

Proceedings of  
a Symposium at  
the Getty Center,  
May 17–18, 2009

## Facing the Challenges of Panel Paintings Conservation: Trends, Treatments, and Training



**Facing the Challenges of  
Panel Paintings Conservation**



# Facing the Challenges of Panel Paintings Conservation: Trends, Treatments, and Training

Proceedings from the symposium Facing the Challenges  
of Panel Paintings Conservation: Trends, Treatments,  
and Training

Organized by the Getty Conservation Institute,  
the Getty Foundation, and the J. Paul Getty Museum

The Getty Center, Los Angeles  
May 17–18, 2009

*Edited by Alan Phenix and Sue Ann Chui*

THE GETTY CONSERVATION INSTITUTE  
LOS ANGELES

Front cover: Albrecht Dürer (German, 1471–1528), *Adam and Eve*, 1507, before treatment. Oil on panel, *Adam*, 209 × 81 cm (82.3 × 31.9 in.); *Eve*, 209 × 80 cm (82.3 × 31.5 in.). Museo Nacional del Prado, Madrid, P2177, P2178. Photo: Museo Nacional del Prado.

Back cover: Reverse of *Eve* (left) and *Adam* (right) after structural treatment. Photo: Courtesy of George Bisacca and José de la Fuente Martínez.

The Getty Conservation Institute  
Timothy P. Whalen, *Director*  
Jeanne Marie Teutonico, *Associate Director, Programs*

The Getty Conservation Institute works internationally to advance conservation practice in the visual arts—broadly interpreted to include objects, collections, architecture, and sites. The Institute serves the conservation community through scientific research, education and training, model field projects, and the dissemination of the results of both its own work and the work of others in the field. In all its endeavors, the GCI focuses on the creation and delivery of knowledge that will benefit the professionals and organizations responsible for the conservation of the world's cultural heritage.

Published by the Getty Conservation Institute  
1200 Getty Center Drive, Suite 700  
Los Angeles, CA 90049-1684  
[www.getty.edu](http://www.getty.edu)

© 2011 J. Paul Getty Trust  
All rights reserved. Published 2011

Alan Phenix and Sue Ann Chui, *Volume Editors*  
Sean Charette, *Production Coordinator*  
Hespenheide Design, *Designer*

ISBN 978-0-9834922-2-1 (online resource)

Printed in the United States of America

Every effort has been made to contact the copyright holders of the photographs and illustrations in this book to obtain permission to publish. Any omissions will be corrected in future editions if the publisher is contacted in writing.

The listing of product names and suppliers in this book is provided for information purposes only and is not intended as an endorsement by the Getty Conservation Institute.

# Contents

<i>Timothy P. Whalen, Joan Weinstein, and David Bomford</i>	ix	Foreword
<i>Alan Phenix and Sue Ann Chui</i>	xi	Preface
PART ONE		
<b>Papers</b>		
<i>Anne Haack Christensen, Mikkel Scharff, and Jørgen Wadum</i>	3	Interim Results of a Needs Assessment Survey for the Field of Panel Paintings Conservation
<i>George Bisacca and José de la Fuente Martínez</i>	10	The Treatment of Dürer's <i>Adam</i> and <i>Eve</i> Panels at the Prado Museum
<i>Marco Ciatti and Ciro Castelli</i>	25	The Conservation of Panel Painting Supports at the Opificio delle Pietre Dure: Experiences and Methodologies
<i>Britta New and Ray Marchant</i>	36	The Repair and Support of Thinned Panel Paintings: A Case Study in Modifying Established Techniques
<i>PierPaolo Monfardini</i>	48	Structural and Climate Control Systems for Thinned Panel Paintings
<i>M. Alan Miller, George Bisacca, and Dimitri Galitzine</i>	59	The Development of a Spring Mechanism for Use in Conjunction with Auxiliary Supports for Previously Thinned Panels
<i>Ingrid Hopfner</i>	69	The Development of Flexible Auxiliary Support Systems for Panel Paintings and the Monitoring of Panel Movement by Strain Gauges
<i>Monica Griesbach</i>	82	A Hybrid Approach to the Structural Treatment of Panel Paintings: Case Studies from American Collections

<i>Paul van Duin</i>	92	Panels in Furniture: Observations and Conservation Issues
<i>Jonathan Woolston</i>	104	Restoration—A Sound Practice
<i>Donald C. Williams</i>	113	Some Experiences with Flexible Gap-Filling Adhesives for the Conservation of Wood Objects
<i>Christina Young, Britta New, and Ray Marchant</i>	125	Experimental Evaluation of Adhesive-Filler Combinations for Joining Panel Paintings
<i>Mervin Richard</i>	140	Further Studies on the Benefit of Adding Silica Gel to Microclimate Packages for Panel Paintings
<i>Laurent Sozzani</i>	148	Microclimate Vitrines for Panel Paintings: An Update
<i>Roman Kozłowski, Łukasz Bratasz, Łukasz Lasyk, and Michał Łukomski</i>	158	Allowable Microclimatic Variations for Painted Wood: Direct Tracing of Damage Development
<i>Morten Ryhl-Svendsen, Mikkel Scharff, Jørgen Wadum, Terje Grøntoft, Elin Dahlin, Susana Lopez-Aparicio, Marianne Odlyha, Guillermo Andrade, Antonio Ortega, Michał Obarzanowski, Janusz Czop, Stephen Hackney, David Thickett, Maria Perla Colombini, and Ilaria Bonaduce</i>	165	Gaseous Pollutants inside Microclimate Frames: Results from the PROPAINT Project
<i>Maryan W. Ainsworth</i>	178	Special Exhibitions and Panel Paintings: A Curatorial Perspective
PART TWO		
<b>Posters</b>		
<i>Elsa M. Arroyo Lemus</i>	193	<i>La Virgen del Perdón</i> after the Fire of 1967
<i>Wendy Baker and David Grattan</i>	195	Search for a Dimension-Neutral Effect in the Solvent Treatment of Wood
<i>Sabine Bendfeldt</i>	197	Stabilization and Rejoining of a Seventeenth-Century Panel Painting: <i>Portrait of Philip Melanchthon, Parish Church of Prießnitz/Saxony</i>
<i>Gwendolyn P. Boevé-Jones</i>	199	The Structural Stability of the Plywood Panel Support of Salvador Dalí's <i>Couple with Clouds in Their Heads</i> and Their Bespoke Frames from 1936
<i>Miguel Garcia</i>	200	Structural Interventions on Sixteenth-Century Monumental Oak Panels in Tomar, Portugal
<i>James Hamm, Sandra Kelberlau, Dawn Rogala, Aniko Bezur, and Jonathan Thornton</i>	202	Structural Treatment of a Seventeenth-Century Flemish Panel Painting

<i>Grzegorz Kostecki and Aleksandra Hola</i>	204	Structural Consolidation and Stabilization of Panel Paintings at the Academy of Fine Arts, Kraków
<i>Ray Marchant and Devi Ormond</i>	206	Alleviating Stress in the Framing of Panel Paintings
<i>M. Alan Miller</i>	207	Marvel Seal Envelopes at the Metropolitan Museum of Art
<i>Costanza Mora, Beatrice Provinciali, Albertina Soavi, Roberto Saccuman, Elisabetta Giani, and Angelo Rubino</i>	209	The Conservation of an <i>Insieme</i> : The <i>Madonna of Aracoeli</i> and Its Historic Display
<i>Nicola Newman and Lynne Harrison</i>	211	Finding Solutions for Mounting Ancient Egyptian Funerary Portraits
<i>Jessica Roeders</i>	212	The History of Cradling in the Frans Hals Museum, Haarlem
<i>Joana Salgueiro and Salomé de Carvalho</i>	214	Technical and Conservation Study of the Wooden Support of <i>The Pentecost</i> by Vasco Fernandes
<i>Kate Seymour, Gwendoline R. Fife, and Kees Schreuder</i>	216	Developments in Education in the Netherlands for the Conservation of Panel Paintings
	218	Author Biographies



# Foreword

We are pleased to present the proceedings of the second Getty symposium on the structural conservation of panel paintings, held at the Getty Center in Los Angeles in May 2009. This symposium, “Facing the Challenges of Panel Paintings Conservation: Trends, Treatments, and Training,” is part of the Panel Paintings Initiative, a collaboration of the Getty Conservation Institute (GCI), the Getty Foundation, and the J. Paul Getty Museum. This initiative is a response to the likelihood that significant collections of paintings on wood panels will be at risk in the coming decades because of the waning number of professionals who have the highly specialized skills necessary for the conservation of these complex works of art.

The Panel Paintings Initiative builds upon an earlier effort to focus attention on this issue—specifically, the Getty’s first symposium, “The Structural Conservation of Panel Paintings,” held in April 1995. The previous symposium aimed to document both traditional and contemporary techniques used for the stabilization of panel paintings. Many of those who cared for panel paintings had trained in traditional wood-working skills, which were not being passed on to the next generation of conservators. In light of this, the 1995 symposium put on record the various approaches to structural stabilization as they evolved in both Europe and the United States, including efforts by some early pioneers of the conservation profession to reconcile craft traditions with growing scientific understanding of the physical and chemical aspects of materials.

Over a decade and a half later, there are only a handful of experts who are fully qualified to deal with the complex structural problems of panel paintings, and nearly all of these experts will retire within the next decade. Recognizing that training is the key to addressing this situation, the Getty Conservation Institute, the Getty Foundation, and the J. Paul Getty Museum have formed the Panel Paintings Initiative to help train and educate the next generation of specialists in the structural stabilization of panel paintings, while bringing to greater attention some of the important research and advances that have taken place in recent decades.

Since it was launched in 2008, the Panel Paintings Initiative has reached several important milestones. In addition to the 2009 symposium, the initiative has commissioned a far-reaching survey, funded by the Getty Foundation, to identify the most significant collections of panel paintings, the current status of their care, specific needs for training and professional development, and opportunities for addressing

them. The survey was conducted by the National Gallery of Denmark in Copenhagen, in partnership with the Royal Danish Academy of Fine Arts School of Conservation. The results of this survey, which are summarized in this volume, are now guiding the development of the initiative's education and training efforts, which include residencies for conservators to acquire skills in panel stabilization and short-term workshops and meetings focusing on topics related to panel paintings.

Another early milestone for the Panel Paintings Initiative has been the development of a searchable online bibliography that encompasses literature relevant to the various aspects of the structural stabilization of panel paintings. This bibliography is one of a series of information and learning resources that the initiative is creating to support its educational work and that it is making available to the broader field. These resources include the proceedings of the 1995 symposium, which has since become a key reference text for the field and is now available as a free download on the GCI website. Complementing the proceedings from the earlier symposium are video recordings of the 2009 symposium, as well as an electronic version of the present volume. Information about the Panel Paintings Initiative and access to its online resources can be found at: [www.getty.edu/conservation/education/panelpaintings/index.html](http://www.getty.edu/conservation/education/panelpaintings/index.html).

We would like to thank the volume editors, Alan Phenix and Sue Ann Chui, and the publication coordinator, Sean Charette, for their work on this volume. Their efforts, coupled with those of the authors and other members of the project team, have contributed substantially to the current body of knowledge on the structural conservation of panel paintings. We would also like to extend our thanks to the Panel Paintings Initiative international advisory committee; their collaboration with us on this ambitious and far-ranging project will help ensure that future generations will be able to study and use this knowledge. Finally, we are indebted to Mark Leonard, former head of Paintings Conservation at the J. Paul Getty Museum, for focusing our attention on the critical challenges to the profession and to the practice of panel paintings conservation, and for his commitment to meeting those challenges.

Timothy P. Whalen  
Director, Getty Conservation Institute

Joan Weinstein  
Interim Director, Getty Foundation

David Bomford  
Acting Director, J. Paul Getty Museum

# Preface

This volume of proceedings from the second Getty symposium on panel paintings conservation has a more focused content than the first, which was an encyclopedic work that covered topics ranging from wood science and anatomy to the history of panel construction, and from the history of conservation treatments to new developments and research into conservation interventions. The 2009 symposium, as its title suggests, was more restricted in scope; it presents directions and developments within the field some fifteen or so years after the first event.

It might be observed that, aside from the paper on the training needs assessment for panel paintings conservation conducted for the Getty Panel Paintings Initiative (Anne Haack Christensen, Mikkel Scharff, and Jørgen Wadum, “Interim Results of a Needs Assessment Survey for the Field of Panel Paintings Conservation”), the various papers contained within this volume generally fall under two broad categories: preventive conservation issues (environment, display, storage, and exhibitions), and new perspectives in conservation treatment. While the individual symposium contributions focus on specific topics within these broader subject areas, it is important to acknowledge the wider trends and shifts in attitude that are implied by and reflected in their specific content.

Of particular note is the generally increased acceptance of loaning paintings on wood panel for exhibitions, and the corresponding advances in simple, practicable approaches to protection of works while on loan and exhibition, particularly microclimate enclosures of one form or another. Also clearly evident in these proceedings is the continuing interest in the behavior of panel paintings as mechanical structures that respond to environmental fluctuations, from the points of view of both monitoring and mitigating the effects of those fluctuations. Taking up a theme from the first panel paintings proceedings, we see here further developments in auxiliary supports that allow some degree of controlled movement of panels as they exchange moisture with the air. Now, too, we are seeing the application of systems to monitor the performance of such supports in real-life situations of display and transport. Clearly the whole area of monitoring the dimensional and mechanical responses of panels to environmental fluctuations and other mechanical effects will be an important line of continuing research in this field in the years to come, and we hope that this research will lead to a more routine integration of data from the monitoring of hydrodynamic response with the

design of auxiliary support systems. And at last, the possibility of cyclic environmental changes causing fatigue fracture in paintings is beginning to receive the research attention this phenomenon warrants.

For the conservation practitioner, it is always informative to see descriptions of conservation treatments that illustrate how complicated technical problems are evaluated and overcome, and a number of papers of this kind are included here, alongside those describing conservation-restoration interventions on object types other than panel paintings, specifically furniture and musical instruments, for which craft skills and traditions have a strong bearing on the approaches and practical methods adopted. The treatment examples published here show the evolution and fine-tuning of solutions to a range of practical problems, of which more than a third concern thin or thinned panels. While the majority of panel paintings do not need extraordinary interventions such as those presented here, it is crucial nonetheless that the knowledge and manual skills required to tackle such situations be preserved and further refined so that they are available when the need does arise. Indeed, the transmission of competencies and practical skills to a younger generation of conservators is an essential goal of the Panel Paintings Initiative.

These proceedings, taken as a whole, convey implicitly one of the real challenges of panel paintings conservation—and of paintings conservation generally—that of cultivating in individuals the essential, refined practical skills and judgment needed to carry out complex treatments, and at the same time promoting well-directed scientific research that can guide and inform the practice. It is hoped that the papers in these proceedings inform and inspire new efforts to meet this challenge.

A notable feature of this second panel paintings symposium was the abundance and quality of poster contributions, which added considerable interest to the program of oral presentations. We are pleased, therefore, to be able to honor the contribution the posters made to the symposium by including illustrated abstracts.

As has been mentioned, these proceedings and the symposium “Facing the Challenges of Panel Paintings Conservation” that inspired them are just two components of the Panel Paintings Initiative, a collaboration of three programs of the Getty Trust: the Getty Conservation Institute (GCI), the Getty Foundation, and the J. Paul Getty Museum. The Getty has been aided in its efforts by the Panel Paintings Initiative advisory group, who have generously given their time and expertise and have helped enormously to shape the initiative and its activities: George Bisacca, Metropolitan Museum of Art, and Jørgen Wadum, Statens Museum for Kunst in Copenhagen, the co-chairs of the advisory group; Simon Bobak, Hamilton Kerr Institute, London Studio; Marco Ciatti, Opificio delle Pietre Dure (OPD), Florence; Ian McClure, Yale University Art Gallery; and Paul van Duin, Rijksmuseum, Amsterdam. We look forward to their continued involvement in the project. We also gratefully acknowledge those who have assisted the work of the advisory group: Michael Gallagher, Metropolitan Museum of Art; Mikkel Scharff, Royal Danish Academy of Fine Arts School of Conservation; Anne Haack Christensen, Statens Museum for Kunst; Ciro Castelli, OPD; Rupert Featherstone of the Hamilton Kerr Institute; Ray Marchant, Hamilton Kerr Institute, London Studio; and an expanding number of other experts and institutions that support the goals of this project and

contribute to the development of the various components of the Panel Paintings Initiative.

The symposium and these proceedings would not have been possible without the contributions of the speakers and poster authors, who have drawn upon their experience to help advance the field of panel paintings conservation. Many thanks go to all of the authors for their excellent presentations at the symposium and for all of the work on the papers and posters in this volume that make it exceptional.

For their enthusiastic support of this project in its many parts, we are grateful to Tim Whalen and Jeanne Marie Teutonico of the GCI. To our fellow internal project members—from the GCI, Kathleen Dardes, Sean Charette, and Reem Baroody; Joan Weinstein, Antoine Wilmering, Katie Underwood, and Bryan Fair from the Getty Foundation; David Bomford from the J. Paul Getty Museum—our sincerest gratitude for your efforts and support. We also appreciate the contributions of our Getty colleagues Yvonne Szafran, Tiarna Doherty, Gene Karraker, Laura Satterfield, and Arlen Heginbotham. We acknowledge as well our former colleagues at the Getty: Mark Leonard for helping to renew attention on the structural issues of panel paintings and Foekje Boersma, who shepherded this project in the beginning at the GCI.

The symposium was made possible by diverse helping hands on the two days of the event in itself. We extend heartfelt thanks to: Heather Leisy, event coordinator; Visitor Services, especially DaNetta Rizzo; David Schow, GCI; our audiovisual and facilities staff; and all who contributed to the smooth running of the symposium.

Finally, we would like to offer special thanks to all of those involved in the preparation of this volume for publication, in particular Gary Hespenheide at Hespenheide Design; Cynthia Godlewski and Angela Escobar, GCI; Antony Shugaar, Italian translator; and Jeffrey Levin, GCI, and the Getty Web Group for making this volume and the 1995 symposium proceedings available online.

Alan Phenix  
Getty Conservation Institute

Sue Ann Chui  
J. Paul Getty Museum