conservation-restoration treatment of sculptures and sculptural groups:** Treatment to disinfect areas affected by attacks from xylophagous insects; setting of original cloth on the support; rearranging of displaced pieces; placement and gluing of original pieces that were found; elimination of non-original metallic pieces; filling of cavities created by metallic components or attacks from xylophagous insects; filling of small cracks; cleaning and consolidation of areas with burns; consolidation and fixing of polychromy and gilding; conservation treatment for applied brocades; elimination of localized repainting over the repolychromy; cleaning of dirt and altered varnishes; chromatic reintegration; and application of protective layer.
- **Final assembly:** Moving and assembling the sculptural groups to their proper placement in the altarpiece.
- Writing of the **final report**.

Intervention process on the “La Piedad” sculptural group.



Management systems

Management of the work conducted was also divided into the two phases referred to above: the “Project” phase and intervention phase. During the “Project” phase the following process was followed, sequentially:

- writing of the “Project” in keeping with the minimum contents indicated in the Law on the Historical Heritage of Andalucía and the methodology of the IAPH
- approval of the “Project” by the Cathedral Council of Granada, which owns the cultural property
- approval of the “Project” by the Provincial Heritage Commission of Granada¹³.

During the intervention phase, and following approval of the action defined in the “Project”, a Technical Commission was formed, consisting of represen-



Intervention process on the figure of Salomé of the sculpture group entitled "The Decapitation of Saint John the Baptist."



General view of the altarpiece after intervention.

tatives of the various participating institutions: the Provincial Branch Office in Granada, the Royal Chapel Council, the Office of the Archbishop of Granada, the IAPH, and the Fundación Caja Madrid. This Commission has monitored follow-up activities and supervised decisions regarding actions on the main altarpiece.

Results and overall evaluation

The intervention on the main altarpiece of the Royal Chapel of Granada has called upon the IAPH to adapt a methodology for conserving this type of cultural property, so that it can endure and be enjoyed by future generations. This model of action is based on the idea that we must understand an object in order to intervene upon it. The importance of interdisciplinarity, and teamwork among all the specialists directly or indirectly involved in studying, researching and intervening upon the cultural object is also emphasized. This model has been validated through other studies and projects conducted by the IAPH to date.

Application of these principles means that the proposed action must be founded upon a scientific methodology that justifies it. In order to be feasible, this approach needs to be implemented in two phases: the “Project” (or cognitive) phase and the intervention (or operational) phase. This dual approach contemplates certain considerations regarding technical aspects, infrastructure, and personnel that, as we have seen throughout this article, must be borne in mind *a priori*. The high cost of this approach is often criticized, since in addition to the cost of the intervention itself, one must add the cost of research and writing the proposal. In response to this criticism, we would argue that this two-phase approach is not only consistent with the needs of the cultural object, but also avoids unforeseen problems in the execution phase. If the economic assessment is made without applying scientific methods, relying only on a cursory prior inspection (usually from pavement level), or exclusively on professional experience without the necessary infrastructure, costs are often increased substantially when unforeseen problems arise, reducing the funds available for the previously defined work. These problems are more likely to occur when the diagnosis and resulting economic evaluation are made concurrently with the intervention activities.

In conclusion, the results of the methodology and action taken here have been very positive for us, not only in terms of the results obtained to date, but also because the door has been opened to understanding this work of art within a cultural context previously researched but with little technical or formal rigor. From our point of view, this has now been accomplished.

Acknowledgments

I would like to extend my thanks to the board of directors of the IAPH for making this project a reality, and to the entire team of technicians whose hard work, dedication and efforts have made this article possible. Special thanks go to Pedro Salmerón Escobar for his study of the rear of the altarpiece, to Nieves Jiménez Díaz for his historical contributions, and to José María Rodríguez Acosta for his collaboration on writing the section regarding the intervention conducted.

Technical Summary Sheet:

Project:

Instituto Andaluz del Patrimonio Histórico. Consejería de Cultura de la Junta de Andalucía

Director: Román Fernández-Baca Casares

Head of the Historical Heritage Intervention Center: Lorenzo Pérez del Campo

Technical Commission:

President: Enrique Moratalla Molina, Provincial Representative in Granada of the Cultural Council of the Regional Government of Andalucía

Vice-president: Manuel Reyes Ruiz, Royal Chaplain of the Council on the Royal Chapel of Granada

Members:

Román Fernández-Baca Casares, Director of the Instituto Andaluz del Patrimonio Histórico

Miguel Ángel Martín Céspedes, Head of the Historical Heritage Conservation Department. Cultura de la Junta de Andalucía delegation

José Manuel Pita Andrade, University Professor Emeritus of Art History, representing the Fundación Caja de Madrid

Domingo Sánchez-Mesa Martín, Professor Emeritus of Art History, University of Granada, representing the Fundación Caja de Madrid

Francisco Palanco Olmedo, representing the Office of the Archbishop of Granada

Santiago Hoces Pérez, Royal Chaplain of the Council on the Royal Chapel of Granada

Gabriel Morate Martín, subdirector of the Spanish Historic Heritage Conservation Program of the Fundación Caja Madrid

Secretary: Lorenzo Pérez del Campo, Head of the Historical Heritage Intervention Center of the IAPH

Work Team:

“Project” phase:

Coordinator, technical and design director of the “Project”: María José González López, conservator-restorer

Photogrammetric survey and restitution: Map Line S.A.

Study of the architectural structure on the rear of the altarpiece:

Coordination: Pedro Salmerón Escobar, architect

Members of the work team: Elisa Entrena Núñez, María Felisa Ramírez Martín, Manuel Robles Iglesias, Susana Castro Rodríguez

Art history studies on the altar frontals: Gabriel Ferreras Romero

Art history research on the altarpiece: Nieves Jiménez Díaz,

Photographic documentation: Eugenio Fernández Ruiz

Analytical research: Lourdes Martín García, Francisco Gutiérrez Montero

Biological research: Marta Sameño Puerto

State of conservation and intervention proposal for the altar frontals: Araceli Montero Moreno

Measurements of the microclimatic and illumination parameters and design proposal for exposition of the altar frontals: Raniero Baglioni

Restoration team:

Team head: José María Rodríguez Acosta Márquez

Team: Francisco Oliver Ruiz, Amelia Cruz Guzmán, María José Ortega Gálvez, Inés Alejandra Osuna Cerdá, Ana Márquez Montoro

Intervention phase:

Restoration team:

Head of team and technical director for the intervention: José María Rodríguez Acosta Márquez

Team: Francisco Oliver Ruiz, Amelia Cruz Guzmán, María José Ortega Gálvez, Inés Alejandra Osuna Cerdá, Ana Márquez Montoro, Carmen Pientza Durán, Alejandro Suárez Roncaño

Art history research on the altarpiece: Nieves Jiménez Díaz

Photographic documentation: José Manuel Santos Madrid

Photographic credits

Instituto Andaluz del Patrimonio Histórico. Consejería de Cultura de la Junta de Andalucía

Photographers and treatment of photographs for this article

Photographers: Eugenio Fernández and José Manuel Santos Madrid

Digitalization of images: Eugenio Fernández, Isabel Dugo Cobacho, María José González López, and Raniero Baglioni

Photomontage, computer graphics, and graphics: María José González López

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RUIZ, L., and RAMÍREZ DE ARELLANO AGUDO, A.: *Clasificación Sistemática para la Conservación y Restauración de Bienes Muebles*. Regional Government of Andalucía, Cultural Council, 1993.

Notes:

1. Section co-authored by José María Rodríguez Acosta.
2. Hereafter IAPH.
3. See GONZÁLEZ LÓPEZ, María J.: “Metodología de estudio para la definición del proyecto de intervención en el Altarpiece Mayor de la Capilla Real de Granada.” In *Boletín PH* of the Instituto Andaluz del Patrimonio Histórico, Year VI, December 1998, No. 25, pp 89-96.
4. This methodology is being used at the Special Project Sector of the IAPH Intervention Center's Treatment Department, and has served as a basis for the other projects conducted to date by the IAPH on altarpieces.
5. The laws in effect in Andalucía require the writing of an intervention project signed by a *competent technician* when the object upon which the conservation or restoration action will be taken is *property registered in the General Catalogue of Historical Heritage of Andalucía* (Article 21 of Law 1/1991 of July 3 on the Historical Heritage of Andalucía). Furthermore, said law requires that the *contents of the proposal shall be consistent with the regulations set*. The law also specifies the *minimum content* that must be included in the project (Article 22).
6. Point 1, Subsection 1 of Law 16/1985 of June 25 on the Historical Heritage of Spain.
7. For all interventions on cultural property, the Cultural Council reserves the right to *pre-approve* the Conservation projects and to conduct *inspections* at any time on the progress of the intervention (Articles 23 and 24 of Law 1/1991 of July 3 on the Historical Heritage of Andalucía). In the case of this particular altarpiece, the project was approved by the Provincial Commission on the Heritage of Granada (Article 107 of Law 1/1991 of July 3 on the Historical Heritage of Andalucía).
8. CACACE, C.: “Problemática del control medioambiental en relación al bien cultural.” In *Un proyecto para la Capilla Real de Granada*. “Cuadernos” Series, No. 1 of the IAPH, 1992, pp. 71-80.
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9. For the project carried out by the IAPH from 1990 to 1992, this space was already adapted to serve as a restoration workshop. As such, the existing infrastructure and installations were available for the study and intervention phases of the new project.
10. See Title III, Articles 21, 22, 23 and 25 of Law 16/1985 of June 25 on the Historical Heritage of Spain.
11. In developing the general criteria, we have principally been guided by the Restoration Charter of 1972 and the Charter of 1987 on the Conservation and Restoration of Artwork and Cultural Objects.
12. Section co-authored by José María Rodríguez Acosta.
13. See Article 107 of Law 1/1991 of July 3 on the Historical Heritage of Andalucía.

Main altarpiece of Santa Maria del Giglio, Tarcento, Udine, Italia

Franco Del Zotto and Francesca Tonini

162



The whole altarpiece placed again in its original location inside the rebuilt church (October 1998). A balance among historic, artistic, functional and emotional approaches and between them and the final product was recovered, in order not to remove messages imprinted by time.

Name of the work of art: Main altarpiece of Santa Maria del Giglio
Location: Sanctuary of Santa Maria del Giglio, Tarcento, Friuli, Italy
Owner/Responsible Party: Parish of St. Peter Apostle
Authored by/Attributed to: Giovanni Antonio Agostini (approx. 1550-1636)
Chronology: 1604
Style: Renaissance
Dimensions: 4.25 m x 5.25 m x 1.50 m (height x width x depth)

Materials and techniques: Linden wood for carvings, spruce and poplar for altarpiece structure; gilding and polychromy; oil canvas paintings on wooden supports; gilded and polychromed wooden sculptures

Date and duration of the studies/intervention: Begun in 1988-1989; completed October 11, 1998

Profile of the study/intervention team: one project manager, three head conservators, 11 assistant conservators, three carvers, six carpenters, one photographer, one architect, one graphic artist, one chemist, one art historian, one archivist, three photographers, one publicist, one mason, one security and alarm technician

The devastating earthquake of 1976 caused substantial damages to the historic and artistic heritage of the Friuli region of north-eastern Italy. The church of Santa Maria del Giglio at Tarcento collapsed, and only after several days was its main altarpiece (a polychromed wooden structure 4.25 meters high and 5.25 meters wide, including twelve carved sculptures), completely broken to pieces, retrieved from the building's rubble.

A research program to assess the feasibility of restoration was set out in 1989, and in 1990 the conservation program began. Because such considerable destruction had never been faced before, the most difficult choice was over the methodology to be used, and it was time to implement an "extreme" restoration project.

Old photographs and archival documentation were used to start a detailed analysis, identification and graphic classification of all the constituent elements of the altarpiece. These studies enabled us to rebuild the altarpiece's layout and to start working on its structural recovery and aesthetic arrangement. The availability of 80% of the original material led to the decision to start rebuilding by anastylosis. Original pieces of wood were preserved even in the less visible places of the altarpiece, recording the historical sequence of events – including the earthquake – and permitting a balanced reading of the altarpiece as a whole.

From the beginning, this conservation work was mindful of the need to achieve a balance between theoretical historicism and both liturgical and ideological needs – where history, art and emotion participate – as well as the fact that theory can only work through a specifically developed methodology, based on theory but also on the emotional and contextual receptivity of the work of art.

Restoration works were completed in October 1998 when the altarpiece was again placed in the rebuilt church.

History and cultural significance of the altarpiece

The artistic expression in polychromed wooden sculptures in Friuli reached its height in the sixteenth and seventeenth centuries, representing art as well as history, civilization and customs from that region. They are the work of local experts who were also dedicated to the art of painting, and were known as painters, carvers or gilders. Fabulously colored and gilded, wooden altarpieces were built to ennoble even the most humble and simple churches. The flourishing of carved works of art in Friuli was matched by a similar development in Tuscany and the Trentino-Alto Adige region.

The altarpiece of Santa Maria del Giglio shows the transition from the simple and noble Renaissance school to the elaborate richness of the Baroque plastic sense. For its typology, the altarpiece is considered a breakthrough for the artistic production of the period and a source of inspiration for subsequent artists. Giovanni Antonio Agostini, a well-known painter and sculptor, completed it in 1604.

Sculptures of the Virgin Mary, the Angel of the Annunciation, and God the Father at central positions, plus eleven other saints' sculptures on different levels, are included within the elaborate structure, all of them linked to life events of the Virgin Mary, whose statue rests in the middle of the structure.

The altarpiece was built specifically for the presbytery of the Sanctuary, perfectly suited to its size and volume. The Sanctuary was located at the center of the village of Aprato, and has always represented the religious, physical, civil and social meeting point for the area. It has been a pilgrimage site since 1500. Both the Sanctuary and altarpiece were objects of deep devotion and are still used by local people for celebrating marriages.

Both the Sanctuary and altarpiece have undergone several maintenance campaigns in the past. While performing this project, three important interventions were identified: the first dating to approximately 1700, the second to 1878¹, and the third and final intervention to 1904, when the whole architectural frame and sculptures were completely regilded and repolychromed.

On May 6, 1976, a dreadful earthquake hit Friuli, killing one thousand people and completely destroying towns and villages. In the village of Aprato, hous-



May 1976. The main altarpiece of Santa Maria del Giglio crushed by the collapse of the surrounding church. Its broken pieces remained under the debris for about ten days.

es and the Sanctuary of Santa Maria del Giglio collapsed. Broken pieces of the completely crushed main altarpiece and other masterpieces were retrieved a few days later and taken to an emergency storage area at the church of St Francis in Udine. Once placed in various boxes, they were transferred over the following years from one place to another. The earthquake deeply marked elements of the altarpiece and the values it represented. It caused deep wounds and historical changes, and even jeopardized the future of the altarpiece within its own community.

In 1988, the priest of the parish asked for an assessment of the altarpiece's condition. The results were disappointing: the architectural frame was in bits, the majority of pieces no larger than a few centimeters long. Moreover, the destruction of the building, being exposed to the elements for several days (including rain), the passing of bulldozers over the fragments and successive transfers had rendered these pieces unrecognizable. Conversely, the sculptures, although evidently damaged, had remained almost intact. Absolute lack of fragment identification and persistent negligence due to the recovery conditions of the altarpiece caused further damage. In fact, some even considered the eventual possibility of throwing the pieces away.

Research for the development of a project had to be carried out urgently in order to avoid this extreme and irreversible proposal. No scientific or methodological inventory of the fragments had ever been made, but we thought that there was no reason to give up on a conservation project. Therefore we started to promote a possible intervention.

First, we conducted thorough bibliographical research at the ICCROM library in Rome in order to find similar cases as points of reference. Unfortunately this survey was not fruitful.

We articulated a series of questions to determine the feasibility of the project, bearing in mind two fundamental principles of conservation established by Cesare Brandi:



Preliminary studies and methodology

After the earthquake, the recovered fragments suffered several displacements. They remained in a state of total neglect for almost 14 years.

- Only the substance of a work of art must be restored.
- Restoration must re-establish the potential unity of a work of art, without producing either artistic or historic counterfeits, or masking any trace of its passage through time.

We defined the philosophical and methodological theories upon which our work was to be based as we searched for answers to the following questions:

1. What could be placed in the presbytery of the Sanctuary, already scheduled to be rebuilt with the same dimensions and form that before the earthquake?

There was no doubt that the presbytery would need an altarpiece, indispensable because of its liturgical significance. Another important aspect was that the sculptures, once restored, would need to be placed in a proper setting. Therefore, several proposals were presented. Possibilities included reproducing the original architectural frame exactly, constructing a new altarpiece with a different shape and dimensions, and creating a new structure inspired by the old one. However, neither of these solutions was philosophically or philologically acceptable. Moreover, any rebuilding would have been an historic and aesthetic counterfeit. Copies can serve didactic and memorial purposes, but can never replace the original. For these reasons, we chose to restore the original altarpiece.

2. How and where could the sculptures – recovered in fairly good condition – be placed after restoration?

The sculptures and the architecture that houses them form a whole and not a sum. They are not the mere composition of parts and would be senseless without the formal links imposed on them by the artist. It would be like reading the words of a poem in a dictionary, where, deprived of the unifying power of the verse, they are just groups of semantic sounds and nothing more.

3. What would happen to the fragments of the altarpiece, if they were not used in a restoration project?

Having accepted the idea that the work of art is a whole, and that, even when physically broken, still continues to be a potential whole in each of its fragments, the following principle can be stated: any intervention aimed at recovering the original unity of a work of art from its fragments must take into account only the underlying hints found in those fragments or in the authentic evidence of its original condition. The recovered fragments must survive, as they are implicitly unique testimonies to the original structure.

4. What theory could justify the destruction of the fragments?

The essential aim when restoring works of art is the re-creation of its potential unity. To be legitimate, restoration must clearly show not only the historic present but also the inherent past. Restoration must neither reverse time nor suppress history. Consequently, in order to maintain the complex historicity of a work of art, restoration must not be conducted in secret, or as a dateless event, but as a historic event that is a sign of human intervention, and part of

the process for the transmission of the work of art to the future. If works of art are, above all, products of human action, their appreciation should not depend on changing tastes and fashions. Fragments of a work of art – an altarpiece in this case – always bear evidence of their belonging to a historical past, and their value cannot be assessed only by the taste of our times. Artistic and historic issues suggest that in no way should restoration of the potential unity of a work of art destroy its authenticity, creating a new historic reality.

Had the possibility of reconstruction been ruled out, it would have meant the destruction of two historic values: on one hand, the potential unity of the work of art and, on the other, the memory of the historical event, i.e. the earthquake that so deeply marked its existence².

A theoretical scheme was then established to develop a methodology for the technical-executive stage of the project.

First, key principles were sought for building the theoretical foundations of our work:

1. historic-artistic value
2. liturgical function
3. importance of its role
4. emotional and devotional value
5. historic testimonial value
6. aesthetic equilibrium, and spatial and functional identity of the fragments.

1. Historic-artistic value: the altarpiece is one of the most important examples of wooden art from Friuli dating to the Renaissance-Baroque transitional period. Therefore, signs of history and the passage of time must be preserved in order to enhance its position as a work of art.

2. Liturgical function: every piece recovered from the rubble is part of a potential rebuilt whole, whose purpose remains the same as that of the original altarpiece. Once restored, the altarpiece will again function as a liturgical object in a church, rather than being placed in a museum as a mere archaeological piece. Restoration work must keep this main purpose in mind.

3. Importance of its role: the altarpiece originally occupied an important role as the main altarpiece of a sanctuary containing two other altars and other wooden sculptures. This role must be preserved, whether the altarpiece is in fragments or is a reconstructed whole. Thus, this significant hierarchy has to be reflected in both conservation works and aesthetic presentation.

4. Emotional and devotional value: the Sanctuary has been a pilgrimage site since 1500, and the altarpiece has been an object of devotion, often chosen for weddings³. Restoration should therefore recover this traditional role once work is completed, with particular attention paid to the statues and the general appearance of the altarpiece.

5. Historic testimonial value: the earthquake of 1976 left an indelible historical and emotional mark. Thus, as a reminder of both the emotional experience and



To restore or not to restore? In 1989 a project to assess the feasibility of restoration was initiated. The first step was to develop a method that would support philosophical and methodological approaches to conservation. The restoration work began with identifying and cataloging all the rescued fragments. In this picture, one typology of cornices is shown.

the victims, we have decided not to mask the effects of that historic event but to leave signs of the church's collapse visible on the altarpiece.

6. Aesthetic equilibrium, and spatial and functional identity of the fragments: any intervention that hopes to restore the potential unity of a work of art physically broken into pieces must strive to recover the potential unity of the whole. To do so, every original fragment must maintain its identity both within the architectural frame –the altarpiece– and its architectural context, the church itself. Restoration of an integrated whole whose successive historical marks are clearly recognizable must maintain a unifying aesthetic.

In order to comply with these six parameters, we chose an anastylosis approach⁴.

It was necessary to develop a method for establishing existing relationships between fragments, as well as relationships between each fragment and the hypothetically reconstructed whole. Through an interdisciplinary approach, we implemented the following procedures:

- historic-artistic analyses and archival research
- video and photographic documentation
- floor-grid layout of pieces in order to classify them based on drawings and visual files
- measurement, drawing and cataloging of large pieces
- definition and scaled drawings of every altarpiece module
- identification, grouping and cataloging of fragments within each corresponding module
- condition survey of pieces as they were before the earthquake

The graphical reconstruction of the altarpiece was made according to measurements of main fragments that were compared with photographic files. On graphs of the original thirty modules the following were reported: recovered and restored fragments, missing parts and their scaled measurements, typology and building technique details. The cymatium of God the Father is shown here, with the rescued fragments, the graphical rendition of modules for cataloguing restored fragments, and drawings (front view and sections), all of which have been fundamental steps for subsequent rebuilding.



- survey of damage due to earthquake both on wooden support and polychromy
- scaled graphic reconstruction of the whole through various projections.

At this point, based on a carefully documented anastylosis, all the methodological, theoretical and technical parameters were available to start the implementation phase, which encompassed the restoration of each piece, subsequent fragment rebuilding and the repair of structural and surface losses. All rescued and repositioned pieces would then become jewels embedded in new wood, displaying a balanced relationship of volume, surface and polychromy.

Our decision not to mask any traumatic evidence of the earthquake on the restored altarpiece was taken out of respect for history, emotional feelings and the victims, and was based on an optimistic outlook of human and moral rebirth in the face of the destructive power of nature. The main altarpiece of Tarcento symbolizes this approach, and the entire restoration process has been carried out following these principles.

Because of the considerable damage, we decided first to work on the architectural frame, then the sculptures, with the following operations:

- restoration of each piece
- rebuilding of contiguous fragments based on graphs
- plastic finishing of missing parts and re-creation of each module based on graphs and scaled measurements
- aesthetic phase
- new support structure
- rebuilding of the complete architecture
- re-placing of restored sculptures.



Intervention

Watercolor drawings of the altarpiece were made from graphs of the modules, showing the front and rear views, plans, horizontal and vertical sections. The anastylosis method could be chosen thanks to 80% of the original material being available, though we did not want to hide the earthquakes' impact so that the original matter would become the jewel embedded within new matter. Here is the scale drawing after plastic rebuilding and before aesthetic-material tasks.

Architecture of the altarpiece

Results of synchronically-developed procedure evaluations have enabled us to accurately identify and classify each fragment inside its own module and consequently within the altarpiece as a whole. We intentionally decided to follow a strictly philological approach, in order to consistently comply with fixed deontological rules. Thus, we had 832 identified fragments distributed in 30 modules that made up the whole altarpiece. Following the designed modules, we were able to verify that up to 80% of the architectonic structure of the altarpiece could be reconstructed using the available fragments.

After the church collapsed, most of the wooden support was crushed into uneven fragments, causing severe damage to the gilded and polychromed surfaces. All surfaces were damaged by debris, sand and mud, which in turn affected the ground layers of gesso and glue that had been softened by humidity; thick layers of sand also accumulated inside the wood itself.

Before 1976, the architecture of the altarpiece had a gilded surface decorated mostly by water and oil gilding techniques, with some polychrome inserts, four panels with painted floral motifs and six oil canvas paintings depicting scenes of Christ's life. The altarpiece had undergone a number of maintenance works in its history, the most recent of which had been carried out in 1904 to stop the considerable overall deterioration of the altarpiece.

For the architecture of the altarpiece, we chose to preserve overlapping paint layers, maintaining all of the polychromy, and to limit cleaning to the upper visible level only. The intervention on the fragments consisted of cleaning and fixing of lifted areas, consolidation, disinfection and repair of the wood.

After four years of work, we performed a first provisional reconstruction in real space with all the pieces already restored. A temporary supporting structure was then built, into which we "inserted" some sections of the predella, central zone, side niches and other small parts of the altarpiece. After completing this task, early measurements and scales were confirmed allowing completion of altarpiece restoration following scale graphs.

The next step then dealt with structural and aesthetic problems posed by the architecture, keeping in mind the condition of the sculptures and the specific restoration approaches chosen for them.

The tasks to be done were grouped as follows:

- structural re-composition
- plastic integration of new parts
- plastic problems found at the interface between new and old parts
- aesthetic-material intervention tasks on original material
- chromatic presentation.

These tasks had to seek an equilibrium between the architecture and every sculpture, as well as the rebuilt whole (i.e. altarpiece as architecture and sculptures).

The high availability and quite good condition of the original material determined the approach for rebuilding missing parts⁵. Most of the original structure was made of spruce, so the same kind of wood was chosen to fill in areas missing in the structure. Implementation was based on the original building typology, i.e. working from the inside outward, as subsequent elements were layered on a supporting base, ending with the cornices and decorative features. Original wood preservation was maximized even in the less visible components of the altarpiece, with each new insert tailored to follow existing fracture lines, in order to avoid changes to the original parts. Thus, no clean or straight joints were made but individual solutions were crafted for every fragment.

For the plastic finishing of new surfaces, both volumetric characteristics and carving morphology were considered. For the original surfaces, the reconstruction of lost volume and carvings was limited, favoring the historical sequence of events and a balanced readability instead. Also, carvings were not rebuilt from an abstract conception but were made to harmonize the continuity between old and new⁶.

At this point, we had a unitary “shape” on which a homogeneous aesthetic surface had to be built. Fracture lines were very evident due to the alternate succession of new and old wood, the latter exhibiting signs of mutilations inflicted by historic events and woodworm⁷. To develop a smooth interface between old and new, a texture had to be applied to the new wood.

We regarded the wood not merely as a support for the paint layers (generally considered to be the main aesthetic element of an altarpiece), but as playing a role just as important as those layers. In fact, an altarpiece can be seen as a living object composed of skin, muscles, viscera and skeleton. Intervention must take into account every constituent element, because all are equally important. All pieces and the pertinent balance among them must be preserved to retrieve a social-cultural equilibrium, which is the positive final outcome sought in every restoration work.

To this end, all uneven gradients in the wood were proportionally reduced, and fracture lines were filled with a paste made of wood dust. All treated surfaces were finished through careful carving. A similar texture to that of the surrounding original pieces was applied both to the new wood and the paste-filled fracture lines, with a fading-out in intensity from old to new elements. Even though new components were still recognizable, they were now blended with the original fragments within a dynamic balance. In this way, the rebuilding of the wood losses and the blending of old and new led to a new equilibrium of the whole, instead of yielding a kind of materials' kaleidoscope.

Texturing was followed by aesthetic-material tasks, a fundamental step for subsequent pictorial integration. After all fissures were filled and small missing ornamental pieces rebuilt, the surfaces that would remain as natural wood and those that would be chromatically altered were chosen. Micro-milling or carving tools were used on already coated areas to imitate wood texture, while the surfaces to be polychromed were prepared.

The preservation of the gilding and polychromy in their 1976 state was the starting point for retrieving the aesthetic layout of the altarpiece's "skin" in full harmony with the underlying "substance", or wood. Again, our approach was also to keep a balance, since following any one dogma – with its strict and absolute rules – would have hindered us from achieving a harmonious restoration. In fact, the very material suggested dynamic but coherent results.

The purpose of integrating the gilded and polychromed areas was to:

- retrieve the luminosity and preciousness of the gold
- fix disruptions on colored surfaces
- mask problem areas due to interface lines between new wood and original gilded or painted pieces.

The method chosen was to integrate small- and medium-sized areas of loss within original fragments by using the same hue, breaking up sharp lines between original and new parts by applying short and fading gilding or polychromy touches on new areas, in order to maintain a "natural" aspect. All polychrome integrations were performed "a rigatino", using watercolors.

As for losses in the gilding, gold leaf was applied by the two techniques already present in the altarpiece – oil and water gilding – on a polished ground layer "a tratteggio" to avoid final varnishes that could debase the special brilliance of gold⁸.

Intervention work on the architectonic structure of the altarpiece ended with the restoration of six small canvas paintings. Of the six paintings, four presented an acceptable state of conservation, notwithstanding their need for cleaning and some aesthetic problems to consider. The other two paintings, originally located on the right side of the altarpiece and more damaged by the earthquake, were separated from their supports, rolled up and incomplete

The twelve sculptures within the architecture portray the most revered saints of the region linked to the life of the Virgin Mary. The statue of St Elizabeth: flakiness and missing polychromies, sand and mud embedded in ground and mechanical shocks on wooden support are visible, all of them due to the earthquake. Only missing parts required for retrieving both the sculpture's internal and the whole's balance were closed. Polychromy and gilding integrations were made through "chromatic selection" following cavities and volume of carving.



(missing at least half of the original paint), so their restoration was more labor-intensive⁹.

A supporting structure was then designed to hold all the modules together. Since no useful information was available, neither archival records nor photographs, we were forced to build a completely independent elastic composite structure in order to accommodate all 30 modules in their full height¹⁰. The use of this kind of structure accommodates natural wood movements and holds the altarpiece together.

There were twelve sculptures within the architecture of the altarpiece, including the central statue of the Madonna del Giglio. Before the earthquake, wood-worm had already damaged the structures of the sculptures, causing them to offer almost no mechanical resilience during that event. Many parts were crushed, and some became irretrievable, such as the rear side of the head of the Virgin of Sorrows (from the upper right part of the altarpiece), the shoulder of St John and some parts of the Prophets' statues. The time spent under the rubble, although short when compared with that undergone by the architecture, had damaged their gilding and polychromy. Sand and dust had penetrated the humidity-softened ground layers. An outstanding example was St John's head, which became almost unrecognizable and resembled a lump of soil.

Like the architecture, the sculptures had undergone significant changes during the 1904 maintenance tasks. Stratigraphic and visual analyses of areas where flaking revealed the original polychromy found that the underlying surface of gilding and polychromy was more refined and of higher quality than that applied later, yet its condition was deeply degraded. Even though the restoration of this surface would have led to a correct reading of the plastic and chromatic values of each sculpture, it would have affected its balance within the housing architecture. Since we have approached these tasks considering the altarpiece as a whole, although composed of diverse parts, we chose in the end to keep the 1976 "skin".

Sculpture restoration included surface cleaning, wood-fiber consolidation, identification and cataloging of loose fragments, their assembly and structural and aesthetic integration of missing parts¹¹. Once cleaned and consolidated, contiguous fragments were re-joined to retrieve the original volume and shape of every statue.

The subsequent phase of aesthetic presentation, both volumetric and pictorial, was fundamental for the sculptures. While theoretical support was clear for the architectural restoration, through a variety of irrefutable graphic evidence and many plastic reference points, sculpture restoration was more risky because we could have developed new volumes and shapes, affecting the historical value of the sculptures. Additionally, since the group of statues pertained to a single architecture, it was nearly impossible to keep a balance between the elements that were mostly undamaged and those that were severely mutilated. The approach was, again, to maximize the original material, proposing a balance of volumes and surfaces, and restoring some particu-

Sculptures

larly disturbed areas. The architectural frame restoration tasks, already completed, were of great help in doing this.

Depending on the size and condition of the area concerned, different media were used. For instance, mono-component wood paste was used for small gaps, while the choice for deeper and wider spaces was a fill with Polyfilla and a final overlay of paste, as described earlier. The use of special putties and bi-component resins retained original carving properties and allowed for in situ filling without previous work on surfaces, thus avoiding loss of the original wood.

174

The Angel Gabriel statue was broken into numerous fragments. Missing parts of his wing were completed with special wooden carveable putty so wooden borders did not have to be evened out. Gold integration was also made through "chromatic selection".



In the case of the Angel Gabriel's wing – very damaged and with many missing fragments – it was even possible to achieve the carving of feather details. Had another media than these resins been used, it would have led to the loss of original wood.

The sculpture of the Prophet Isaiah – completely fragmented and featuring a hole across the chest – was first rebuilt and then integrated with polyurethane foam with an inner wooden frame¹². Between the foam and the original pieces, a layer of Japanese paper was used to isolate the wood. The surface of the foam was then covered with a non-woven textile with bi-component resin, over which a resin film of wood dust was applied. Other missing parts on the same sculpture were maintained because they didn't interfere with the aesthetic equilibrium. A similar process was used for the skull volume of the Madonna of Sorrows, of which only the facemask survived. An internal balsa wood frame filled with polyurethane foam was used, followed by the finishing steps described above.

The St John's statue restoration was more complex. There were large areas of missing material – especially noticeable in the face – and thus the statue had become a very disturbing element within the whole. Only in this specific case did we choose to deliberately rebuild the chin and shoulders to get enough image readability, leaving the damage, however, still visible.

For all the sculptures, we identified the areas where damage should remain visible or where the original appearance should be restored, as well as the surfaces to be left untreated with the wood visible or those to be prepared for later chromatic integration. After preparing the wood, we began the gilding and polychromy integration phase. For the polychromy, a “rigatino” watercolor approach was selected, while the method of chromatic selection was chosen for the gilding. A different gilding integration approach was performed for the sculptures to that for the altarpiece itself. Since the sculptures originally played a main role in the altarpiece, they were treated with more accurate details. It was intended that the eye of the visitor should pass from the architecture to the sculptures, and not vice versa.

Up to this point, the intervention had achieved aesthetic equilibrium among the individual fragments and the altarpiece as a whole, each statue and the statues as a group, as well as the altarpiece and the statues. Yet, the essential element of the altarpiece and of the entire church was still missing: the statue of the Madonna del Giglio. This piece, situated inside the main niche until 1976, was recovered in a poor and fragmented condition due to the nature of its body. In fact, before 1976 the Madonna was a composite structure, made from wood (torso, arms, head, the Child) and “gesso” (the rest). After a thorough analysis it was concluded that the Madonna was the result of a detailed rebuilding of a wooden statue almost a century older, and probably attributable to Giovanni Martini, from which some parts had been “cut”.

Due to the scarcity and poor quality of the surviving material, already altered in structure and appearance several times, it was impossible to use the same methodology that had been applied to the architecture and other sculptures. It was necessary then to formulate a number of working hypotheses in order to develop a viable proposal for the eventual return of the sculpture to the altarpiece.

The first hypothesis considered a “gesso” or plaster reconstruction built around the recuperated fragments in such a way as to re-establish the pre-1976 appearance based on photographic archives. This solution, although satisfying the liturgical functionality of the statue, would have compromised its historic-artistic and devotional aspects. Respect for the historic and artistic significance embedded in each fragment of Martini’s work of art would have also been lost due to the camouflage of stucco, necessary for any restoration with a minimal aesthetic finishing. This approach would also compromise the degree of equilibrium achieved so far in the sculptures and architecture of the altarpiece, which was accomplished by adhering to uniform concepts throughout their restoration.

A second option would have been archaeological restoration, i.e. the display of original fragments without any formal linking. This would have irremediably lost any liturgical functionality for the Madonna, together with every trace of aesthetic equilibrium.

One alternative was not to use these fragments at all and concentrate on a number of *ex novo* solutions. A contemporary sculpture was a viable option,

The statue of the Madonna del Giglio

but would have posed the thorny question of choosing style, material and artist. These issues implied arbitrary decisions and could not be reconciled with the axioms coherently implemented so far.

Another option was to create a copy of the statue as it was in 1976. Yet it was difficult to establish which model to copy: the Martini fragments as retrieved from the rubble (following the sketchy three-dimensional hints from photographic records), or the same fragments restored and displayed as they would have appeared in their original state?

The last option, which was accepted by both public and religious bodies, was to create a statue at a scale proportional to the altarpiece, copying a contemporary statue of the same sculptor. This decision satisfied the principles of:

- historic value: the fragments of the statue saved from the rubble would be restored and located inside the church in a site appropriate for the significance of this historic heritage, over one hundred years old
- liturgical and devotional value: the statue would be a real figure, not a fake mannequin
- aesthetic equilibrium: the new sculpture would be a perfect replica both in shape and technique. This guaranteed its harmonious insertion into the whole
- symbol of the earthquake: this would be maximized due to the highly symbolic significance of the original fragments that survived the event. The copy-statue epitomizes the significance of time as witness of the alternate course of events between destruction and rebirth. This rebirth was made not to re-establish but to exalt the deep significance of history.

Management system

Besides restoration, other tasks included:

- relationships with responsible functionaries (Ministero per i Beni Culturali – Italian Ministry for Cultural Heritage, Giunta Regionale – Regional Board) for verifications of methodology, project approvals and fundraising authorizations
- fundraising from public and private organizations
- logistical tasks (finding and organizing work space, searching for multi-disciplinary collaborators, training programs, etc.)
- operational and financial management
- contacting experts for consulting
- TV and radio presentations to promote restoration project
- dissemination of information and writing of scientific articles.

Unfortunately, our work began when special government funds for earthquake damages were exhausted, so the Ministero per i Beni Culturali never directly supported the project. Support finally came from the Programma Regionale di Finanziamenti per i Beni Culturali (Regional Financial Program for Cultural Property - Regional Act 60/1976) and from banks and private organizations receiving state tax relief (Act 512/1982).

In 1988, both the parish and RCA restorers agreed to a self-financing and self-promoting tool. After each main restoration step was accomplished, scientific articles were published, the media contacted and fundraising sought. Therefore, people were aware of the project through the media, and investors continued to support the program. Meanwhile, the RCA team had to fund all expenses related to archival research, scientific analysis, photographic and video documentation, additional research and publication activities.

The Sanctuary was rebuilt in the same place and with the same dimensions it had before the earthquake¹³. The placement of the main altarpiece was also the same, respecting the principle that a work of art holds a unique relationship with its specific social, cultural and geographical location.

From the beginning, every altarpiece is created for a specific architectural environment, which develops a continuous equilibrium depending on subsequent historical events. Thus, maximum care must be taken to avoid interfering with this special equilibrium when conservation or maintenance tasks are performed¹⁴.

Conservation tasks still continue inside the rebuilt church, using the same methodology, with the restoration of the furniture and other works of art, such as the altarpiece of San Rocco and the group of the Vesperbild. At the end of this phase, the whole will be re-composed in a condition of general equilibrium that respects the past and allows the original message to live within the renovated community.

The Sanctuary is currently open for masses, Marian services and weddings. Security is supported by a full-time alarm system that does not interfere with services in the church. Lighting, some finishing touches and documentation on the restoration for visitors will be completed when all conservation tasks have been concluded. Restoration results will be published in a volume that includes other methods and research experiences from Italy and other European countries for comparison purposes.

Touched personally by this terrifying event, we have maintained sturdy resolve while facing the challenges of the Madonna del Giglio restoration. We have confirmed that even an objectively valid theory needs a subjective, contextual methodology that is mindful of place, moment and object. This methodology must comply with historic, artistic, functional and emotional requirements, which find balance in the restored final “product”. Rescued for religious services, the altarpiece of Santa Maria del Giglio has recovered both its cultural and liturgical position and significance, and now represents the victory of life against the destructive power of an earthquake.

Any methodological approach to the conservation of altarpieces must strive to save not only the original material – not always rescued in its totality – but also the “spirit” supporting it. If we are not able to “bring life” to the object, or bring

Context

Results and conclusions

it a new life or new social significance inside the community it belongs to (no matter how small), then conservation work becomes a mere mechanical operation, a historical operation on a silent object. Conservation work must also incorporate the context in which an altarpiece lives, including architecture, urban, social and cultural relationships, and the equilibrium between them.

The involvement of the general public in project issues and decisions encourages dissemination and acceptance of the intervention, and promotes genuine and appropriate cultural operations. This type of micro-didactic approach can be useful when training new conservators or educating new local operators, who then feel the need to take care of their own heritage.

This strong experience enables us to suggest a series of considerations when facing similar situations. In the event of emergencies caused by natural disaster or other extreme circumstances, it is essential to have:

- intervention protocols for controlling the entire operation during the emergency as well as the subsequent phases of restoration
- data banks, from which to retrieve information on similar cases, applied methodologies, materials and techniques
- interdisciplinary teams of professionals (conservators, architects, engineers, archaeologists, geologists, art historians, computer professionals), belonging to public institutions, or freelancers in accordance with public organizations, working to:
 - analyze the condition of the heritage and its context
 - consult data banks
 - perform intervention protocols, adapting them to specific situations
 - develop a project strategy
 - organize the operational restoration team.

The team could also carry out temporary training and research activities, according to institutional guidelines.

In the case of the altarpiece of Santa Maria del Giglio, a lot of damage could have been avoided had the following been implemented:

- coordination between emergency teams for built and cultural heritage immediately after the earthquake to avoid indiscriminate demolition, the crushing of pieces under bulldozers and their subsequent abandonment in a dump¹⁵
- use of an archaeological methodology to rescue and catalogue pieces immediately after the earthquake, thus creating a valuable global and ordered record of the deposition of the fragments, which would have been very useful for later intervention tasks
- reversible methods of emergency interventions on rescued parts. In an emergency, intervention must be directed at conservation only, without affecting future conservation tasks, such as those relating to aesthetics (cleaning, removal of over-painting, reconstructions). These steps must be part of the general restoration project

- photographic, video and graphic documentation of rescue operations, for later classification of pieces
- suitable storage facilities until restoration.

Operational conditions for much of the work were particularly difficult for many reasons. Given the lack of centralized information infrastructures and the cost of research, the work undertaken in 1988 to verify the existence of protocols or similar experiences was really difficult for us, as private conservators.

As no interdisciplinary team was available to carry out the project for its duration, from the emergency to the conservation, the conservators themselves had to perform a variety of tasks.

We believe that the “new” restoration should involve not only technical and professional knowledge but also have a political approach. The “new” restoration should not be a secret or timeless event within a craftsman’s shop, nor a show having little to do with the safeguarding of works of art. The “new” restoration must be in response to a social need, supported both by people and public institutions.

In the past, the role, function and enjoyment of a work of art were public, and this should continue in the future. A work of art is the faithful and lasting expression of the cultural essence and ethical values of the community to which it belongs.

Imbued with a message from the past, the historic monuments of generations of people remain to the present day as living witnesses of their age-old traditions. People are becoming more and more conscious of the unity of human values and regard ancient monuments as a common heritage. The common responsibility to safeguard them for future generations is recognized. It is our duty to hand them on in the full richness of their authenticity.

It is essential that the principles guiding the preservation and restoration of ancient buildings should be agreed and be laid down on an international basis, with each country being responsible for applying the plan within the framework of its own culture and traditions. (Venice Charter 1964)

The “new” restoration is in favour of this identity: our past, present and future wealth.

Photographic credits

Franco Del Zotto

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Notes

1. During the intervention, we found the date 1878 inscribed on the reverse of a piece of the architectural frame, documenting the restoration of the altarpiece.
2. The theoretical and methodological ideas applied are also based on two other principles elaborated by Cesare Brandi. The work of art, seen as a product of human activity, imparts a double valorisation: on the one hand, it is an act that represents a certain time and place (the moment of its material creation), and on the other hand, it reveals the consciousness of that determined time and place. This constitutes the historic principle. At the same time, however, the work of art assumes an artistic value in itself. This constitutes the aesthetic principle.
3. Many of the private images (weddings, etc.) reviewed while developing restoration plans depicted the altarpiece playing a main role.
4. The recovery of the potential unity of a work of art (following Brandi's approach), through the recovery of the potential unity of its fragments, and the search for a method to determine a new equilibrium, verified and adjusted to the specific situation, are other important conditions for legitimising a restoration.
5. All operating choices have followed an orthodox methodological approach, although in some cases it was necessary to adopt certain flexibility. The results of these choices may not be replicable, but they are theoretically justified and recognizable.
6. After following the outlines from drawings and original references exactly, all the elements were carved in linden wood, including cornices, decorative leaves, ovules and dentils, column flutings, parts of niches and moldings.
7. We chose to use all recovered fragments, even those that were very damaged (whose elimination would have simplified restoration tasks).
8. The architecture of an altarpiece is the frame inside which statues are appreciated. In this case the use of gold leaf to mend losses on the architecture was neither an arbitrary choice nor a falsification, but a fundamental action to enhance its characteristics. In practice we used two techniques that had already been used on the work of art: oil and water gilding, applied onto yellow or red ground layers, respectively. The quality of the gold leaf was in accordance with the colour of the original gold, mainly 23 carats. Small losses and abrasions were integrated "a tratteggio" with powder gold. For better definition, some surfaces of new gold were completed with a subtle ruling.

9. The surviving fragments were cleaned, and the fibers were consolidated in torn areas. Each canvas was reinforced with two layers of silk paper and then placed inside its medallion on a classical ground layer, limited to areas of the surface in contact with paint. Lost parts remained as bare wood, while the surviving areas were integrated "a rigatino".

10. Six beams in laminated timber, embedded in the masonry foundation, support all modules by clasping them with a series of brass braces, tightened by spring-interfaced cylindrical elements in hard wood. The predella, isolated from the masonry base by a wood and polyurethane interface, supports the vertical modules of the columns and niches, followed by the entablatures and cornices and finally the crown of the altarpiece, with the God the Father and the two lunettes housing the Annunciation.

11. First came the cleaning and fixing of the lifted paint areas on the supporting wood. It was a very difficult operation due to the varying granular debris embedded in the ground layer. Paraloid B72 in gradually increasing concentrations, plus a Permetrina-based disinfectant, were used for consolidating the wood, following brushing and phlebotomy techniques to avoid an unnatural synthetic appearance.

12. In this case the reconstructed volume had precise three-dimensional references, so that no arbitrary rebuilding was done.

13. On October 11, 1998 the main altarpiece was placed again inside the rebuilt church during a solemn celebration with all people from the village present. The church was re-consecrated and the altarpiece blessed.

14. The following citations are included for reference:

(a) Venice Charter 1964, Art. 7 - "A monument is inseparable from the history to which it bears witness and from the setting in which it occurs." Art. 8 - "Items of sculpture, painting or decoration which form an integral part of a monument may only be removed from it if this is the sole means of ensuring their preservation"; (b) Carta del restauro 1972, art. 6 - "... sono proibite indistintamente per tutte le opere d'arte: ... 2) rimozioni o demolizioni che cancellino il passaggio dell'opera attraverso il tempo, a meno che non si tratti di limitate alterazioni deturpanti o incongrue rispetto ai valori storici dell'opera o di completamenti in stile che falsifichino l'opera; 3) rimozione, ricostruzione o ricollocamento in luoghi diversi da quelli originari, a meno che ciò non sia determinato da superiori ragioni di conservazione; 4) alterazione delle condizioni accessorie o ambientali nelle quali è arrivata sino al nostro tempo l'opera d'arte, il complesso monumentale, il complesso d'arredamento, il giardino, il parco, ecc..."; (c) Cesare Brandi, Teoria del restauro, Torino 1977, p.51: "... E' per questo che il primo intervento che noi dovremo considerare, non sarà quello diretto sulla materia stessa dell'opera, ma quello volto ad assicurare le condizioni necessarie a che la spazialità dell'opera non sia ostacolata al suo affermarsi entro lo spazio fisico dell'esistenza. Da questa proposizione discende che anche l'atto con cui un dipinto viene attaccato a un muro, non indizia già una fase dell'arredamento, ma in primo luogo costituisce la enucleazione della spazialità dell'opera, il suo riconoscimento, e quindi gli accorgimenti presi perchè sia tutelato dallo spazio fisico..."

15. We would like to remember all the volunteers who worked within the ruins of the church for several days, just after the earthquake, to recover fragments from all works of art: without their contribution, this important testimony of art and culture would have been lost forever.

A methodological approach to the conservation project
for the main altarpiece of Santo Domingo de Guzmán,
Yanhuitlán, State of Oaxaca, Mexico

182

Françoise Descamps, Blanca Noval Vilar, Irene Sen



Name of the work of art: Main Altarpiece of Santo Domingo de Guzmán
Location: Apse of the church of Santo Domingo, which forms a part of the Dominican Convent of Yanhuítlán Oaxaca, Mexico

Owner/responsible party: The local community, represented by the Council and the Public Trustee; along with the Instituto Nacional de Antropología e Historia (National Institute of Anthropology and History - INAH), through the Coordinación Nacional de Conservación del Patrimonio Cultural (National Cultural Heritage Conservation Coordinating Body - CNCPC)

Authored by/attribution to: Panel paintings attributed to the Spanish painter Andrés de la Concha

Chronology: Altarpiece from the seventeenth century, incorporating panel paintings from the sixteenth century

Style: Baroque with mannerist style paintings

Typology: Main altarpiece consists of seven vertical registers and five horizontal registers, with a multi-angular footprint and a self-supporting structure, standing independent of the apse wall and reinforced at the back by a system of beams and wooden posts

Dimensions: 26.7 m 8.84 m (height x width)

Materials and techniques: Carved wood, which is gilded and polychromed, whose vertical registers alternately display panel paintings; carved, polychromed wooden sculptures; and small-sized canvas paintings

This article discusses the development of an approach to the conservation of a large altarpiece located in a remote area of the State of Oaxaca, Mexico, in a zone with frequent seismic activity. The project, coordinated by two different institutions devoted to the conservation of cultural heritage, had to be adapted in accordance with the responsibilities and objectives of the parties involved, and to respond to the conditions of the site, specifically: difficulty of access, poor installations and an intermittent fieldwork program, alternated with periods of research at the respective institutions.

Even though the methodological approach was exemplary and has become a reference document, the expected course of the project and its implementation was cut short, due to an emergency situation resulting from the earthquake of 1999.

The main altarpiece of Yanhuítlán was subjected to adverse conditions on account of both natural and historic phenomena in the course of its four hundred years of existence. By the late 1990s, it was in a very precarious state in terms of its structural stability and material composition.

The Yanhuítlán community, concerned over the altarpiece's critical state, started looking for ways to ensure the lasting presence of this major work of Mexican heritage, which, moreover, plays an essential role in the life of the community.

As a result of the contacts made, a unique multi-entity project was developed. The first of these entities was the institution entrusted with protecting Mexican national heritage assets. The second was a philanthropic foundation based in Los Angeles, dedicated to research and the implementation of heritage conservation projects. These entities are, respectively, the Instituto Nacional de Antropología e Historia (National Institute of Anthropology and History - INAH) through the Coordinación Nacional de Restauración del Patrimonio Cultural (National Cultural Heritage Restoration Coordinating Body - CNRPC) and the Getty Conservation Institute (GCI).

Origin of the project



184

Meeting of work group, including participation of the community.

Members of the work team speaking with local students about the conservation of the altarpiece.

For both entities, intervention on the altarpiece fits into their respective programs and provides an opportunity to continue working towards their own objectives and developing their lines of research.

For the CNRPC (INAH), intervention on the altarpiece forms part of a comprehensive conservation program that aims to support the social, economic and cultural development of Yanhuitlán through recovering all forms and expressions of its heritage, in a sustainable manner, taking the community itself into consideration. This comprehensive project was conceived in Yanhuitlán as a pilot project and includes the restoration of the monastery, conservation of the church and its chattel assets, and the revitalization of agricultural practices and local traditions.

For its part, the GCI, as an international institution dedicated to research and the implementation of heritage conservation projects, is interested in participating in Yanhuitlán as part of its work in developing a methodology applicable to other cases in similar contexts, that is, in remote seismic zones with limited funding.

At all times, the community – who initiated the project – have played an active role, through the church's Pro-Restoration Committee. They have participated in meetings and have been involved through ongoing monitoring of the activities carried out.

The shared objectives are structured in such a way that, starting with its first steps, the project has incorporated training and educational components for students of conservation, as well as for members of the community, who, in the end, will be responsible for the long-term maintenance and protection of the site.

The altarpiece is self-supporting and stands free from the semicircular apse, with its multi-angular footprint partially following the apse's shape. The altarpiece was conceived as a series of horizontal planes joined to one another by means of entablatures and cornices, within which elements such as large-sized panel paintings (251 x 125 x 7 cm), form a significant structural element.

The altarpiece is shallow in depth, with a maximum thickness of 10 cm. in the area of the panel paintings, 25 cm in depth at the entablatures, and 40 cm in depth along the columns.

The altarpiece is reinforced at the back with a support structure formed by three vertical wooden posts, attached at the top to other horizontally placed posts. These elements, assembled using leather cords, are in turn joined to the altarpiece by means of wooden crossbeams. Only the ends of the horizontal wooden posts are anchored to the wall with metal fittings.

The altarpiece has undergone a number of interventions to counteract the deformations occasioned over the years by earthquakes. The first intervention was the installation of a series of turnbuckles, connecting the altarpiece to the apse wall. The second was the installation of a framework of metal L-profiles assembled and welded on-site, forming five columns with a triangular footprint, embedded into the ground. These "three-dimensional" structures are also independent from the apse walls. The metallic structure follows the lines of the deformations in the altarpiece, to which it is anchored at specific points, either directly or using metallic fittings placed between the altarpiece and the supporting structure.

During the project's preparatory phases, research took place on issues related to the conservation of altarpieces. This work involved inspecting the altarpiece in detail in order to comprehend its conditions and evaluate the need for an emergency intervention. Based on discussions among professionals from both institutions as well as guest consultants, measures were also taken to identify the main fields of study, and, simultaneously, through a work team consisting of members of both institutions, evaluate the building's conditions, develop a proposal on adaptations needed to carry out the work, establish a work plan and structure the community involvement process. One of the first activities was to determine the cultural significance of the work, which forms the justification and foundation for the project's objectives. Taking into account all of the entities and individuals involved, that is, those responsible for the heritage, as well as the community, and the public in general, and, based on the perspective of the various disciplines involved, work was embarked on to analyze the altarpiece's artistic, cultural, economic and social value.

The church of Santo Domingo, together with its main altarpiece, its twelve lateral altarpieces, and other sculptures and religious objects belonging to the temple, are of extreme significance for and are regularly used by the community of Yanhuítlán in the celebration of their religious festivals. While most of the adjacent monastery is in a state of abandonment, the church continues to provide a reference point and meeting place for the community of Yanhuítlán

Profile of the research and intervention team:

First Phase: Methodology development and preliminary studies, with collaboration between CNRPC and the GCI:

Six conservators/restorers with support from two engineering firms, two architects, one company specializing in photogrammetry, four architecture students, two art historians, one biologist, one chemist, an environmental specialist, one risk prevention specialist, one photographer and three community members

Second Phase: Proposal and intervention, CNRPC:

Nine restorers, twelve restoration students, one engineer specializing in wooden structures, one sculptor, three carpenters, one photographer, one team of draftsmen, one administrator, and community members.

Cultural significance of this work of art



The church of Santo Domingo de Yanhuítlán, north facade from the eighteenth century.

Inside the church, showing the location of the main altarpiece and other side altarpieces.

who, despite having emigrated in large numbers, constantly return to participate in all the significant celebrations taking place around the church.

From a historic point of view, Yanhuitlán symbolizes the coming together of the Old World and the New, as is noted in the Codex of Yanhuitlán, a historical manuscript written in the sixteenth century, which documents the events of that era and the tribute system among the inhabitants.

The architectural complex, whose construction dates back to 1555-1575, bears witness to the historical changes unleashed when the Mixteca culture came in contact with that of the conquerors, and the religious orders were established. The structures have characteristics in common with the other monastic complexes of the region, that is, monumental structures made of stone, consisting of a monastery and a church, with an open chapel designed to receive the indigenous peoples prior to their conversion. Today, many of these churches still house a rich variety of decorative elements, such as altarpieces, ceiling adornments, murals or organs, which evidence the presence and wealth of the orders who established themselves there, turning the area into a potential tourist attraction.

In parallel, the participation of Andrés de la Concha in creating the altarpiece's panel paintings evidences the tendency to impose new cultural concepts and religious forms. Andrés de la Concha, whose works incorporate a mannerist style reflecting the interaction existing at the time between Spain, Italy and the Flemish school, was specially sent to New Spain to work on the altarpiece of Yanhuitlán and others of the area, according to the records preserved in the archives.

The main altarpiece per se has undergone few interventions. Even though there is a certain degree of anachronism between the eleven large panel paintings and the general style of the altarpiece, no major alterations have been seen in to the work as a whole. Accordingly, the altarpiece has a scientific value, which, added to its aesthetic qualities, makes it a reference point for art history, in particular the history of altarpieces, given its form and the materials and construction techniques employed.

The altarpiece has been protected and classified as an asset of national interest. Furthermore, it has been incorporated into a program for the social and economic revitalization of the Oaxaca region, based on restoring and exhibiting heritage as a source of local community pride and identity. Along with these efforts, this program works to revive traditional agricultural practices as a step towards consolidating the area's communities, while providing a sustained income through the development of tourism.

Project development

Physical context and conditions

Based on the project objectives defined by each of the parties, including training and education, the activities and the total project were originally estimated to have a three-year duration. This term, divided into various phases, was set aside to complete the necessary studies and perform the intervention for the conservation and stabilization of the altarpiece.

The first phase addressed two preliminary needs. On the one hand, this period was set aside for conditioning the work areas and residential facilities to be used by the project team. It was also set aside for the initial development of a methodology to document and evaluate the state of the altarpiece and of its components.

The second phase focused on implementing the conservation strategy, restoring the altarpiece's structural stability, and applying the necessary conservation treatments.

The third phase's objective was to restore the stature of the altarpiece as a focal point in the church, and establish a long-term maintenance program, while disseminating the methodology, the results of the research and the stabilization and conservation processes employed.

Building upon the rich perspective of two different entities with different areas of competence, it was sought to develop a rigorous, well-structured methodological approach, aimed at achieving coordination and consistency in all the necessary technical actions, without compromising the sustainability of the intervention. All the techniques and artisanship used in the altarpiece were taken into account. The various disciplines needed for the studies and the intervention were identified. Finally, the project considered the needs entailed in training community members, as well as the community's expectations for recovering a lasting element of devotion.

Simultaneously, in order to make sure that the intervention would not take place in an isolated manner, the general state of the church's conservation was evaluated. Yanhuítlán is located in a zone of intense seismic activity, which time and again has affected the material integrity of the church and that of the assets it houses. Moreover, the architectural complex has undergone periods of abandonment or times of crisis, such as the various occasions when it was used as a military garrison. Though not abandoned at present, the church did not offer optimal conditions to ensure the conservation of the works it houses. In addition to the effects of seismic activity on the altarpiece, a series of problems was detected resulting from inadequate enclosures and the filtration of water from leaks in the roof. Also, since the altarpiece is located in a sparsely populated region lacking in economic resources, the town did not have the necessary infrastructure to react in situations of risk, such as fires or major earthquakes, or to control acts of vandalism.

Intervention on the altarpiece required major preliminary logistic activities, such as the installation of a large scaffolding system and modifications to the work areas, as well as the preparation of housing for the team of conservators. These activities, as well as anticipated intervention on the altarpiece, required the extensive use of electrical equipment, exceeding the capacity of the existing installations. In order to prevent accidents that could injure humans or damage the artwork, it was necessary to reassess the state of the electrical installations and redesign the building's installations, while the national electricity company was asked to intervene in order to increase the power supply.

During the first months of work, the INAH delegation in Oaxaca in charge of the building's conservation, was asked to repair the roof. At the same time, a local team took charge of inspecting the windows, closing off access to birds, and keeping other animals out of the church. A risk prevention specialist was sent from the GCI to detect points of weakness, and a safety protocol was developed for the work and for the conservators who would be working on the church and the artwork.

As part of these preventive actions, a group of community members was trained in basic emergency response procedures.

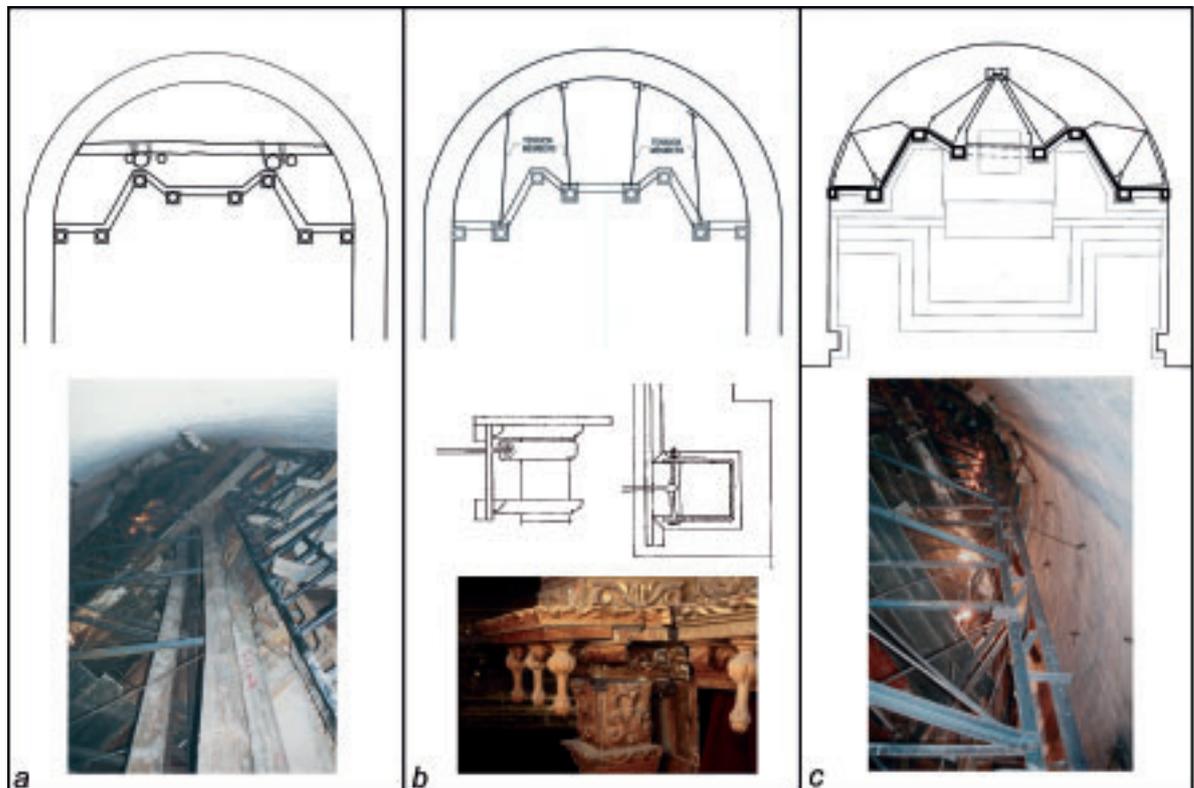
All these activities, beyond intervention on the main altarpiece, have been overseen by regional entities of INAH-Oaxaca and local persons in charge, as part of a long-term vision, which encompasses the revitalization of the convent-church complex and the conservation of the 12 lateral altarpieces, along with other valuable artwork housed in the church and in the small adjoining museum.

Study phase

Forming of the work team and preliminary studies: One of the major objectives was to obtain exhaustive documentation on the altarpiece as a tool for deciding upon the proper intervention.

Based on the results of the first field visits, two major issues of concern came to light.

Structure of the altarpiece and its successive reinforcement systems.
Drawings and photos by E. Miranda.





In the first place, it was noted that the altarpiece's structural stability had been weakened on account of seismic movements, even though several reinforcement systems were observed, added during previous interventions aimed at consolidating the altarpiece. On several occasions during the life of the altarpiece, with the aim of controlling and to some extent counteracting the slumping, deformations and the out-of-plane behavior of some of the altarpiece's components, actions had been applied to specific points. This included the placement of braces to anchor the altarpiece to the wall, as well as the installation, during the 1970s, of an auxiliary metallic structure.

In the second place, after a preliminary visual examination, losses of decorative elements were noted, along with the disappearance of major components of the altarpiece. Deterioration to some of the paintings was also noted, caused by water infiltration, xylophagous insect infestation or the poor behavior of materials used in previous restoration interventions.

Based on these circumstances, and as a starting point, it was decided to form a core work team, comprised by restorers and historians from both institutions, with the aim of delineating the work, identifying the studies and instruments needed in carrying out the research, defining the diagnostics and developing the intervention proposal. This team was also entrusted with coordinating the interaction between the various disciplines invited to contribute their specific experience, and with making the information accessible to all parties involved in the decision-making process.

From the very start, it was considered indispensable to include an art historian who could provide the work team with all available information on the

Detail of the "Virgen del Rosario", painting attributed to Andrés de la Concha, state of conservation. Photo by Andrea Rothe (left) y Ubaldo Manrique (right).

Date and duration of the studies/intervention:

First phase:

- 1993: First diagnostics of the state of conservation. Coordinación Nacional de Restauración del Patrimonio Cultural (National Cultural Heritage Restoration Coordinating Body - CNRPC) of the INAH
- 1994-1995: Evaluation visits by members of the Getty Conservation Institute (GCI) accompanied by consultants

1997-1999: Methodology development and preliminary studies. INAH / GCI collaboration through short-duration campaigns: December 1997, February, March, June, September

Second Phase:

October-November 1998 and April 1999 (four and a half months in total)

2000-2001: Conservation and emergency intervention in response to the September 1999 earthquake. CNRPC/INAH and Fondo Nacional de Desastres Naturales (National Fund against Natural Disasters - FONDEN)

altarpiece. Research was commenced, using archives, as well as bibliographic and documentary sources, in order to understand the origin of the altarpiece and of its components, identify the timeline for the altarpiece's original creation and interventions, its authorship, and the mechanisms that were used in commissioning and carrying out the work. It was decided that a comparative study of the altarpiece should also be performed from the point of view of the history of the art and of the iconography, so that we could interpret them correctly and relate the altarpiece to others produced in that era.

At the same time, an on-site analysis was begun to identify the altarpiece's components, materials and construction systems, grouping interventions into chronological stages, and logging the altarpiece's state of conservation. Parallely, a visual analysis was completed, a first set of samples was taken and scientifically analyzed, and a preliminary study was commenced with the aim of obtaining certain reference parameters on the site's environmental conditions.

Given the specific structural stability issues, it was decided to request structural engineering firms to interpret the situation. Two work meetings brought specialists from each of the following disciplines together: conservators of panel paintings, conservators of decorative art, and engineers, to discuss the advantages and disadvantages of each possible intervention, taking into account the value of the work and the effect on the altarpiece of each act of intervention.

Instruments for compiling data, analysis of information, and logging of the interventions:

Photogrammetric survey: The photogrammetric survey was proposed as the most appropriate method for obtaining support documentation to record the state of the altarpiece's conservation, facilitate an overall analysis of the information collected and document all the actions or interventions performed on the altarpiece.

The complex structure of the altarpiece, nonetheless, posed a huge challenge: its multi-angular footprint, the intricate mix of columns, panels, paintings and sculptures, as well as the existing deformations made it difficult to collect data and represent that data graphically. It was only possible to obtain orthogonal front views of each vertical register, which, placed side by side, served as a basis for recording the state of the altarpiece and attaining a comprehensive reading of its alterations. In order to further analyze and comprehend the degree of distortion in the altarpiece, it was decided to conduct an architectural survey of each horizontal register, contrasted with a survey of the vertical sections affected by slumping. During this survey, a record was also made of the footprint and horizontal view of the posts and supporting elements along the back of the altarpiece.

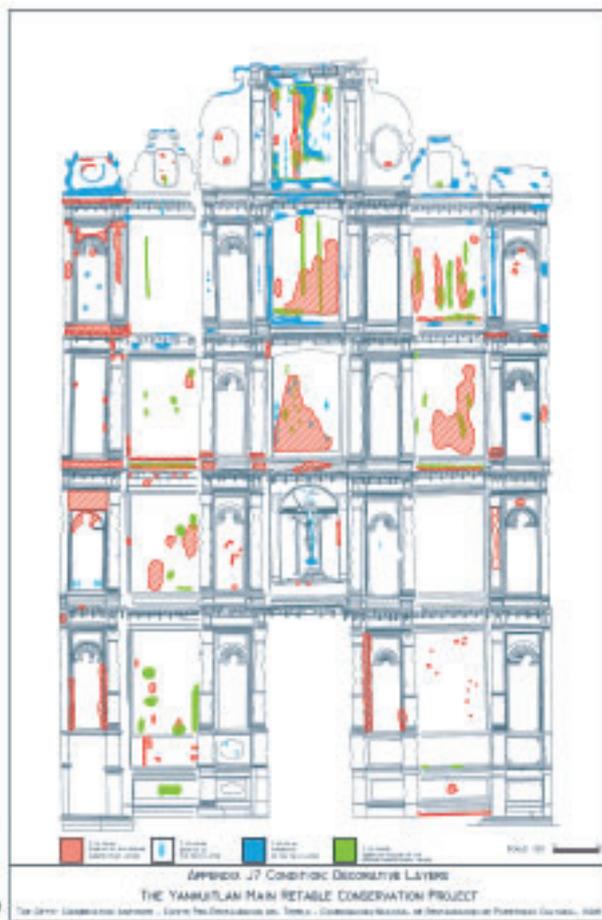
A log-sheet system was developed with the aim of offering a medium on which to graphically record information, in a systematic, ordered fashion, using a common language. In order to develop a standardized log sheet, pre-

liminary work was performed to create guidelines for gathering data from the front and back of the altarpiece, decide upon the degree of detail, define the concepts involved (glossary), and decide upon its graphic representation (legends). During the collection of the data, revisions were made to the log sheets as well as to the use of the terms and their representations, so as to maintain a degree of consistency throughout the work.

In order to organize the teamwork and manage the quantity of visual and written information generated, the altarpiece was divided into modular units, based on the intersection of horizontal and vertical registers, taking both the altarpiece front and back into account. Each module was assigned a folder with preprinted forms and illustrations for compiling information on materials, the construction system and manufacturing techniques, the state of conservation and previous interventions.

In order to accomplish such a large, complex task, a methodology was developed combining traditional methods for logging information with computerized information processing methods, which turned the graphics from the photogrammetric front views of the altarpiece into CAD files. The transfer of the information into digital format was performed simultaneously with the collection of data, on a computer set up at the site. This method made it possible to analyze the state of each component's details (structure, painting, architectural elements) and of the altarpiece as a whole.

- a. Drawing of the conditions of the decorative layers before intervention.
- b. Drawing of the interventions on the decorative layers.



At the same time, the processing of computerized data made it possible for both institutions to have a readily accessible instrument for the exchange of information, while the corpus of the documentation gathered in the original hard-copy files now forms a part of the project's documentary archives, housed at the CNRPC-INAH.

Photographs

From the very start, a strategy was developed to document the altarpiece photographically, and certain representative zones were chosen to document the current state of the altarpiece and its interventions.

As part of the project, and to support dissemination of information on the project in the future, documentation was also videotaped, covering the restoration processes and the project activities, including documentation on community meetings or activities related to the altarpiece.

Scientific analysis

Using the samples taken on site, various analyses were conducted at the laboratories of the Getty Conservation Institute to determine the composition of the altarpiece's materials, especially the materials of the preparation layers and of the paint and gilding layers.

Tools used included the electronic microscope, X-ray fluorescence spectrometry and the chemical staining of the samples' stratigraphic cuts.

Construction system of the altarpiece and of its support structure

After making a detailed analysis of the altarpiece's constructive system, including the support elements and the metallic support system, added later, it was possible to better understand how the wooden elements of the altarpiece, including both the panel paintings and the planks of the wooden structure, had together originally comprised a self-supporting structure.

An analysis was made of the behavior of the current system, formed by the wooden altarpiece and the metallic support structure, with the aim of evaluating their behavior both under normal conditions and in the event of seismic activity. An evaluation was made of the possibility of returning the altarpiece to its original state (self-supporting), analyzing whether it was possible to reinforce the existing support structure or was necessary to build a new one, and assessing the viability of the execution of such works.

The logging of the state of conservation made it possible to evaluate the deformations and changes undergone by the altarpiece's constructive system, principally due to the poor quality of the raw material employed, the fragility of certain support elements, or as the result of these elements' limits under the

stress of compression, pulling or torsion, whether in a constant fashion or at times of seismic activity.

Part of the engineers' studies were focused on understanding how the wooden elements of the altarpiece, the paintings and planks of the wooden structure, were anchored to the metallic framework and how loads were distributed among them.

In this first phase of analysis, a need was seen to plan an intervention capable of improving the capacity of the altarpiece's joints to respond to seismic activity.

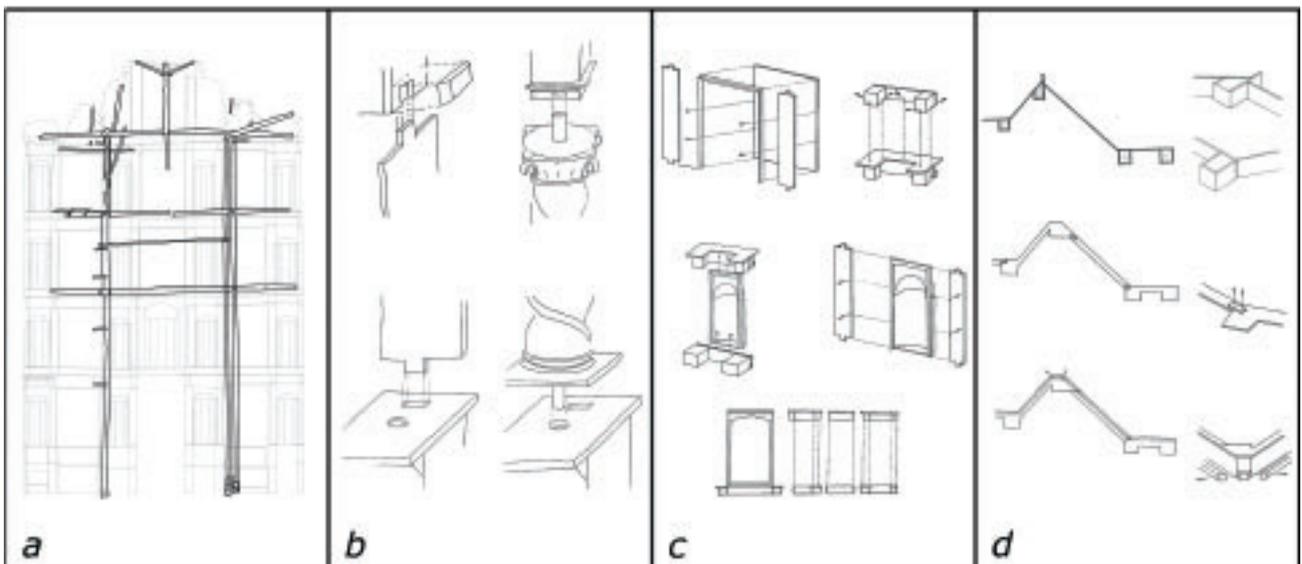
Paintings and sculptures

Given the great value of the altarpiece's 11 panel paintings, it was also important to analyze their state and the viability of their conservation. Despite apparent deterioration, their state of conservation was generally considered good, and it was anticipated that intervention would only be needed in specific areas, involving cleaning and the recovery of the paint layer.

The sculptures, nonetheless, from the start, posed questions as to their origin. It was therefore considered necessary to delve more deeply into historic studies and to analyze the existing layers of polychromy, before deciding upon any intervention.

Among the studies to gain a comprehension of the altarpiece, analyses were conducted to identify the woods used, and an attempt was made to respond to certain questions on the materials and artistic techniques employed. Surface layer deterioration was logged, as well as the deterioration of some of the materials used in prior conservation interventions. Finally, a campaign was scheduled for taking samples of paint, fibers, the preparation layers, adhesives and gilding, in areas pre-selected by the conservators.

a. Original supporting structure of the altarpiece.
b-d. Building system and assembly of the altarpiece.
Drawings by Javier Salazar.



State of conservation and intervention proposal

The studies confirmed that the entire manufacture of the altarpiece was the result of an original production that had not been subject to major alterations over the course of time in terms of regilding, retouching, reinforcements or the replacements of wooden elements. Nonetheless, the degree of xylophagous insect infestation present in the altarpiece made it necessary to plan an approach in order to efficiently apply a treatment to so large a work. The possibility was explored of successfully mounting a hermetic space around the altarpiece, which is necessary for applying an anoxic pest-control treatment.

The results of the first compilation of environmental data through dataloggers installed at several points on the altarpiece and in the building led to the conclusion that temperature and relative humidity in the church's interior were quite stable and that, at least for the time being, more detailed studies were not necessary.

The first information gathered made it possible to determine the current state of the altarpiece and its vulnerability, and to detect the principal causes and mechanisms of its deterioration. At the same time, this information provided a foundation for developing a conservation treatment strategy. Nonetheless, the research is yet to be concluded on the history of the art, iconography and archive documents; the scientific analysis needs to be deepened; and a determination is still pending regarding the true possibility of an on-site treatment of works of such great volume.

In terms of the project's logistics, a strategy still needs to be developed that will allow scientific analyses to generally be conducted in the field, without having to wait for results from the laboratories of either of the two institutions involved. It was also necessary to find a way to prepare a high-quality photographic log using existing human resources and materials.

Had the project continued, one of the next phases would have consisted of comparing the results on each item in order to develop a coherent intervention schedule and strategy. In this way, a more detailed study on the iconography, once compared to the results of the archive research, would have probably resolved questions regarding the unknown origin of the altarpiece and of its construction. Furthermore, after determining the degree of intervention required by the altarpiece, it would have been necessary to coordinate the on-site treatment of the paintings with the restoration and stabilization of the altarpiece's structural system. Measures would have been taken to intervene upon and exhibit the altarpiece based on an ever-increasing awareness of the cultural significance of this work of art.

Earthquake of September 1999

As a consequence of the September 1999 earthquake that affected the Oaxaca region, the altarpiece and the building suffered damage, leading the CNRPC to take measures to prevent a total collapse. Starting in April 2000, the CNRPC, together with the above-mentioned Fondo Nacional de Desastres Naturales (FONDEN) with support from the National Coordinator on Historic

Monuments and the Director of the INAH Center in Oaxaca, initiated the Project for the “Emergency Restructuring of the Main Altarpiece of Santo Domingo Yanhuitlán,” as part of the Emergency Program for the Restoration of Historic Buildings Damaged by Seismic Activities.

The preliminary studies yielded information facilitating a more appropriate intervention, with the aim of ensuring the permanence of the altarpiece, enhancing all its values, taking into consideration its significance and its presence in the daily life of the inhabitants.

The situation of urgency, the presence of know-how and a tradition of work in the field of intervention, the cultural context and the altarpiece's psychological impact, all influenced the mode of action, with priority being placed on the altarpiece's dominant aesthetic, functional, social and cultural values.

The intervention carried out was aimed at recovering the altarpiece's original support system, and it was decided to eliminate the metallic structure along the back, which had been installed as a provisional, emergency solution, yet was still in place, aggravating the forces of stress and contributing to deterioration, due to the differential behavior of the materials.

The option of disassembling and reconstructing the altarpiece also made it possible to overcome the deformations, misalignments, slumping and out-of-plane behavior detected during the logging of conditions, given that it allowed for a more efficient intervention on the various components of the altarpiece, which could be worked on one-at-a-time, in a more comfortable fashion.

This approach aimed to reinforce the elements that had lost their load capacity, so as to recover the structural system of the altarpiece and have all its components, or at least the majority of them, once again fulfill their original function.

At the same time, the disassembly/reconstruction option made it possible, without problems, to construct a new, more appropriate support structure, similar to the original one.

The risk of foreseeable damage during the disassembly process was considered minor.

The information set forth above, gathered during the course of the project, clearly demonstrates the inherent complexity of managing a project that involves several entities, each of which has its own responsibilities.

This comprehensive view of the situation, resulting from a methodological approach, makes us aware that when taking on a project of such import, it is indispensable to plan the management of the elements involved, in this case, the chattel assets and the church, on several different levels, and in turn, to be aware of the need to involve third parties.

On the other hand, it is clear that the project dynamics, whether from the point of view of project management, or that of the strategies and dynamics of the

Conclusions from the experience

project's implementation, become more complicated and time-consuming when one decides to incorporate training into the project.

This project has demonstrated the importance of external factors when making a preliminary evaluation of the work's conditions and the material and human resources available for a successful, sustainable conservation project, both during the study and intervention phase, and for long-term preservation efforts. In order to control and manage these factors, it is essential to establish a process that, through a methodological, technical approach, allows a series of parameters to be contemplated that are indirectly involved in a conservation project.

An understanding of the surroundings, as well as the identification and recognition of the values attributed to the cultural asset, are key factors in decision-making. The acceptance and recognition of the asset's values constitute an essential foundation, accepted by all parties, for justifying the intervention without compromising conservation principles. A process of this type makes it possible to bring together all parties involved in decision-making and to implement a conservation project based on an intervention philosophy that respects all the values of the asset.

Finally, upon assessing the situations we have faced, it is seen that in all projects, in order for the action to be coherent from start to finish, it is indispensable at all times to have good coordination and a fair positioning of the results.

Parallel to the needs of the project in and of itself, in this case the conservation of the altarpiece, one must be conscious of the difficulties sometimes posed when having to harmonize those needs with the objectives and goals set by the various institutions involved.

Acknowledgments

The authors acknowledge and wish to thank all the specialists consulted for their participation. This includes the specialists from the Instituto Nacional de Antropología e Historia - Mexico and the Getty Conservation Institute, as well as colleagues from the Instituto Nacional de Antropología e Historia - Oaxaca, and from the laboratory of the J. Paul Getty Museum. We also wish to thank everyone who has devoted their time and competency in carrying out this project, and all those who made the writing of this article possible.

We particularly wish to thank the members of the Yanhuatlán community who have placed their confidence in us and have provided us with this opportunity.

Photographic credits

Guillermo Aldana, Irene Sen, Javier Salazar, Andrea Rothe, Ubaldo Manrique, INAH.

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Building system of the altarpiece of San Cayetano, Guanajuato, Mexico: Research and teaching

198

Fanny Unikel Santoncini



Name of the work of art: Main altarpiece of San Cayetano

Location: Church of La Valenciana, Guanajuato, State of Guanajuato, Mexico, at an elevation of 2,060 meters above sea level

Owner/responsible party: The altarpiece is national property, managed by Father Rafael Ramírez Díez and the Instituto Nacional de Antropología e Historia (National Institute of Anthropology and History, INAH) Regional Center in Guanajuato. The church is used as a house of worship, open daily, and has a constant flow of visitors

Authored by/attribution to: Andrés Manuel de la Riva (from 1775 until his death in 1777); the work was continued by Manuel Antonio de Cárdenas (from 1777 until his death in 1781). It is not known with certainty who completed the work

Chronology: Dedicated in 1788

Style: Baroque with estipite columns

Dimensions: 15.14 m x 9.76 m x 2.81 to 0.60 m (height x width x depth-depth)

Typology: Wooden altarpiece with polychromed sculptures

Materials and techniques: Structure and decoration of gilded wood, localized decorations of *mecca* (toned silver gilding) and tempera, as well as sculptures in polychromed wood

Date and duration of the studies/intervention: Between May 1997 and July 2002 six visits were made to the altarpiece, each of which lasted for one week. Research and theoretical work was performed in Mexico City, and took a total of approximately 18 months. Currently, the project is in the phase of writing and illustration work, for publication.

The following is a brief description of the interdisciplinary research and teaching project involving the altarpiece of San Cayetano, La Valenciana of Guanajuato, Mexico. The project was carried out from 1997 to 2002 by professors from the Escuela Nacional de Conservación, Restauración y Museografía (National School of Conservation, Restoration and Museography, ENCR&M). This project has brought out the significance of altarpieces from a testimonial, functional, material and technological point of view. The research focused on analyzing and defining a methodology to study the building system of wooden altarpieces. A nomenclature has been proposed for altarpiece building systems, and the need for digitalized information records has been highlighted.

Any successful intervention requires a thorough understanding of the object in question. With that in mind, an interdisciplinary group of INAH professionals undertook a project whose objective was to investigate the altarpiece of San Cayetano in depth, in order to propose a methodology for its documentation and intervention, rather than to restore it. This in-depth study would primarily focus on the building system, an area of knowledge with great gaps as far as altarpieces are concerned.

Altarpieces from the hispanic New World have basically been studied from a historic point of view, for example, looking at the guilds and artisans involved, or from the point of view of aesthetics (forms and styles) and iconography (the saints represented, the religious message, cultural representations, historic and current function). However, very little is known about their building systems, since no treatises or descriptive documents have been found on the techniques employed to build them. Moreover, to gather such information, one must look at the altarpiece from the inside, an opportunity that is present in only rare circumstances.

The building system of an altarpiece is its skeleton, and as such, it is the cause of deformations, misalignments and deterioration. Understanding this system is fundamental for comprehending the mechanisms that influence an altarpiece's deterioration, which in turn lead to correct diagnoses and sound conservation and restoration proposals.

Introduction

The general objective of this research project was to make an exhaustive study of the building system of the San Cayetano altarpiece of La Valenciana, Guanajuato, covering historic and construction aspects, as well as the materials employed. This research, in the long term, also aims to develop a work methodology for studying the building systems and their state of conservation of other altarpieces in the hispanic New World.

Beginning in 1997, the project was carried out on two parallel planes: research and teaching. The research focused on establishing and applying an information-gathering methodology to the altarpiece's building system. The teaching aspect focused on applying this knowledge to educational work with students at the Seminar Workshop on Polychromed Sculpture Restoration, which forms a part of the ENCR&M's Professional License degree program in restoration. The altarpiece of San Cayetano has been strategic for this research. Its general stability, the access to its rear side and the arrangements made by the persons in charge of the altarpiece, allowed it to become both an object of study for the researchers and a teaching example for the students.

Prior experience gained while diagnosing the state of conservation of the Virgen del Rosario [the Virgin of the Rosary] altarpiece in Azcapotzalco, Mexico City, demonstrated the need for gathering specific information through several fields of study and for elaborating a methodology through ongoing discussions. Thus, the interdisciplinary "Altarpiece Research Seminar" was formed, focused on the study of altarpieces with a goal that was shared by each of the participating disciplines.

The funds needed for this task were obtained from the ENCR&M-INAH, which, as a teaching and research institution, decided to support the project. Annual funding was allocated to the project, sufficient to pay for expenses and the transportation of professors and students to the city of Guanajuato for periods of up to one week, as well as the salaries of the professors giving classes and participating in the research.

Significance and history of the altarpiece²

Of all the churches of the city of Guanajuato, La Valenciana is the only one that fully conserves its three original altarpieces. As far as has been documented, these were the last baroque altarpieces built in Guanajuato.

To date, it is known for certain that two artists, Andrés Manuel de la Riva and Manuel Antonio de Cárdenas, participated in the construction of this altarpiece. Both of them died prior to the conclusion of the work on the church, its furnishings and the attached cloister. A third master named José Simón Tovar has been identified as probably finishing the altarpiece, as is concluded by cross-referencing first-hand information associated with other artisans who built altarpieces contemporary to that of San Cayetano.

Traditionally, the sponsorship and initiative for the construction of the church of La Valenciana and its altarpieces is attributed to the first Count of La Valenciana, Antonio de Obregón y Alcocer. Iconographic interpretations of the altarpiece suggest that when selecting the religious themes for the altarpiece,

Obregón attempted to reflect his own personality in keeping with the image he wished to make for himself in the eyes of Guanajuato's society at the time, as a selfless, generous benefactor of the city.

The economic participation of the local community of mine workers in the creation of this cultural heritage, through what was called the "fondo de piedra"³ [stone fund], has also come to light. On a weekly basis, each mine operator would contribute a piece of mineral to the church project, depositing it separately from the rest of what was processed. Naturally, in order for the workers to have made such contributions, some persuasion techniques must have been involved on the part of the owners of the mine, a practice which was not unusual. In the case of the cathedral of Zacatecas, Frédérique Langué reminds us that even though the large mine owners, plantation owners, and businessmen "took complete charge of its construction" and made significant contributions, in addition "the laborers employed in the mines were authorized for said purpose to turn in one 'mineral rock' each day"⁴.

The altarpieces of the church of La Valenciana are greatly appreciated and visited often. For that very reason, they have also been intervened upon on several occasions. Decoration has been cleaned, repositioned, regilded and repainted several times. On some of the sculptures and wooden decorative elements, the intervention guidelines applied were a far cry from professional standards.

The building and the altarpieces were intervened upon in the 1970s by the Secretaría de Asentamientos Humanos y Obras Públicas (Department of Human Settlements and Public Works), the federal authority responsible for its care at the time. The attic of the altarpiece of San Cayetano had slumped forward, and it was considered necessary to reinforce that assembly with a metallic structure. This structure is a steel grid, which is attached to the wall by embedded metallic sections and placed parallel and immediately adjacent to the altarpiece. The structure is attached to the altarpiece by four different means: metal brackets anchored to the primary structure of the altarpiece; diagonal steel sections screwed into the planking; wood crossbeams that structure the zones where sections of the original altarpiece had been cut; and metal straps that clasp onto some elements such as the niches and the attic.

In order to achieve the ambitious, long-term, general interdisciplinary objective of developing a study and restoration methodology for the building system of altarpieces in the hispanic New World, and integrate that work into teaching activities, the following particular objectives were identified:

- to describe the building process of the altarpiece of San Cayetano
- to develop a methodology for diagnosing the material state of an altarpiece's building system
- to define the academic curriculum for educating specialists in the restoration of altarpieces.

Intervention history

Research program

Profile of the study team: three restorers of polychromed sculpture and altarpieces; two specialists in wood technology, carpentry, wood carving, and design; three architects, one specialized in photogrammetry, another in CAD programs, and an architectural engineer; one historian; and one biologist. Support came from more than one hundred students from six different graduating classes¹ of the ENCR&M.

In order to achieve each of those objectives, it was indispensable to:

- determine the building's condition and any possible effects on the altarpiece
- analyze how the altarpiece was assembled
- create an inventory of tool marks
- define a nomenclature for the structure's parts
- analyze the joints of the altarpiece
- understand the structure's mechanical behavior
- analyze the deterioration
- find out what wood was used and determine its material state
- become familiar with bibliographic and documentary information on the altarpiece
- make a photographic and photogrammetric record⁵.

The tasks were coordinated by the specialists in each area, and carried out with support from students. The compiling of information took place during the visits to the altarpiece, while analysis of that information was conducted as part of daily work in Mexico City.

Assembly of the altarpiece⁶

Through observation of the building system, joints, and marks left by tools and adhesives, the following conclusions were made. First, the altarpiece was constructed in 32 modules, each of which measures approximately 3 meters in height. By assembling the altarpiece from these repeated pieces, joined together in a modular construction, the work was easier, more regular, and more economical. Second, the modules consist of a primary structure and planking. They were probably assembled in the nave of the church, with pieces that had perhaps been first manufactured in a nearby workshop, and later raised with pulleys and adjusted into their respective positions. Third, the modules were affixed to one another when they were assembled using wedged joints.



Glue overflowing between joints.

Evidence of tool use⁷

A comparative analysis of the tool marks left on the altarpiece has been especially rich in its results. The marks are evidence of the use of the San José saw, double saw, hatchet, brush, scribing gauge, drill and chisel. These findings were compared to an inventory of the property of "Master Carpenter" Antonio de Cárdenas, which includes all those tools, although sometimes they are called by other names.

The inventory in question lists a great number and variety of tools, which surpass, both in quantity and in variety, those mentioned above, including blacksmithing, measuring or masonry tools, as well as holding or pressing tools, such as vises or blocks and tackles. Utensils are also mentioned for preparing substances such as varnishes, pore fillers and carpenter's glues. It is hard to think that many of them would have left a physical mark on the woodwork.

Even in the case of carpentry tools, finishing tools, like brushes, could erase marks left by preliminary woodworking tools, such as saws.

A large quantity of tools are repeated in the inventory, which comes as no surprise if we take into consideration the size of the altarpiece, which would have needed the participation of a large team of workers.

The joints

An analysis of the joints⁸ in the altarpiece first required the development of a methodology by which to log and classify them. Next, the function of each type of joint in the structure as a whole had to be determined, and finally a vector study was needed to determine the direction of stress on the respective joints. Among other conclusions, it was noted that the altarpiece has nine different types of joints, of which the most important and numerous are 2,500 mortise-and-tenon joints and 400 dovetail joints. The mortise-and-tenon joints were used to connect the pieces, while the dovetail joints were used to give rigidity to and/or elongate some sections.

Mechanical behavior of the structure⁸

This analysis included calculations of the center of gravity and centroid of the altarpiece; graphic analysis of the loads; calculation of stress on the structure; and a photogrammetric analysis to identify sagging in the front of the altarpiece and its correlation to the structure. None of this would have been possible without a proper survey of the altarpiece. The respective documentation must be adapted to the particular characteristics of each case, for which purpose observations on the following aspects are fundamental:

- the relationship between the altarpiece and the building
- location of the principal construction elements
- continuity among the structural elements in both directions (horizontal and vertical)
- symmetry or asymmetry of the building system
- the form of stress transmission to the bottom of the altarpiece
- the form of load transmission from the decoration to the structure.

Answers to these questions are synthesized in sketches that give us a preliminary idea of the altarpiece's structure and how its structural elements function. Once an analysis of these aspects is completed, a system of coordinates can be developed as a model for locating the information to be recorded.

In the case of San Cayetano a coordinate system based on structural axes and levels was used. The structural axes were understood as imaginary lines running vertically down the center of each principal structural element or stud. In general, the base reference plane for levels is the predella. At La Valenciana, this corresponded to the floor surface of the altarpiece. The reference point for each level was the upper edge of the horizontal element or crossbeam, and a



Set of joints where several elements of extension and load intersect.

Template combining straight and curved lines, which defines the form of this section of the altarpiece (left).

View of a section of the primary structure of the altarpiece (right).



consecutive number was assigned to the area between each pair of longitudinal axes for each level.

This coordinate system led to the design of a recording sheet for each level, on which the structural data was recorded. Based on the information gathered in the records for each level, the altarpiece was drawn with a computer-aided drafting program, AutoCAD, with which it is possible to observe and manipulate the image in three dimensions. This system also provides graphic support for recording data from other areas of study.

Nomenclature¹⁰

Parallel to the documentation process, it was necessary to define a nomenclature¹¹ for each different part of the building system. This refers to the set of wooden elements that, once joined and assembled in a calculated order, support and give shape to an altarpiece. Included are the following parts or elements: primary structure, planking, auxiliary elements, constructive joints, and decoration (including ornamentation and iconographic elements)¹².

ELEMENTS OF THE BUILDING SYSTEM

The primary structure of the building system is the framework or skeleton, made of wood, which is either two- or three- dimensional, depending upon the style of the altarpiece, and which sustains, joins, gives form to, and bears the load of the altarpiece¹³. The elements of the primary structure include the following:

- stud: vertical wooden support, either free-standing or forming a part of a frame¹⁴
- crossbeam: any horizontal part of the frame between two studs¹⁵
- girder: piece of wood, placed along the length of a work of carpentry, which contributes to forming the structure¹⁶
- plank template: templates of various figures and sizes that provide form, support and rigidity to the altarpiece's planking¹⁷
- queen post: vertical piece of a frame working by means of compression¹⁸
- brace: horizontal piece, placed diagonally, to ensure the rigidity of a structure, to prevent an angle from becoming deformed, etc¹⁹
- planking: covering of boards placed edge-to-edge that provide form -and load-bearing functions, since they transfer the stress of the decoration to the primary structure. The planking also reinforces the primary structure by preventing deformations thanks to the longitudinal position of the boards and their continuity²⁰
- auxiliary elements: miscellaneous elements (beams, cords, chains, etc) that do not form a part of the primary structure, but stabilize the altarpiece²¹
- constructive joint (expansion joint or movement joint): support system and/or alignment that serves to absorb stress between the building and the altarpiece. Separation between two structural elements that will be subjected to different movements: settling, trepidation, etc²²
- decoration, ornamentation, and iconographic elements: set of elements of various forms that accompany, adorn and/or represent moral or natural illustrations in an altarpiece.²³

Analysis of wooden structure and its state of conservation²⁴

Through direct observation and laboratory analysis, it was determined that the altarpiece was constructed with various types of wood. Approximately 70% of the wood is *Pinus ayacahuite*, better known as Mexican White Pine, which forms the majority of the structure; 15% is *Pinus michoacana* (also known as *Pinus devoniana* Lindl or ocote), found in the crowning element; 10% is *Abies sp.*, commonly known as fir, used for the planking in the central zone; and 5% is *Swietenia macrophylla*, better known as mahogany²⁵ and used in some of the volutes.

The presence of pinewood is not a novelty, since work on other altarpieces has corroborated that the type of wood most often used was conifer. This conclusion also coincides with the information contained in historic documents²⁶.

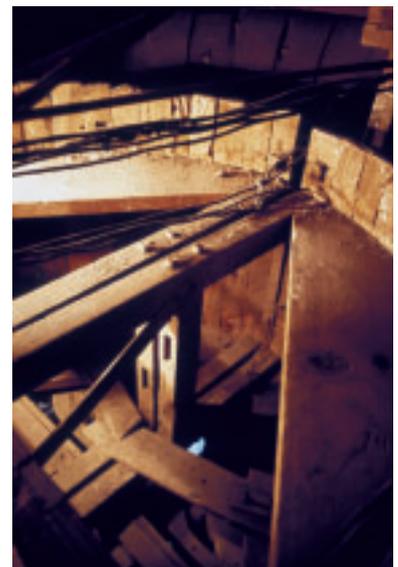
The church's environmental conditions, with average high and low temperatures between 12° and 18° C, and relative humidity between 31% and 47%, are optimal. They keep the altarpiece stable throughout the year, since these values do not promote bio-deterioration or significant dimensional changes in the wood²⁷. There was a short period when the building's environmental conditions were altered as the result of cracks in the vaults, which provoked an increase in relative humidity. This situation allowed for the development of an infestation of coleopterus and of xylophagous fungi in the tissue of six *Pinus ayacahuite* samples, taken from the center of the altarpiece. In both cases the infestation was local and superficial, and is currently inactive.

To support the structural analysis of the altarpiece, the density of the pine-wood was also calculated, as most of the altarpiece is made out of pine²⁸. The density of *Pinus ayacahuite* and *Pinus michoacana* samples were calculated in the laboratory (0.426 to 0.556 g/cm³) and compared to values reflected in the literature (0.479 g/cm³, semi-heavy)^{29,30}. The similar results indicated that the wood of these two species has adequate physical and mechanical resistance to the stress it undergoes.

The altarpieces are illuminated by natural light in the morning and part of the afternoon. On special occasions it is illuminated with eight halogen lamps located in the lower part of the church's triumphal arch at a distance of approximately eight meters. These lamps are only lit on occasion, and therefore do not create a potential for deterioration.

The drawing of each level made it possible to record the deterioration of the altarpiece, after which the information was recorded in a digitalized database file. This database seeks to break with the pattern of amassing information in a disorganized fashion, which can make the evaluation of data by statistical methods nearly impossible. Through the system employed, all information can be easily classified and analyzed, since it is sorted according to the following classifications and keys:

- type of deterioration, whether physical/mechanical, biological or caused by human intervention
- the effect of the deterioration, that is to say, the results of the most common deterioration mechanisms in an altarpiece



Structure of the crowning element of the altarpiece.



Auxiliary wood and leather elements.

- particular element of the building system that has deteriorated, using the standardized nomenclature
- location in the established coordinate system
- intensity and extent of the deterioration, in three degrees: 1. effect of deterioration that has stabilized, which is recorded for purposes of follow-up; 2. effect of deterioration to the surrounding area, which has apparently stabilized and should be monitored; and 3. active deterioration that must be immediately attended to.

The current state of the altarpiece is stable. No major sagging has been detected, although there is a deformation or break measuring 3 centimeters in the central studs at a height of 9.45 meters. An analysis of shifts and deformations in the altarpiece's structure is being completed. The wood of the building system, planking and decorative elements is in good condition, and the areas with insect infestations are being monitored.

No deterioration to the altarpiece has been noted as the result of the metallic elements screwed into it, beyond the cuts in the wood required for the placement of those elements. Furthermore, no major settling³¹ of the building has been observed. The sagging of the attic and certain deformations in the primary structure, which constitute the principal deterioration detected, are probably due to fatigue of the wood in relation to the duration of the load.

Teaching

The interaction between the research project and teaching on restoration work have made it possible to create an introductory course on the study of altarpieces for restorers in their seventh semester³² of the Professional License degree program in the Restoration of Movable Objects. The theme of the course covers a broad spectrum, ranging from aspects of form to technologies, materials and altarpieces' testimonial and functional elements.

Eighteen hours of the course are dedicated to theory, while thirty hours are devoted to practical work at La Valenciana. Specific topics covered include an introduction to the study of altarpieces, sources of documentary study, the construction of altarpieces in wood, causes and effects of deterioration and methodology for recording information. Each of these topics is developed through classes given by specialists in the field and through exercises on the altarpiece itself.

Conclusions

Based on the study conducted, we stress the importance of interdisciplinary work for both research and teaching, and propose a methodology summarized in the following tasks:

- general inspection of the building (interior and exterior) to detect any external factors of deterioration
- general inspection (interior and exterior) of the altarpiece with the aim of locating the structural elements and understanding the building system

- preparation of a diagram of the altarpiece to locate points of reference based on the structural elements (studs, crossbeams, girders, stretchers, etc.)
- setting of a convention for recording the constructive elements and their deterioration
- creation of a format for recording the survey of the structure
- conducting of the survey
- search for and analysis of general information on the altarpiece (bibliographic and documentary information, traits of style, identification and evaluation of the material state of the wood, etc.)
- preservation of graphic information through scaled documentation
- determination of problematic and representative areas
- photographic recording
- diagnosis of the material state of the altarpiece's structure
- intervention proposal.

It is important to note that some difficulties were encountered by the project due to the workloads of the personnel involved. The work was therefore performed over short periods of time. Nonetheless, applications of the knowledge acquired over each of these periods, and with each generation of students, made it possible to correct errors, optimize modes for obtaining systematic, precise information and develop a specific methodology. There were also certain economic limitations that created obstacles to employing technical and human resources that would have expedited the work.

A detailed publication of the results of these experiences is still pending, through which a new research protocol will be proposed for application to other cases. It would first be applied to altarpieces that are contemporaneous and/or similar to La Valenciana with respect to their building system, and later to other altarpieces whose time of creation and building system are different. We would like to promote future research on the topics addressed by this case, as the development of a simple, economic technology for studying altarpieces is still greatly needed, as well as further discussion on intervention guidelines for altarpieces.

In conclusion, this study has made it possible to understand the structure of altarpieces, and to propose a series of typologies and nomenclatures for their constituent elements, as well as definitions for the parts that form the building system. The minimal information currently available on the building system of altarpieces requires that more attention be paid to properly recording such information. Indeed, that would lead to sound decision-making, make it possible to save time and resources during an intervention, and also make it possible to detect potential future problems for a given altarpiece. Finally, the gathering of such fundamental information would provide a means for the better understanding of altarpieces in general.

Work team

Fernando González Dávila, historian

Daniel Guzmán Vargas, luthier

José Antonio Jurado Luna, architect

Saúl Mendo Muñoz, engineer architect

Mercedes Murgía Meca, conservator

Pablo Olvera Mercado, architect

Gerardo Ramos Olvera, industrial designer

Arturo de la Serna Estrada, conservator

Teresa Tzompantzi Reyes, profesor in technology of materials

Fanny Unikel Santoncini, conservator

Photographs by

Gerardo Ramos Olvera, Pablo Olvera Mercado

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Notes

1. Students from the classes of: 94-99, 95-00, 96-01, 97-02, 98-03, and 99-04.

2. Coordinado por Mtro en Historia Fernando González Dávila

3. GUEVARA SAIGNES, María: *Historia y arte del templo de la Valenciana*. Mexico: Thesis, Licenciatura en Historia, UNAM, 1984.

4. LANGUE, Frédérique: *Los señores de Zacatecas. Una aristocracia minera del siglo XVIII novohispano*. Mexico: FCE, 1999, p. 351.

5. Carried out by architect/restorer Pablo Olvera Mercado.
6. Coordinated by Daniel Guzmán Vargas.
7. Analysis made by Daniel Guzmán Vargas based on a document found by historian Fernando González Dávila. The information referenced from the source will be included in the final research report.
8. Coordinated by Gerardo Ramos Olvera, Industrial designer .
9. Coordinated by Architect José Antonio Jurado Luna with collaboration from Engineer/Architect Saúl Mendo.
10. The definitions developed by the Seminario de Restauración de Retablos [Altarpiece Restoration Seminar - SRR], were based on: ÁNGELES TOAJAS, María: "Léxico técnico." In *Breve compendio de la carpintería de lo blanco y tratado de alarifes*, (ed.) Diego López de Arenas. Madrid: Visor Libros, 1997, pp. 289-312; GARCÍA SALINERO, Fernando: *Léxico de alarifes de los siglos de oro*. Madrid: Real Academia Española, 1968; the Real Academia Española: *Diccionario de la Lengua Española*. 21st edition. Madrid: Espasa Calpe, 1992; SCHMITT, Heinrich, and HEENE, Andreas: *Tratado de construcción*. Mexico: G. Gili, 1998; and WARE, Dora, and BEATTY, Betty: *Diccionario manual ilustrado de arquitectura*. Mexico: G. Gili, 1994.
11. GARCÍA SALINERO, Fernando: *Léxico de alarifes de los siglos de oro*. Madrid: Real Academia Española, 1968, p. 8.
12. Seminario de Restauración de Retablos [Altarpiece Restoration Seminar], ENCR&M, INAH, 2000.
13. *Loc. cit.*
14. Ware and Beatty. *Op. cit.*, p. 113.
15. *Ibid.*, p. 144.
16. *Ibid.*, p. 88.
17. Seminario de Restauración de Retablos, *Loc. cit.*
18. Ware and Beatty. *Op. cit.*, p. 110.
19. *Ibid.*, p. 128.
20. *Loc. cit.*
21. *Loc. cit.*
22. Schmitt and Heene. *Op. cit.*, p. 390.
23. Seminario de Restauración de Retablos. *Loc. cit.*
24. Biologist Teresa Tzompantzi and Restorer Fanny Unikel.
25. In all cases this corresponds to recent interventions.
26. Mexico has a wide variety of conifers, the most abundant of which are pines, Approximately 90% of the covered surface is conifer forests.
27. ZABEL, R., and MORRELL, J.: *Wood microbiology; Decay and its Prevention*. New York: Academic Press, Inc., 1992, pp. 17 and 21.
28. Six blocks of wood measuring approximately 2 cm³ were analyzed to determine their moisture content, which fell into a range of 6.52% to 8.58%.
29. CAMACHO URIBE, Daniel: *La madera, estudio anatómico y catálogo de especies mexicanas*. Mexico: INAH, Col. Científica, 1988, pp. 40 and 41.
30. CEVALLOS FREÍS, Sergio, and CARMONA VALDOVINOS, Tomás: *Banco de información de estudios tecnológicos de maderas que vegetan en México*. Mexico: Instituto Nacional de Investigaciones Forestales, Boletín Técnico catálogo 2, 1981.
31. Guanajuato is not a seismic zone.
32. Seminario Taller de Restauración de Escultura Policromada [Seminar Workshop on Polychromed Sculpture Restoration].

Main altarpiece of the Government Palace,
Lima, Peru

210

Carmen Fortunata Huanay Herrera



Name of the work of art: Main altarpiece

Location: Residence of the government palace, Lima, Peru

Owner/responsible party: Casa Militar del Presidente de la República (Military Residence of the President) within the government palace, and the Instituto Nacional de Cultura (National Institute of Culture)

Authored by/attribution to: Anonymous

Chronology: Early eighteenth century

Style: Baroque, classified as “works of art of the Viceroys and Republican periods” within Peru's national heritage inventory system

Dimensions: 5.30 m x 4.50 m, approximately (height x width)

Materials and techniques: Carved, gilded, and polychromed wood

Date and duration of the studies/intervention:

- **Studies:** Studies were conducted over approximately twenty days in March-May 2001, which included the on-site technical evaluation. Subsequently, the project was submitted, together with the properly documented technical and financial proposal, to the commissioning body

- **Intervention:** May to October 2001

Profile of the study/intervention team:

The intervention was scheduled to last for six months, employing a technical team of four conservators (one of whom was the project director) and two gilding specialists.

At the request of the Presidential Guard of the government palace, a technical evaluation of the altarpiece was conducted and a restoration proposal was drafted. The altarpiece was in a poor state of conservation, with an infestation of xylophagous (wood-eating) insects, which was causing concern over the need for its restoration.

This work of art is significant as a historic and aesthetic legacy of immeasurable intrinsic value, and has been recognized as Cultural Heritage of the Nation. The altarpiece is a significant part of the historic center of the city of Lima, possessing both political and social values, while also serving liturgical functions. Public access to the altarpiece is limited, given its location inside the Government Palace, which is a maximum-security area that offers an adequate environment for the conservation of the altarpiece.

Previous interventions on the altarpiece had removed it from its original context and altered the work of art. The altarpiece is currently housed in the chapel of the government palace. Originally, it was the main altarpiece of the former Church of Nuestra Señora de los Desamparados (Our Lady of the Unprotected), located behind the government palace. When that church was demolished in the middle of the twentieth century, the altarpiece was moved to a small chapel inside the palace. The altarpiece was then altered to fit the dimensions of the chapel. The columns separating the lateral and central vertical registers of the altarpiece were removed, as well as the probable removal of a horizontal register. A carved wooden predella and a crown were added. These changes were probably made in 1938, suggested by an inscription with that date and the name Salgado on the back of the crown.

The altarpiece was repainted on four occasions. The most recent repainting took place a few months before the current intervention.

Origin of the project

History of the intervention

State of conservation

The altarpiece is in an extremely poor state of conservation. The paint's ground layer displays considerable losses, due more to human action than the passage of time. The polychromy has been covered by four layers of repainting which lack adherence and cohesion, shown by cracks and fissures, principally in the lower area. The most recent repainting was done with a poor-quality mosaic gold that will change tone, or lose its color, first turning dark sienna and later taking on a greenish tone as moisture and the migration of salts react with the paint's composition. The gold leaf and the other layers of the altarpiece are also in danger of coming loose due to the physical reactions of these materials.

The support structure consists of various types of wood. In the altar frontal, there is a poorly placed transversal wood grafting, which is at a higher level than the original. Infestation by xylophagous insects can be seen in several different areas of the altarpiece. The areas with the worst infestations are the column bases on both sides of the tabernacle, the frames of the canvas paintings on the first horizontal register, the attic and the escudo (or decorative shield).

The lack of ongoing maintenance was obvious, since a large quantity of accumulated debris was found behind the altarpiece, and very old electrical installations inside the altarpiece are a fire hazard. The wires also impeded the free movement of the tabernacle door.

Proposed action

An exhaustive study was conducted to evaluate the conditions of the altarpiece. Through detailed technical analysis of the building system and its components, it was possible to determine the percentage of loss and deterioration the work of art had undergone over time. A plan of action was established along with the criteria that would support the intervention proposal. Based on the principles of minimum intervention, respect for the original context and compatibility of materials, the following actions were recommended:

- photographic documentation before, during and after the conservation-restoration process
- selection of samples for scientific analysis in laboratories
- disassembly of small sculptures, canvas paintings and detached and/or intrusive elements
- treatment against insect contamination
- overall superficial cleaning
- consolidation of paint layers
- cleaning of the gilding and paint layer
- reintegration of lost supports
- reintegration of the paint's ground layer
- reintegration of the gold leaf and paint layer
- re-installation of small sculptures and canvas paintings
- final varnishing.

The preliminary studies, the elaboration of the proposal and the intervention were carried out under the leadership of a team of conservators who framed the project with respect to the philosophy and theory of the conservation. Particular attention was given to following the most accurate technical processes and to using the most compatible materials and treatments, while considering the limited financial resources.

The fourteen small sculptures and two free-standing paintings of the altarpiece were removed and transported to the laboratories of the Instituto Nacional de Cultura for treatment at the Dirección de Restauración del Patrimonio Cultural Mueble (Department of Movable Cultural Heritage Restoration). Some were fully restored while others were partially restored with the intention of completing their restoration on their return to the site.

At the government palace, electricians were asked to remove the altarpiece's wiring and electrical installations, to prevent any subsequent problems.

Work on the altarpiece began with the removal of the debris that had accumulated behind the altarpiece and the removal of dust, as well as the treatment of the support. In the zones infested with xylophagous insects, a curative treatment was applied by injection on the front side of the altarpiece, while the reverse side of the altarpiece was treated by impregnation. Once the repainted mosaic gold was eliminated mechanically and with solvents, it was possible to observe more fully the extent of the xylophagous infestation. A second treatment was then conducted in those infested areas. It was noted that some areas of the altarpiece were not properly prepared for painting. During a previous intervention, plaster and even automobile putty had been applied; those materials have now been removed.

The treated areas were then consolidated and the lacunae were coated with compatible and appropriate materials, upon which Armenian bole was applied.

Throughout the intervention, the process was recorded photographically.

The project was formalized through an inter-institutional cooperation agreement with the Instituto Nacional de Cultura and the Casa Militar.

The Casa Militar del Presidente de la República, by assuming the costs of materials and fees, provided economic support while the Instituto Nacional de Cultura through the Dirección de Restauración del Patrimonio Cultural Mueble provided the technical support.

It should be understood that the Peruvian government is gradually shifting responsibility for cultural support and development towards civil institutions, such as local governments, religious groups, local churches and other owners of the heritage. These bodies are currently taking responsibility for the economic aspects of heritage management, financing its restoration and responding to unforeseen circumstances, in direct coordination with the

Intervention

Considerations

Instituto Nacional de Cultura, which manages technical aspects. This process is not yet fully efficient and in many cases, there are gaps that have yet to be covered.

Technical proposals are prepared, evaluated, approved and supervised by the Instituto Nacional de Cultura, as occurred with the main altarpiece of the government palace. Even so, there is a problem in terms of the restorers' responsibility for criteria and techniques in carrying out the restoration processes, because Peru has no restoration training institution, and as such, not many are able to receive adequate training in the field. The years spent working in these activities act as their only training. Such a situation generally leads to conflicting ideas and disagreements. Moreover, the government does not have a budget for cultural heritage restoration.

The project of intervention on the Nuestra Señora de los Desamparados altarpiece has proven this process to be possible and successful. Upon conclusion of the conservation and restoration activities on the altarpiece of the government palace, the following results were achieved:

- The management approach produced optimal results.
- The altarpiece's restoration was channeled, planned and implemented through the Instituto Nacional de Cultura, and a technical team of contracted restorers was formed for this purpose.
- The altarpiece of the government palace was enhanced; the aesthetic, historic and intrinsic beauty of the work of art as a whole, its architecture, sculptures and paintings, was recovered.
- Philosophical restoration principles were respected.

Some negative aspects should be mentioned:

- It should be borne in mind that irreversible changes were made to this altarpiece in the past, which was once housed in the now demolished Church of Nuestra Señora de los Desamparados that formed a part of Lima's historic city center.
- This Peruvian work of art will not become widely known and appreciated since it is located in a maximum-security area, the government palace.
- There is no cultural dissemination of this work to the public. As such, many people are unaware of its origin and its historic and artistic values.
- More awareness of the nation's cultural heritage is needed by civil institutions and the population for them to appreciate it and protect it against its current state of depreciation. This could be accomplished through a positive publicity campaign promoting the protection and appreciation of cultural heritage.

This project was made possible by its particular conditions. In Peru there is no up-to-date inventory of the nation's heritage property. Important issues must be faced regarding the preservation of heritage and the responsibilities that arise from a rich and widely spread patrimony. Almost 90% of Peru's archaeological sites are at high risk due to natural and human threats, and 50% of its colonial heritage suffers from active decay and degradation. Through looting

and illegal trafficking, Peruvian cultural heritage brings benefit only to a few individuals, and brings nothing to its country.

It is time to end this imbalance of responsibilities, perhaps with new systems that are more collaborative, responsible, imaginative and, above all, consistent with our reality in order to save this heritage.

“No one can love... and cherish... that which they do not yet know... in this case, the wealth of our heritage.”

Photographic credits

Instituto Nacional de Cultura, Perú.

Altarpiece of the sacristy of the Our Lady of Lapa Sanctuary, Quintela da Lapa, Sernancelhe, Portugal

216

Agnès Le Gac



Partial view of the altarpiece of the Our Lady of Lapa Sanctuary. The predellas were dismantled for display in a traveling exhibition.

Name of the work of art: Altarpiece of the sacristy

Location: Our Lady of Lapa Sanctuary, Quintela da Lapa, Sernancelhe, Portugal

Owner/responsible party: Church property of the Parish of Our Lady of Lapa, a monument classified after 1945, under the protection of the Direção Geral dos Edifícios e Monumentos Nacionais (General Directorate on National Buildings and Monuments, DGEMN)

Authored by/attribution to: Anonymous, folk art

Chronology: Probably from the first decade of the eighteenth century, according to recorded dates (1706, 1707, and 1708) written in particular on the ex-votos; reuse of two Jesuit iconography paintings from the seventeenth century

Style: Baroque

Dimensions: 4.20 m x 6.60 m x 0.80 m (height x width x depth)

Typology: Vernacular object forming a part of a complex. The sacristy is adorned with the altarpiece, furnishings, predellas with ex-votos, panel paintings, canvas paintings and frameworks in polychromed wood. A sculptural group, bas-reliefs and a painted cornice serve as crowning elements.

Materials and techniques: The supports for the cabinets (which provide storage for the chasubles), predellas, frames and bas-reliefs are made of chestnut. The ex-votos are oil paintings. The palette of colors was intentionally reduced to the primary colors of red and green, with yellow and brown to complete the warm range of tones. The painting of the cornice appears to have used an egg-tempera base. The original techniques used in the sculptural group were not identified, although they did include matte and burnished gilding, as well as toned silver gilding (corladura). The recent partial re-polychroming was not studied.

The intervention on the sacristy altarpiece of the Our Lady of Lapa Sanctuary originated with the proposal to temporarily exhibit to the public only a part of its artistic elements: the two solid, monumental predellas that support three ex-votos each. The partial dismantling of the altarpiece and the “cosmetic” cleaning planned for the ex-votos led those involved to reflect and form positions on how to approach this polyptych as a whole.

After a local carpenter disassembled the predellas and their moldings, a surprising state of degradation was found on the back of their supports. They were severely contaminated with biological agents and required extensive conservation treatment. As a result, a study was conducted to assess risk factors for the entire altarpiece, which had never before been disassembled in its almost 300 years of existence, and an evaluation was made concerning the limitations of short-term restoration.

The Instituto José de Figueiredo (José de Figueiredo Institute), which at that time came under the Instituto Português de Museus (Portuguese Institute of Museums, IPM), entrusted coordination of the predella intervention project to the Associação para o Desenvolvimento da Conservação e Restauro (Conservation and Restoration Association, ADCR). The project's pedagogical value was considered by the Escola Superior de Conservação e Restauro (Advanced School of Conservation and Restoration, ESCR) of Lisbon.

The Our Lady of Lapa sanctuary is the oldest Marian sanctuary on the Iberian Peninsula. It dates from 1498, when a sculpted image of the Virgin appeared before a deaf-mute girl in the cave (lapa). With the Spanish sanctuary of Santiago de Compostela in Galicia, the Our Lady of Lapa sanctuary was the Iberian Peninsula's most important sanctuary during the seventeenth and eighteenth centuries in terms of devotion and pilgrimages. Devotion to Our Lady of Lapa expanded to other parts of Portugal and abroad, as far as India and Brazil, through the propagation of the faith by the Company of Jesus.

There is a profound architectural, spatial and artistic unity within the sanctuary, the sacristy and the Jesuit school attached to them, as the result of remodeling begun in the late seventeenth century.

Origin of the project

Dates and duration of the studies/intervention:

- 1998:

Condition survey and diagnosis of the predellas (2 months)

Simultaneous environmental study of the surrounding sanctuary and sacristy (1 month)

Historic and artistic study of the sanctuary, sacristy and altarpieces (1 month)

Conservation treatment of the predellas with ex-votos (3 months)

Scientific analysis of samples from and analytical study of the predellas (1 month)

- 1998 - 2000:

Transportation of the predella moldings to Lisbon, reconstitution, and simultaneous study and treatment of the moldings (19 months, 10 hours/week)

- 2000:

Interrupted treatment

Cultural significance of the work of art

Detail of ex-voto on the far left of the right predella: After cleaning and removal of the varnish, the quality and brightness of its red and green tones were evident.



Detail of ex-voto on the far right of the right predella: Progressive removal of the shellac varnish.



The altarpiece dedicated to Our Lady of Lapa has a living social and religious function that continues today. This element of devotion provides a substantial annual income for the sanctuary.

Due to its popular origin, the altarpiece is a focus of identification and social cohesion for many believers and pilgrims. It is an inexhaustible source of information and interpretations from an ethnographic point of view.

The opportunity to study chromatic modifications on the altarpiece over time will interest art historians making innovative analyses of changes in taste among the common people, while respecting aesthetic and historic values that are barely known and often misunderstood. The study of the assembly of the almost-intact polyptych could also considerably enrich our understanding of the history of technologies employed.

The religious, missionary, artistic, and technical values of the predellas with ex-votos are indicated by their size, and are marked by strong axes of symmetry that, with the other component parts of the altarpiece, express a clear religious dogma. This piece is testimony to the concept of a “total work of art” (or Gesamtkunstwerk) where the altarpiece is understood as an indivisible entity.

Intervention history

Since 1710, the altarpiece has remained in its original location. In 1844, the two canvas paintings were restored. This intervention coincided with the on-site repair of the predellas and the application of shellac over all the altarpiece's painted elements, which profoundly changed the shine on the surfaces. Between 1850 and 1950 two partial re-polychromings were performed on the frames and the sculptural group: a light blue tone was used, altering the original chromatic palette. Such re-polychroming has been found on other altarpieces in the sanctuary, and indicates an intentional “renovation” campaign applied to the liturgical furnishings, in accordance with local fashion or the taste of the parish priest in charge.



Central ex-voto of the right predella: After cleaning and removal of the shellac varnish (left).

Detail of ex-voto on the far right of the right predella: After intervention on the pictorial surface, with the date 1706, can be read perfectly, even though the structural defects of the wood were respected (right).



In 1973 the roof of the sacristy was repaired and the original painted ceiling was replaced with a chestnut ceiling, under the supervision of the Direcção Geral dos Edifícios e Monumentos Nacionais (General Directorate on National Buildings and Monuments, DGEMN).

In 1994 a complete renovation, using chestnut, was performed on the structure of the furnishings, which had been destroyed by cubic rot fungi.

The sanctuary is located in the Serra da Lapa (altitude 960 m). This is an arid, windy region, whose climate is subject to sudden and extreme changes. The sanctuary is built of granite stone, with walls 1.2 meters thick, and is located on a steep, rocky slope, without any foundation.

The water table beneath the sanctuary and the underground flow of several water sources result in extreme variations in capillary humidity and water condensation on the walls, both of which increase the risk of soluble salt efflorescence during the summer.

The sacristy occupies an area of 25.8 m² and a volume of 108.3 m³. In addition to its functions as a sacristy per se, it also acts as the juncture between the church and the cave that houses the image of Our Lady of Lapa. As such, it is busy zone of passage during pilgrimages. Nonetheless, it enjoys a certain thermal inertia.

The altarpiece is located on the east wall of the sacristy, and receives direct sunlight during the afternoons through the large window situated on the west wall, since the shutters are never closed. An original ventilation opening, 8 cm in diameter, is located under the window.

Gas space heaters are used in the winter during mass. Other amenities include artificial incandescent low-voltage lighting and carpeting on the floor (which retains humidity). Sculptures are present, along with liturgical furnis-

Context

Establishment of the intervention proposal

Profile of the study/intervention team:

One coordinating conservator-restorer, one chemist, one photographer, one operator, thirty third-year students from the Curso de Bacharel em Conservação e Restauro de Bens Culturais (Conservation and Restoration of Cultural Heritage course, a four-year training program in the conservation and restoration of cultural heritage), five painting conservators-restorers, one local carpenter, and two drivers accredited in the transportation of works of art.

Preliminary studies

Intervention proposal

hings and bouquets of fresh flowers on the furnishings. Security measures are in place to prevent theft.

State of conservation

There is very extensive and active contamination of cubic rot fungal colonies on the back of the predellas (which was not suspected until their disassembly), as well as a pronounced alteration in the protective layer of shellac on the ex-votos, which had become opaque due to the high humidity content of the air and the effects of the accumulation of dirt.

With the exception of the furnishings, the remaining elements of the altarpiece appear healthy, but are also very dirty, with a dense yellowing of the shellac covering.

The altarpiece has nonetheless maintained a state of physical equilibrium for almost 300 years. It is in a very satisfactory state given its adverse environmental conditions.

- condition assessment of the pair of predellas, front and back
 - systematic testing of solvents, adhesives and consolidants earmarked for use on the predellas with ex-votos
 - creation of reference index cards comparing the tested zones to untreated zones on the two predellas
 - compilation of a logbook of specifications, to assist in determining the overall treatment of the predellas
 - technical study and diagnosis of the altarpiece's remaining parts were significantly limited by a lack of access to the altarpiece's reverse side, as well as a lack of documentary, graphic and photographic sources, and the physical impossibility of applying X-ray examination methods in situ
 - historic and artistic study of the altarpiece (based on bibliographical and on-site studies), environmental study of the sanctuary and sacristy and preventive conservation study.
-
- There should be centralized coordination during the project's implementation, in order to ensure consistency in the options considered and decisions made.
 - All interventions on the predellas should be recorded photographically.
 - The predellas with ex-votos need to be physically, chemically and biologically stabilized. A decision was made to conduct a minimal intervention, disinfecting and consolidating the supports and partially cleaning the shellac varnish, to ensure a subsequent consistency of conservation and resto-

ration between the predellas and the altarpiece as a whole.

- Along with the interventions on the predellas, a study should be conducted to determine viable treatments on the altarpiece's remaining elements.

Predellas with ex-votos

- replacement of degraded parts with healthy, old wood of the same type, and general cleaning of the supports
- fungicide treatment
- re-adhering flakes in the paint layers of the ex-votos
- customized treatment of the shellac layer, to compensate for the high degree of heterogeneity over time from one predella to the other
- more in-depth study of the predellas' materials, through micro-chemical analyses after treatment
- preventive conservation measures in terms of the environment and packaging for transportation and installation of the predellas at laboratories and exhibition sites.

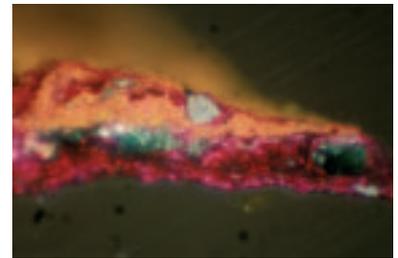
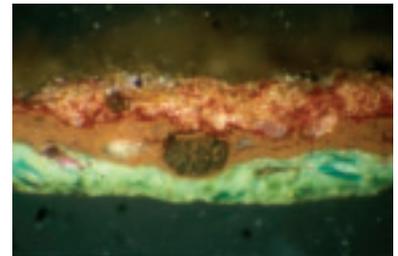
Moldings

- development of a methodology to identify the dispersed and mixed elements of the moldings belonging to the two predellas
- reconstitution of each of the predellas' moldings
- visual analysis of the layers of paint comprising the moldings' polychromy (limited from a material and technological point of view, without laboratory analysis)
- minimal treatment of the moldings, consisting of consolidation, re-adhesion of flakes of paint and cleaning of dust (materials identical to the ones used in the predellas)
- raising parish awareness of the need for disinfection treatment of the entire altarpiece. This operation entails a high degree of risk, since it requires the altarpiece's complete disassembly.

The Instituto Português de Museos (IPM) and the Associação para o Desenvolvimento da Conservação e Restauro (ADCR) were in charge of managing the altarpiece's predellas and the various financial costs associated with the project.

The Instituto José de Figueiredo, through its association with the IPM, took charge of the scientific analysis for the predellas' condition assessment, and their transportation to various national museums during a touring exhibition of the ex-votos. The ADCR took charge of the predellas' restoration phase. The Escola Superior de Conservação e Restauro (ESCR) of Lisbon contri-

Intervention



Chemical staining test with Fascina acid and analysis of cross-section stratigraphy (24-98/A-4) revealed the presence of proteins in the preparation layer (above).

Chemical staining test with Rhodamine B and analysis of cross-section stratigraphy (24-98/C-23) revealed the presence of oil in the inscription and preparation layers, as shown in red (below).

Management systems

Results and overall evaluation

buted through its infrastructures and teaching resources. The studies and diagnoses provided by this institution's students also made it possible to reduce financial costs.

The artistic and “ethnographic” component of the altarpiece of the Our Lady of Lapa sanctuary appears to have particular relevance, since study and intervention methodologies for polychromed wooden altarpieces are currently being defined. Do we approach all altarpieces with the same ethics and morals, whether they are high-quality creations, or modest and unsophisticated? How can we succeed in ensuring respect and appreciation for the multiple messages embodied by these works of art?

The studies and partial interventions conducted in this case were intended to illustrate the various aspects inherent in partial decisions. As demonstrated in this case, temporary interruption of certain projects may in fact benefit the project. When the interruption's purpose is to make an overall assessment of the pathologies of an altarpiece and gain a deeper understanding of its tangible and intangible characteristics, such a decision is clearly a wise and positive measure.

At the same time, the diversity of typologies present in many altarpieces, and the resulting data that need to be collected to provide a true understanding of the work of art, pose two interrelated questions. Will the importance of preliminary studies be duly recognized, in terms of their technical and scientific contribution, and the time and money they require from various parties, including the owners? How can we win legitimacy and visibility for these indispensable contributions?

The altarpiece in question is relatively small. Are its dimensions a valid parameter for justifying certain expectations with respect to study and intervention time management? What concrete criteria should be used to define appropriate timeframes?

When a division is present at the institutional management level between movable heritage, built heritage and/or integrated heritage (in which aspects of both movable and built heritage are present), how can we define priorities and jointly plan studies and interventions in a coherent fashion? Furthermore, who should manage the coordination of projects that safeguard “integrated” altarpieces, given the indispensable participation of an architect, a preventive conservation specialist and a conservator-restorer in this case study?

The degree of professionalism and appropriate training required are clearly fundamental parameters. Which areas should be managed by individuals and which by companies, in the study and intervention phases, respectively? How can one achieve high levels of scientific and academic endeavor, while perpetuating traditional local craftsmanship or polytechnic trades, since all of these are essential requirements for preservation work?

The uneven state of conservation of the predellas was undoubtedly compromising the altarpiece's future material and visual unity. This made it necessary



General view of the altarpiece of the sacristy of the Our Lady of Lapa Sanctuary.

to reach a consensus among conservators in defining the treatments to be applied so as not to further aggravate the altarpiece's state of heterogeneity. How much emphasis should be given to managing these factors in an intervention methodology? Can the number of interveners increase without running a risk of increased heterogeneity in the final results?

How can we balance the demands for use of a work of sacred art under the day-to-day supervision of a parish priest or brotherhood, with the need to safeguard the past and present cultural values of that piece, under the responsibility of a heritage preservation organization? Where should conservation and restoration activities begin and end, when we bear in mind the work of art's social and religious functions?

The various cultural factors at play tend to demonstrate the need to approach the altarpiece as an indivisible and articulated composition, but also in terms of its spiritual, spatial and artistic relationship with the place in which it is located, the building that houses it, and the society that uses and appreciates it. Should the intervention methodology also be involved in signage and the dissemination of necessary conservation information, as well as in raising the awareness of the social group involved in order to promote the long-term safeguarding of the piece?

All these questions, which arose as a real project was developing and unfolding, bring to our attention a great variety of essential themes for the successful preservation of an altarpiece, or any other important cultural object. In trying to establish a methodology for the discipline, it is important to alert those in charge of the process to the need to approach these associated themes, which require more than just a simple technical report on the material state of conservation of a work of art.

Photographic credits

Agnès Le Gac, IPCR, ADCR, DEM-IPCR

Summary of the discussions

The *Taller de Retablos* of Seville is considering a decidedly innovative approach for the restoration of wooden altarpieces which are unique “objects” in the field of world cultural heritage.

The meeting was designed to exchange and discuss the issues most closely related to the conservation and restoration of wooden altarpieces and to favor a wider approach taking into account the many complex aspects surrounding altarpieces. In many ways, an altarpiece is not merely a singular historical and material artifact, but a central piece that both identifies and represents a community.

In support of these approaches, professionals from Europe and Latin America contributed their own cultural input of practical and theoretical experience. Seeking to benefit from reciprocity, they offered a variety of useful documentation, including, among others, La Carta del Restauero, Brandi's Restoration Theory, documents regarding the profession of conservators-restorers, and policies and standards governing restoration work in different countries. These were analyzed and discussed, illustrating for every case both the different aspects of physical intervention on an altarpiece and the mechanisms for securing the political, financial and administrative support required for every restoration operation.

At its core, the *Taller de Retablos* was organized into three days of study, over the course of which three working groups, each coordinated by a leader with proven professional experience, approached and developed the subjects that were subsequently summarized in the *Documento de Retablos*. The Consulting Committee¹, made up of three professionals who represented all the participants, collected, synthesized and re-proposed the most important issues to emerge from the work sessions. The selected contributions represent the attitudes and sensitivities of these different professionals, as well as the different approaches identified in the conservation of wooden altarpieces.

Conceptual background

The collective point of departure was the recognition of wooden altarpieces as cultural assets or, better, as “cultural heritage”. This means that these objects, given their tangible and intangible features, represent not only an artistic and historical manifestation, but an emotional one that expresses a community's

feelings of belonging, identity and continuity, and in which such a community recognizes itself.

From this it follows that the “function” of an altarpiece is intimately linked to its historical character and aesthetic features, regardless of whether it might still be in use or whether, given historical changes which may have modified religious practice, it may be identified more as a museum piece.

In consideration of this, any and all interventions affecting the altarpiece should take into account these important characteristics, which need to be integrated by acknowledging that the altarpiece is and always will be a living work, inasmuch as, both in the present and in the past, it belongs to and lives in its community. Its uniqueness resides precisely in the fact that it represents for the community the tangible expression of the possibility of dialogue between that community and God, in a dialectic rapport of prayer and answer. An altarpiece is therefore the witness of centuries-old traditions, of the shared heritage that each community must be able to preserve.

The theoretical and methodological approach to the conservation-restoration of an altarpiece must take into account the need to preserve not only the physical matter, but also the spirit informing it. In this challenging setting, a solitary material intervention is far from sufficient: restoration cannot limit itself to a merely mechanical action, since that would mean the death of the object by canceling it and its meaning within the community and within history.

History, represented by the tangible testimonials of centuries-old traditions, is the collective heritage of all mankind. Humanity, acknowledging its responsibility to preserve this heritage, will only be able to transmit the values of this heritage to future generations provided internationally common principles are formulated.

These concepts form the background against which the study and discussion sessions among participants were developed. The fact that every country is characterized by its own culture and its own traditions, and the fact that this implies a different approach to applying shared common principles was considered an enriching element in the discussions. In the future, the results of this will be both a better technical knowledge and a deeper ethical awareness in approaching the restoration of works, defined by the materials they are made of and the complexity of the meanings that reside in them.

We believe it is important to point out, even if only schematically, those issues that emerged from the discussions that have either awakened a special interest or represent unanimous points of agreement by the participants.

The first issue regards the definition of the object to be intervened on and the characterization of the context in which the object is situated and in which the intervention is to take place. Among others, it has been underlined in general terms that for the community it belongs to, an altarpiece is, first and foremost, an object through which a relationship with God can be established. Regardless of whether one operates in a religious context or in a lay environment, this first basic question should not be underestimated. A people's identity is manifested through its past; only through the past can we understand the present and are we able to plan for the future. Therefore, restoration professionals must possess an open mind regarding the issues of the community they are working with and for. Seen from this perspective, restorations can be interpreted also as a social service, since they allow for the maintenance and passing down of culture from one generation to the next; and culture is akin to a series of links which, if not adequately preserved, can lead to the breakage of the cultural chain and a loss of the sense of the society we operate in.

Some participants also stressed that more modest wooden altarpieces, given the characteristics of their material or composition, substantially represent an art that may be defined as "popular". This, however, does not mean that they should be considered works of secondary importance because, without popular art, countries would lose much of their artistic heritage. We must also consider the fact that these works are desired by the people who will then enjoy them: they are born from the people and live among the people. Under the light of a sociological analysis, it could be rightfully defined as "public art", since it synthesizes, under an artistic form, the demands, temperament, spirituality and culture of a community which the artist, as its representative, is able to translate into a shared artistic form. Regardless of its quality, public art continues to grow within the community, something that, for example, a beautiful painting, created by an excellent artist, but exhibited in a splendid case in a museum, cannot do, since the purpose for which it was created and the function for which it was destined has been lost.

An altarpiece lives in a precise physical, geographic and territorial space and time that is determined by the historical, social and cultural stratifications of which it is a centerpiece. It is important that any conservation and restoration intervention takes into account all these variables, which will allow the identification of the context over which the asset's values have influence and in which the intervention will take place. To restore, therefore, means to preserve not only the object in itself, through an intervention on the very materials it is made of, but also the environment in which it exists, through an intervention that ensures the conditions necessary for strengthening the work within the physical and cultural environment in which it exists. Therefore, the architectural and urban contexts will have to be considered, as well as the social relations within the community, which belong to a broader social framework, seeking to preserve all these elements in balance.

All the participants have clearly expressed the need to formalize a number of guidelines - a charter, a common scheme - in order to be able to develop both

individual projects and the methodology needed for a correct approach to carrying out interventions on altarpieces.

Such a process must necessarily contemplate the multiple and complex preservation issues to be considered when dealing with polychrome wooden altarpieces. In large part motivated by it, different approaches emerged in the course of the seminar for the purpose of dealing with the diversity of cultural contexts, of political and financial policies for the management of cultural heritage, in the way professionals acquire their training and of obstacles that exist in the exchange of shared information. There are, indeed, countries where there are no institutions to provide formal training of restoration professionals, as well as countries in which restorers are scarce vis-à-vis the amount of artwork requiring their services, or where government financial resources cannot provide sustained funding for the cultural sector. The scarcity of financial instruments often determines, individual good will notwithstanding, the paucity of cultural and training updates and exchanges, which directly reflect upon the "restoration product".

Nevertheless, it became evident that, in dealing with the cultural diversity that exists in every national territory, heritage conservators should be better suited to understand the need for a cultural heritage, precisely because they constitute the theoretical and practical link that bridges the community in which the cultural heritage exists and the political and financial organizations that should preserve such heritage. From this awareness stems a list of needs that would allow conservation professionals from several countries to use and share project tools of a highly professional caliber² and provide for a specific common language or vocabulary, to allow for the collection, selection and use of terms that expressly deal with polychrome wooden altarpieces.

An altarpiece is an indivisible, self-contained object, made up of a structural supporting piece that carries the façade or architecture, together with its constituting elements, columns, cornices, beams and an articulated series of ornamental elements contained in it: the sculptures, paintings and decorative features. This complex system is inextricably linked to the architectural space the altarpiece was created for.

Given all of the above, many of the seminar's participants brought to the fore the importance of the supporting structure of altarpieces and of the architectural area of the buildings in which they were erected.

It was also acknowledged that methods of constructing altarpieces can offer significant information regarding commercial trade between countries belonging to the same geographic area (such as Peru, Bolivia and Mexico, or Belgium and the Baltic) as well as transatlantic exchanges. These trade relations validate the assumption that there were common parameters regarding building typology and, perhaps, the development of "schools" of altarpiece construction. All this information, accessible only to conservator-restorers at the time of an intervention, can be retrieved from direct examination of the structure and supports. A properly conducted restoration is therefore an essential source of not only technical information, but also commercial, geographical and historical information.

It is understood that restoration must be directed or conducted by professionals in conservation/restoration who have sufficient training to enable them to contribute to the knowledge of the cultural asset regarding its significance in terms of aesthetic meaning, historical importance and physical integrity.

Conservator-restorers have been acknowledged to be the persons who, by virtue of their direct contact with the work of art, must have a well-developed sensitivity towards the tangible and intangible aspects of the works themselves, as well as great humility in approaching intervention. They can have definitive effects as promoters of processes that preserve heritage, ensuring that the cultural, spiritual, social and even economic values inherent in this heritage are well balanced.

Their actions are directly related to a work of art's acknowledgment, inasmuch as its restoration is the methodological moment for that recognition, in its most tangible and material aspects, as well as in its dual aesthetic and historic polarity as it is passed down to future generations.

Direct involvement of the community to which an altarpiece belongs in the issues affecting restoration interventions, operating choices, execution of work and maintenance is no doubt something that gives an added value to the knowledge acquired. As a consequence, it contributes to the reappraisal of heritage, by the individual, the community and the whole society.

Aspects involved are manifold: religious, artistic, historical, and cultural. Also, every community has its own traditions that justify "the usage" given to the piece in the present.

This involvement must necessarily be born of a political choice and the *Taller de Retablos* can be singled out as an instrument to promote this kind of decision-making in many countries. It facilitates the enactment of programs through relevant institutions - Formal Training Institutes - in collaboration with the institutions that are in charge of the artifacts and with the community in which the assets themselves exist. In the specific case of programs involving a community's representatives who may be responsible for the maintenance of altarpieces without the involvement of professional restorers, the goal shall be to include in the training as broad an awareness as possible of the need to preserve heritage, as well as the importance of ensuring the survival of such heritage so that it can be transmitted to future generations.

Dialogue and communication must be encouraged at every level through different means and using a language that everyone involved can understand, to ensure that the community is included as an active entity, understands the work of art's values and commits itself to its maintenance and protection. Sometimes the community expects results that are different from those attained. An organic, well-defined project can clearly set forth what the expectations ought to be, and, by sharing the decision-making processes, it can favor a smaller risk of misunderstandings. Here, the professional reappears on the scene as a direct and indirect promoter: In view of their constant presence on site and contact with the community, they may seek to be more in touch with that community, so that they can know its values first-hand

and become an interpreter and spokesperson for the more technical aspects of the work, in order to facilitate an adequate understanding of these aspects by the community.

The *Taller de Retablos* has brought different realities face to face, as, over time, varying situations have evolved, driven by geographical and historical developments. Historical and current contexts may not necessarily coincide. In those cases in which religious sentiment may have disappeared, there can be little doubt that the original values have shifted. It is important to ensure that both the restoration-intervention and the preservation professionals operate keeping in mind all the values that may come into play.

Analyzing the question of cultural and religious conscience regarding the heritage of wooden altarpieces, one can reasonably say that in some cases wooden altarpieces have lost and continue to lose their original meaning as cult objects, both through religious change and through change in lifestyle. It goes without saying that this situation places the cult objects in a different light than that in which they existed in the past, so that these objects, now lacking the original strength of the dialogue with their communities, find themselves placed in buildings which have turned from churches into museums or find themselves physically transferred from churches to the seats of museums. Values change and, in this environment, restoration runs the risk of turning into an aseptic operation, one that approaches the object in total isolation from its original context. In other cases, communities continue to have a strong sense of identity, and they identify themselves with their objects and places of cult. In these contrasting instances, the work of art might be exposed to candid intervention. There is still a generalized lack of awareness for the need to preserve this heritage, understanding preservation in the modern sense of the term. Instead of proper preservation, it is common to witness improper re-integration and maintenance practices.

Awareness of these realities, effectively different in their approach to and enjoyment of the cultural heritage represented by wooden altarpieces, has led to an exceptionally positive result.

The most important result of the meeting lies in having brought together different attitudes regarding how wooden altarpieces are perceived, as well as different sensitivities in the scientific make-up of restoration. This does not mean that a scientific approach towards preservation and restoration is completely different from other approaches, only that the perception and interpretation of concepts vary. We have on the one hand the “ideological” torch-bearer regarding the basic theoretical and technical approach, and on the other hand a vision of the object-altarpiece that is dictated by an emotional approach, based upon a deep faith and an operating relation with the very object, which is still imbued with the function the community has vested in it.

From this coming together, in our opinion, an important result has emerged: the necessary scientific approach that a conservation-restoration intervention absolutely has to have cannot be separated from the religious, historical and

social context of the object. Whenever this context is weakened, by virtue of historical contingencies or for other reasons, the conservation-restoration intervention still has to take into account the complex array of meanings that an object originally possessed, so that the original significance of the work of art is not lost, which would cause the loss of the object's cultural roots in its community. In other cases when this message can no longer be recovered as it originally existed, it is necessary to intervene to reconstitute a new identity that is able to live and share in the present.

From the individual contributions, this diversity clearly emerged: some cases display an approach which is more art historical, technical and theoretical, while others were presented emphasizing the historical, cultural and religious connections, without neglecting the more purely technical aspects.

Final results

All the participants in the Seminar displayed professionalism, humility and a willingness to cooperate. They also all brought to the table their passionate contributions to the construction of a common base, which marries respect, appreciation and stewardship of our roots to adequate theoretical and scientific instruments. Equally significant is the fact that all the participants expressed their desire to involve communities, although in different ways with an emphasis on young people and children, who can certainly be the most receptive members of a community if they are made adequately aware of the issues. Another important point made by the participants was that knowledge should not be tightly withheld, but rather disseminated in as broad a way as possible. This can be attained through cataloging cultural assets, publishing the results of interventions, didactic programs and grass-roots education.

As a consequence, the document resulting from the work sessions in Seville constitutes a valuable synthesis. All these ideas have taken shape in a text that takes into account the peculiarities of wooden altarpieces in terms of their design components, their relation with architectural space, relevant religious, social, historical, artistic and cultural implications, as well as the context in which they belong, and constitutes a guideline to support the methodological approach that needs to be at the base of all feasible and sustainable interventions.

The *Documento de Retablos 2002* is the positive sign of a complete and organic approach in the field of conservation.

This is how restoration theory will become, as it should, the ethical and practical instrument that will allow the construction of a methodology for conservation-restoration of our heritage, with a special emphasis on wooden altarpieces.

Francesca Tonini

Notes

1. An advisory committee composed of two experienced private conservators, Manuel Jiménez Carrera and Francesca Tonini, and Teresita Loera Cabeza de Vaca, head of the Coordinación Nacional de Restauración del Patrimonio Cultural, Instituto Nacional de Antropología e Historia, Mexico

2. As provided for by the historical documents regarding the professional personality and the deontology of the Conservator-Restorer ICOM-CC, 1984, as well as by the ECCO Document, 1993.

Concerned about the general status of altarpieces known as retablos, a group of historical heritage professionals from North America, South America, and Europe met in Seville, Spain, from May 12 to 16, 2002. After examining a number of issues related to altarpieces, they proposed a series of recommendations to the various individuals and organizations involved in the management and conservation of altarpieces. These recommendations take an integral, methodological approach to the conservation of these cultural assets.

Altarpieces are unique elements of the world's cultural heritage because of their morphology, and social and cultural implications. In the majority of cases, altarpieces continue to be fully functional, acting as reference points and unifying elements for the communities in which they are located.

The constitution and nature of altarpieces, as well as their socio-cultural and artistic implications, endow them with an exceptional importance, and the socio-cultural contexts in which altarpieces are immersed are particularly significant. However, altarpieces are compromised to a large extent by the risks entailed in their use or function when left on display in these very contexts.

The altarpiece is a complex structural and symbolic system, intimately associated with the architectural space for which it was created. This means that any attempt to study or intervene on an altarpiece must consider the tangible and intangible aspects of its surrounding environment and the history of its passage through time.

For these reasons, any decision to intervene on an altarpiece must be based on comprehensive assessment and a consensus among all the parties involved.

We have therefore developed the following principles that contribute towards establishing a necessary and indispensable basic methodology, in order to halt or prevent the dangers of drastic interventions or inadequate, arbitrary policies. These principles are meant to encourage feasible, sustainable interventions, so that this built heritage may be handed down to future generations.

Antecedents

Considerations

Principles

The following measures are recommended:

- Project rationales must be in keeping with a philosophy of conservation. The project needs to contemplate a theoretical framework and a code of ethics that closely reflect the guidelines set by international conventions on heritage conservation.
- Intervention on the altarpiece should be performed only if truly needed, and only when the necessary technical and economic viabilities are assured. The intervention program must also be consistent with the needs of the altarpiece and must employ a technology suitable to the altarpiece's particularities.
- A multi-disciplinary commission should be established, with equity among the parties involved in decision-making, although economic and political considerations need not prevail over historic or conservation values in final determinations.
- The altarpiece should be recognized as integrally connected to its physical context, inseparable from the building or socio-cultural context of which it forms a part.
- The altarpiece should be understood as a unit, comprising not only artistic elements, but also the structure supporting it.
- The intervention must be supported by rigorous, detailed documentation that can be readily shared and disseminated.
- The importance of interdisciplinary work in carrying out any intervention must be recognized.
- It must be ensured that the work team has the skill, training, and competence required for planning and implementing the project and intervention.
- A financing strategy needs to be developed which includes maintenance operations. Activities should not be undertaken if they exceed the limits of existing funds.
- The intervention must respect the dual "historical and aesthetic" polarity characteristic of a cultural asset, such that any direct action on the altarpiece should allow all testimonies to the past to survive for the maximum possible time, as long as they do not interfere with the altarpiece's conservation, are easy to distinguish, and permit subsequent intervention activities.
- The principle of minimal intervention should prevail in the intervention activities, given that any intervention process subjects the altarpiece to

notable physical stress. It must be borne in mind that very few materials or techniques exist that sufficiently guarantee *reversibility and inalterability* over time and which are compatible with existing materials.

- In all processes (whether cognitive or operational), a spirit of open dialogue should be maintained among all parties involved, to ensure a balance of understanding and viewpoints.
- The community should be involved in protecting the cultural heritage through an appropriate outreach policy.
- Action taken with respect to the altarpiece should be used as an educational and training tool at a variety of levels, thereby contributing to the community's appreciation for and cultural identification with this heritage.

All studies or activities required for the altarpiece, regardless of the phase of conservation in question (research, assessment, intervention, follow-up, maintenance, dissemination, etc.) must always be justified, articulated, and supported by the altarpiece's values, condition, and detected needs, as well as sustained by viable management mechanisms.

The decision to conduct any activity must be made directly by the parties involved in the process of protecting and conserving the specific cultural heritage. The advisory or consulting bodies of the respective country, as well as the technical commissions established for such purposes, must also be taken into account. The decision must be based upon a proposal formulated through a variety of documents, including a preliminary report, statement of conservation urgency, project plan, maintenance plan, etc.

Considering the values that an altarpiece represents and the complex factors involved, any intervention on an altarpiece must necessarily follow a structured process throughout its phases, whether cognitive or operational. Such a process must enable rational, feasible responses to any unknowns that may arise, and apply the scientific, methodological rigor demanded today in relation to this cultural asset. Important aspects include the legal level of protection, administrative situation, parties involved in its socio-cultural management, state of conservation of the altarpiece and its surroundings, previously existing documentation, intervention, etc.

The process should be articulated in a series of stages:

- **Preliminary Report:** The preliminary diagnostic accomplished through an initial inspection, in which the scope of the activity is specified in general terms, including its priority (urgent, regular, systematic, comprehensive, maintenance, etc.), as well as its technical, scientific, social, and economic complexity. This inspection must be made by a team of qualified professionals, who will issue a report, specifying their reasons and rationale in connection with the above-mentioned aspects.
- **Research/Preliminary Studies**, conducted with the following objectives:
 - assess the condition or state of the altarpiece in its context

Decision-making

Intervention process

- determine the technical and construction systems employed in the altarpiece
- define the altarpiece's significance, cultural evolution (symbolic, historical, aesthetic, etc.) and social evolution (vis-à-vis the public, churchgoers, etc.).
- Formulate a **project** that is administratively feasible, whose content responds to the needs of the altarpiece. This document must contain at a minimum:
 - definition of the altarpiece's *state of conservation*, describing the problems detected in the studies conducted, as well as the causes of those problems, and an assessment of the altarpiece's internal structure and material composition
 - justification of the *proposed intervention* based on the established diagnostic and in accordance with: the socio-cultural and conservation needs of the altarpiece, intervention criteria accepted by the scientific community, and the perfecting of treatments through preliminary tests, all of which must provide a reasoned basis for the proposed activities and the technology employed
 - necessary safety conditions so that the study or intervention is conducted under situations that do not jeopardize the health or safety of the technical personnel, through the use of unsuitable infrastructure, equipment, or products
 - quantification of the time, economic considerations, and technical and human resources that would allow completion of the work
 - outline of the logistics of the activity (planning and schedule)
 - systematic documentation, in a standardized format that is durable over time (thematic mapping, textual documentation, photography, etc.).
- **Dissemination** of the information (distribution and publication of results) and implementation of complementary activities (training and educational workshops, etc.).

Intervention

The intervention must be consistent with the content defined and articulated in the approved, agreed upon project document. Its execution and supervision must be directed by technical personnel specialized in the conservation and restoration of cultural heritage, whose professional qualifications are consistent with the legal requirements established in each country. Similarly, the technical support personnel needed to carry out the specifically planned activities must be available.

If new information should come forth during the intervention process on account of which it is recommendable to make substantial changes to the content of the project, those changes need to be justified through a new evaluation and supported through new studies, in order to develop a supplementary project that makes it possible to complete the intervention.

The intervention process must be reflected upon in a document or *Final Report* that describes, as necessary, the results of the studies, activities conducted, documentation generated, intervention follow-up activities, and proposals for continued maintenance, to transmit this information to future generations. In that way, over time, this dossier will provide a source of information for future interventions or research.

Seville, May 16, 2002

Has worked for more than forty years in the world of restoration and for thirty years as a teacher of restoration theory. In 1968, he earned a degree in restoration from the Musées Classés et Contrôlés of France and, in the same year, he participated in the first course on mural painting organized by ICCROM, in Rome. He headed Mexico's Department for the Restoration of Cultural Patrimony from 1974 to 1977 and the Escuela Nacional de Conservación, Restauración y Museografía between 1983 and 1992, both entities belonging to the Instituto Nacional de Antropología e Historia of Mexico. He has participated in several conservation and restoration projects in Mexico and Latin America, working in museums, on mural paintings, paintings on canvas, archaeological finds and gilded altarpieces.

Specializes in the conservation and restoration of cultural assets. She holds a degree in fine arts, having studied at the Centro de Conservação e Restauração of the Universidade Federal of Minas Gerais (CECOR/UFMG). In 1983, she began working in public institutions for the protection of heritage and she currently works as an independent restorer in Southern Brazil.

Is a restorer at the Instituto del Patrimonio Histórico Español (IPHE) of the Ministry of Culture. She specializes in the study of altarpiece construction and the execution of polychrome techniques, as well as in polychromed wooden roofings. She heads various projects concerning the study of the work and methodology applied to the conservation of these types of assets, and she coordinates and teaches courses on altarpieces for national and foreign grantees, both at the IPHE and in Latin America, in cooperation with other institutions.

Is an independent conservator who specializes in the conservation and restoration of wooden sculptures and paintings, on canvas and on wooden panels. Since 1983, he has worked with the Italian Ministry of Cultural Heritage, with church organizations, and with both private and public entities for the maintenance of the historical and artistic heritage. He has published numerous articles in Italian and international journals. As technical advisor for several conservation studios, he also collaborates with the Regional Center for Restoration of the Villa Manin of Passariano and the University of Udine, Italy.

Jaime Cama Villafranca

Susana Cardoso Fernández

**Ana Carrassón López
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Franco Del Zotto

Françoise Descamps

Is a senior project specialist at the Getty Conservation Institute. She received a degree in architecture from the Institut Supérieur d'Architecture Saint Luc in Tournai, Belgium, in 1978 and studied the conservation of monuments and sites at the Raymond Lemaire International Center for Conservation, in Belgium. She has served as consultant for various international institutions and for UNESCO on issues dealing with the conservation and management of World Heritage sites in Africa, the Caribbean and Southeast Asia. Working for the Belgian delegation under the direction of Professor Raymond Lemaire, she led the Quito workshop for the training of architects in the management of historical centers. She has also collaborated on urban and architectural projects for private firms in Belgium, France and Spain.

Rosaura García Ramos

Holds a degree in fine arts from the Universidad de Sevilla in the specialties of painting and restoration. She specialized in conservation and restoration at Madrid's Instituto del Patrimonio Histórico Español, at the Institut Royal du Patrimoine Artistique, Brussels, and at the Museum of the Department of Art History and Archaeology of the Université Catholique de Louvain in Belgium. She worked as a restorer for the Spanish Ministry of Culture and for the Biscaïne (Basque Country, Spain) Diputación Foral in designing and implementing its Restoration Workshop, in which she now works as Chief of Restoration Services, responsible for Movable, Archaeological, Documentary and Paleontological Heritage. She has given papers at domestic and international seminars and conferences. She is a founding member of the Polychromed Sculpture Latin Group and has taught several courses in Spain on the study and treatment of polychromed sculpture.

María José González López

Is professor at the Universidad de Sevilla, Spain. She holds a degree in Fine Arts specializing in Painting and Restoration, as well as a Doctorate in Fine Arts, also from the University of Sevilla. She specialized in the conservation and restoration of panel paintings, polychromed wooden sculptures, and mural paintings at the Institut Royal du Patrimoine Artistique, Belgium, and at the Museum of the Department of Art History and Archaeology of the Université Catholique de Louvain in Belgium. She has been an active member of the IIC, ICOM Spanish and international committees as well as member and previous president of the GLEP. She has headed the Treatment Department of the Instituto Andaluz del Patrimonio Histórico (IAPH) and she continues to collaborate with the IAPH on Research Projects.

**Carmen Fortunata
Huanay Herrera**

Is a conservator-restorer for the Instituto Nacional de Cultura, in the Department of Conservation and Restoration in Lima, Peru, where she coordinates several restoration projects for the institute, many of which involve international cooperation. She has both attended and participated in several workshops and training programs related to the conservation, presentation and management of movable cultural heritage and museum objects. She also teaches at the Escuela Nacional Superior Autónoma de Bellas Artes of Peru in the plastic arts and in private schools.

Has a degree in restoration and museology from the Universidad Tecnológica Equinoccial. Since 1994, he has been the technical manager of Tratteggio, a firm working on the conservation of historical monuments and works of art in Quito, Ecuador. His work received a prize at the 2002 Quito Architectural Biennial, under the category "Intervention on Heritage Buildings". As an independent conservator, he has headed important projects for the restoration of altarpieces and other cultural assets in several cities and has contributed to various research projects related to national heritage monuments. He also teaches conservation of materials at the Universidad del Azuay, as well as conservation of polychromed sculpture on the international course of the Organización de los Estados Americanos - Instituto Nacional de Cultura (OEA-INC).

Manuel Jiménez Carrera

Graduated in both art history and the conservation of painting on canvas from the Université de Paris 1, Panthéon-Sorbonne. She received additional training at the Université Catholique de Louvain, Belgium, and at the Institut Michelet d'Art in Paris, where she addressed specific questions of contemporary art. She has worked as an independent conservator in France and Portugal. Since 1994, she has been active in teaching the conservation of painting at the Escola Superior de Conservação e Restauro in Lisbon and is currently a lecturer in the Department of Conservation and Restoration of the Faculdade de Ciências e Tecnologia of the Universidade Nova de Lisboa, where she is completing her doctoral degree. She has participated in several research projects concerning polychromed sculpture, as well as in seminars related to the education of conservators, their status and their competence.

Agnès Le Gac

Obtained her degree in the restoration of cultural assets from the Escuela Nacional de Restauración y Museografía Manuel del Castillo Negrete, with a thesis focusing on the conservation problems of altarpieces. Her postgraduate studies were on cultural management and cultural policies at the Universidad Autónoma Metropolitana - Organización de Estados Americanos. She currently works as a restorer of movable assets at the Instituto Nacional de Antropología e Historia (INAH) Regional Center in Morelos, Mexico, where she has also served as director and assistant director. Between 2002 and 2005, she was INAH's National Coordinator for the Restoration of Cultural Heritage.

Teresita Loera Cabeza de Vaca

Graduated from Mexico's Escuela Nacional de Conservación, Restauración y Museografía, where she also taught the conservation of textile and graphic documents for many years. In 1993, she joined the Coordinación Nacional de Conservación del Patrimonio Cultural, where she directed and supervised several conservation projects. She is currently assistant director of "Conservation Projects with Local Communities". With this program and through selected pilot projects, she promotes the participation of local communities in the preservation and conservation of their heritage. She has taken part in several national and international meetings and has published many articles and works on conservation regarding the technology and understanding of movable cultural heritage.

Blanca Noval Vilar

**Hector Oswaldo
Prieto Gordillo**

Is a restorer at the private restoration bureau of the Augustinian order. He graduated from the Escuela de Restauración of the Instituto Colombiano de Cultura, his degree being validated by the Universidad Externado of Colombia. He worked at the Centro Nacional de Restauración on canvas paintings, sculpture, mural painting and as director of the workshop for silica-based materials; he later worked at the restoration center of the Instituto de Cultura y Bellas Artes of Boyacá. In these two institutes, he headed interventions on important altarpieces in the cities of Bogotá, Cali, Ocaña and Boyacá; he has worked on numerous colonial and modern mural paintings at different cities in Colombia. He teaches cultural heritage and mural painting restoration in the Architectural Restoration specialty of the Universidad La Gran Colombia.

Adriano Reis Ramos

Is a conservator and restorer of art with the "Grupo Oficina de Restauo" of Belo Horizonte, Minas Gerais, Brazil. His studies in conservation and restoration were begun at the Fundação de Arte of Ouro Preto (FAOP). From 1974 to 1979, he worked as a restorer at the Instituto do Patrimônio Artístico e Cultural of Bahia (IPAC) and, from 1979 to 1988, he worked with the Instituto Estadual do Patrimônio Histórico e Artístico of Minas Gerais (IEPHA/MG). In 1985, he received a scholarship from the Italian government to participate in the ICCROM-promoted course "Scientific Principles of Conservation", in Rome. Adriano founded the restoration group "Grupo Oficina de Restauo" and has carried out important work for different institutions in Minas Gerais, Rio de Janeiro and São Paulo. He has also presented his work at congresses and conferences dealing with baroque art, in Brazil and abroad.

**José María
Rodríguez Acosta**

Received his degree in the restoration and conservation of cultural heritage from the Istituto per l'Arte e il Restauro in Florence, Italy. He specialized in the restoration and conservation of fifteenth- and sixteenth-century Flemish panel paintings from the Institut Royal du Patrimoine Artistique in Brussels, Belgium, and in canvas painting from the Istituto Centrale per il Restauro in Rome, Italy. He has held fellowships from the Fondazione Cesare Gnudi of Bologna, as well as from the Academia Española de Bellas Artes in Rome. Of particular importance are his interventions on several restoration projects carried out by the IAPH, and those for the Museum of Fine Arts in Seville, and the Museum of Fine Arts in Granada; and particularly his contribution in the implementation phase of the conservation of the main altarpiece of the Capilla Real and the Basílica de Nuestra Señora de las Angustias.

Carlos M. Rúa Landa

Is director of conservation and restoration for Bolivia's Vice Ministry of Culture. He has taken several specialization courses in the conservation and restoration of works of art, both in Bolivia and abroad. He heads and coordinates various projects for the restoration of altarpieces and other movable assets in several regions and cities of Bolivia. He has been responsible for a project on methodological intervention on altarpieces, which has been carried out through cooperation with the German government and supported, in part, by funds from the Getty Grant Program.

Has a degree in architecture from Ecuador's Universidad Central in Quito, and a specialty in "Architectural Heritage Intervention" from the Escuela Técnica Superior de Arquitectura of the Universidad Politécnica of Madrid. Between 1983 and 1996, working for Ecuador's Instituto Nacional de Patrimonio Cultural, he coordinated the projects carried out through an agreement with the Spanish International Cooperation Agency at the San Francisco Monastery, the Guápulo Sanctuary, the Saint Claire Monastery and the Monument to the Heroes of August 10th. These works received prizes from the Real Fundación Toledo. Beginning in 1999, he has worked as Executive and Technical Director of the Fundación Iglesia de la Compañía de Jesús and he works as an advisor for national and local institutions. He also heads the Historical Center Network.

Graduated in art history and fine arts from the Universidad de Barcelona. After working as a documentation specialist for the Servicio de Restauración de Bienes Muebles of the Gobierno General de Cataluña, she joined the Getty Conservation Institute in 1996 as part of the Getty Graduate Internship Program. While there, she worked for different conservation projects, gaining expertise in the recording of conditions and in documentation techniques, as well as in management planning. In 1998, she became a research fellow and continued to contribute to the Institute's ongoing field projects in the Czech Republic, Mexico and El Salvador. In November 2000, she moved back to Barcelona, where she is working as a registrar, managing the collections at the Fundació Joan Miró.

Is the director of the Institut Royal du Patrimoine Artistique - Belgium. During the many years she was in charge of the Institute's Department of Conservation-Restoration, she led major conservation work in Belgian heritage. Trained as an art historian at the Université Catholique de Louvain, she also studied conservation and was a student of Agnès Ballestrém. The study, conservation and restoration of polychromed wooden altarpieces has been one of her major interests, and she has been leading conservation work on altarpieces originating from the well-known School of Antwerp and from the Brabant region. She teaches at the Institut de Formation des Restaurateurs d'Oeuvres d'Art in Paris and at the École Nationale Supérieure des Arts Visuels de la Cambre, in Brussels. She is the author of more than fifty articles on polychromed sculptures.

Is a restorer of movable assets, having received her degree from the Escuela de Conservación, Restauración y Museología de COLCULTURA, validated by Colombia's Universidad Externado. She coordinated the workshop for wooden and polychromed sculpture at the Centro Nacional de Restauración and at the Escuela de Conservación, Restauración y Museología. She has also headed the Centro Nacional de Restauración of the Dirección de Patrimonio of the Ministry of Culture, and currently works as Advisor for the Dirección de Patrimonio of the Ministry of Culture. She teaches the wood workshop at the Escuela de Restauración de COLCULTURA and at the Facultad de Restauración de Bienes Muebles of Colombia's Universidad Externado.

Diego Santander Gallardo

239

Irene Sen

Myriam Serck-Dewaide

Eugenia Serpa Isaza

Francesca Tonini

Is an independent conservator who specializes in the conservation and restoration of wooden sculptures, canvas paintings and panel paintings. Since 1983, she has been collaborating with Franco Del Zotto, with the Italian Ministry of Cultural Heritage, church organizations and with both private and public entities for the maintenance of historical and artistic heritage. She has published numerous articles on art history and religious art, and often collaborates with the Regional Center for Restoration of the Villa Manin of Passariano and the University of Udine, Italy.

Fanny Unikel Santoncini

240

Holds a degree in restoration from Mexico's Escuela Nacional de Conservación, Restauración y Museografía (ENCRyM) and, since 1994, a professorship at the Polychromed Sculpture Restoration Workshop Seminar at the same school. She is in charge of coordinating various restoration projects of polychromed sculptures and altarpieces in museums, churches and communities, carried out by the school's students. She has given papers at seminars and workshops on techniques and criteria for conservation and restoration and she has also been an advisor and thesis director on subjects related to polychromed sculpture and altarpieces. She coordinates the Altarpiece Restoration Seminar, the "Study of the constructive system of the San Cayetano altarpiece at La Valenciana, Guanajuato" research project and the research project concerning the "Materials employed in polychromed sculpture", all projects of the ENCRyM.