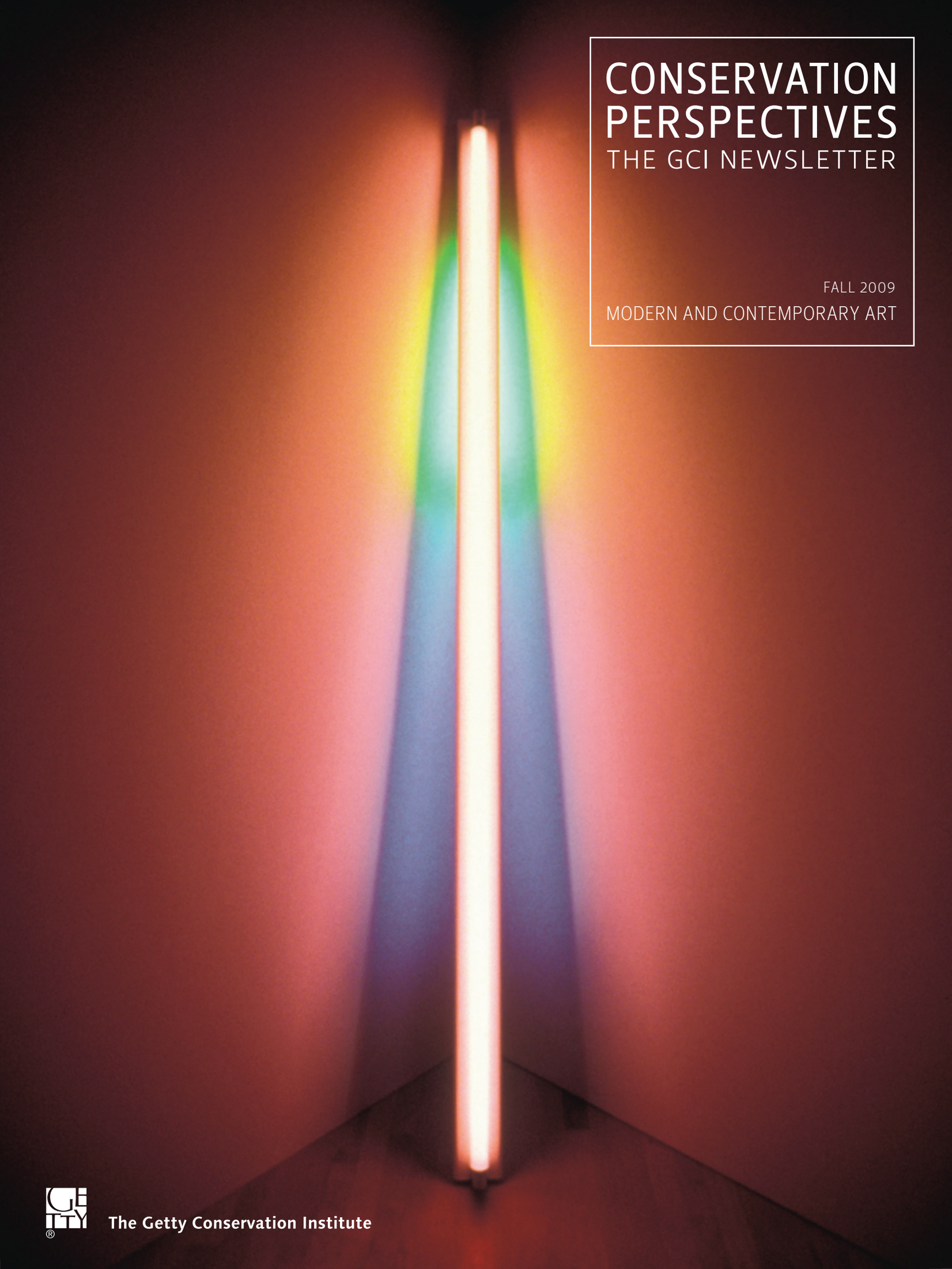


CONSERVATION PERSPECTIVES

THE GCI NEWSLETTER

FALL 2009

MODERN AND CONTEMPORARY ART

The Getty Conservation Institute

A Note from the Director

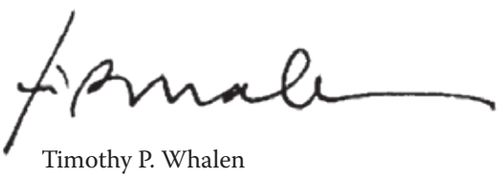
With this edition, the Getty Conservation Institute's newsletter—which first appeared in 1986—takes another step in its evolution. Now called *Conservation Perspectives, The GCI Newsletter*, the publication has been both renamed and redesigned. These changes are the result, in part, of an extensive evaluation of the newsletter conducted last year, which included interviews with conservation professionals and a survey of the newsletter's readership (we are grateful to the hundreds of subscribers who generously provided us with feedback). We hope that *Conservation Perspectives*, in look and content, will further our readers' understanding of the work of the GCI by providing a more in-depth view of our current projects and programs, as well as by offering articles that seek to increase awareness of challenges and advances in the field of conservation. As part of our effort to enhance content, we have added a new section to the publication that provides information on key resources related to the particular theme of each newsletter.

In this inaugural edition of *Conservation Perspectives*, we are focusing on the conservation of modern and contemporary works of art, an important area of research for the Institute and one that in recent years has been consistently flagged by many in the field as a priority. The GCI began its own work in this area in 2002 with research into the identification and cleaning of modern paint materials. Since then, GCI activity in the conservation of modern and contemporary art has expanded to include a new research initiative in the preservation of plastics—including working as a partner in the European Community–funded project POPART (Preservation of Plastic Artefacts in Museum Collections). The GCI is also involved in studies on the conservation of outdoor painted surfaces, which have the ultimate objective of improving protection of outdoor painted works of art from ultraviolet radiation and graffiti. As part of its continuing research on modern paints, GCI has partnered with Tate in London and Dow Chemical Company to identify additional cleaning materials and techniques for artists' acrylic emulsion paints.

In all these efforts, the GCI is working in a multi- and inter-disciplinary way with partners that offer a variety of skills and expertise. While most areas of conservation would benefit from this approach, many in our profession believe that this type of collaboration is essential for tackling the broad range of conservation issues generated by modern and contemporary works of art.

Several different aspects of our work are described in this newsletter edition, including the scientific study of materials being used by artists, research into the effects of conservation treatments on those materials, the exploration by conservators and curators of some of the complex ethical issues we now confront in conservation, the role of training and education in advancing conservation practice, and new avenues for efficient and effective dissemination and information sharing.

The core of the GCI's mission is to advance the practice of conservation in the visual arts. The publication of *Conservation Perspectives*—and the examination of important issues in conservation that it offers—is one of the ways in which we seek to fulfill that mission.



Timothy P. Whalen

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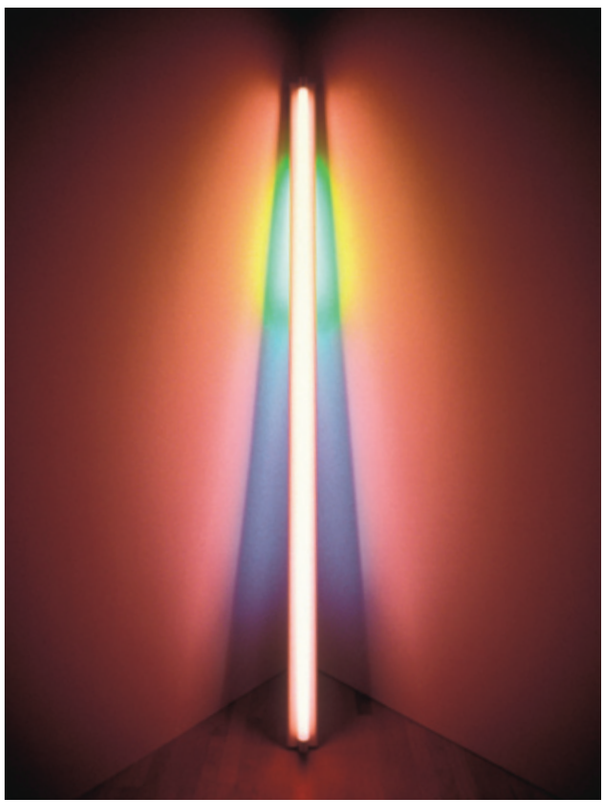

ON THE COVER
Dan Flavin, *Untitled*, 1976. Pink, green, and blue fluorescent light, 8 ft. (244 cm) high leaning. Dan Flavin Art Institute, Bridgehampton, New York. Fluorescent tubes are no longer widely available in the diameters or colors used by Flavin. Although tubes can be custom-made and stockpiled, this technology will likely become obsolete, posing a long-term challenge for conservators of Flavin's works. Photo: Florian Holzherr. Collection of Dia Art Foundation. © 2009 Stephen Flavin / Artists Rights Society (ARS), New York.

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MODERN AND CONTEMPORARY ART

New Conservation Challenges, Conflicts, and Considerations

BY THOMAS J. S. LEARNER

Those charged with devising conservation strategies for collections of modern and contemporary art are likely to experience frequent bouts of overwhelming anxiety. Simply put, where does one start? The number of materials that artists have used over the last seventy-five years must be little short of infinite, and for each of those different materials, there is only, at best, limited—and, more usually, nonexistent—knowledge of the ways in which they might alter with age, respond to different environmental conditions, or react to any number of potential conservation treatments.

We also already know that several modern materials are inherently unstable and can quickly show signs of deterioration, such as the cellulosic plastics—cellulose nitrate and cellulose acetate—used by Naum Gabo and Antoine Pevsner in their early twentieth-century sculptures, although many conservators and art historians would also point to the polyester resins and synthetic latexes utilized by Eva Hesse. The deterioration in some of these works is so catastrophic—resulting in a complete loss of structural strength—that they can only be seen lying flat on their backs in a manner not completely dissimilar to a corpse in a coffin. Taking this subject of inherent vice in materials a step further, major issues must be confronted with works incorporating technologies that will become obsolete—for example, the fluorescent lamps of Dan Flavin or the cathode-ray tubes in time-based media work. And then there is Web art, a medium that can disappear offline at any moment.

Modern and contemporary art also presents complex ethical and philosophical conservation issues—for example, the conflict between conceptual, intangible values in works of art and the sanctity of the original materials. Frequently debated within the profession is how one balances the *intention* of the artist with more conventional conservation values. An artist's intention has always been an important consideration in the conservation of art, but things are definitely different with contemporary art: with the artist still alive—or only recently passed on and with an active estate—his or her voice is far stronger. But should an artist's opinion be given so much weight? Or would it, in fact, be more appropriate to consider it as one voice among many?

There is also considerable pressure by today's society to deny any sign of aging in these pieces—even aging that might be classified as natural. This trend has the unfortunate ramification that a pristine work might be valued so highly that there is pressure to consider conservation interventions at a much earlier point than they would traditionally be undertaken. One might, therefore, think it best to slow down all potential deterioration and apply the most stringent preventive conservation measures. But perhaps contemporary art loses so much relevance in ten years' time that it should be actively displayed, experienced, and documented instead, so that what is passed on to the next generation is a detailed record of its existence during its early life.

POTENTIAL RESPONSES

Despite these complexities, choices have to be made and priorities set. But should we pour significant resources into attempting to save a few notable works, or should we instead spread those resources more broadly to impact a larger proportion of the art being created? As with most areas of conservation, the best approach is probably "a bit of both."

In June 2008 the Getty Conservation Institute organized a three-day meeting of professionals involved in all areas of modern and contemporary art conservation, challenging them to identify and classify the significant issues they were dealing with and to propose potential responses. Despite the inherent difficulties in condensing this broad discussion into an organized and comprehensive report, a document[1] was

LEFT: Sam Francis, *Untitled*, 1978 (SFP78–18). Acrylic on canvas, 90 1/8 x 66 in. (228.9 x 167.6 cm). Collection of Jonathan Novak Contemporary Art, Los Angeles. Photo: Brian Forrest. © 2009 Samuel L. Francis Foundation, California / Artists Rights Society (ARS), New York.

produced that laid out a series of potential steps for the profession to consider in its approach to this area of conservation. What follows are brief reflections on some of the issues and responses discussed.

Research

Scientific research can play a critical role in identifying various materials and, perhaps an even more important role—determining degradation mechanisms and causes. However, an enormous amount of research is needed to gain a meaningful level of knowledge for each type of material; for example, our understanding of the drying mechanism of oil paint and its sensitivity to solvent cleaning is the result of over thirty years of research. So we need to acknowledge that reaching a significant level of understanding in all new materials is unattainable. That said, there have been notable advances in recent years in our knowledge of some of the materials used in modern and contemporary art—in particular, modern paints. And it is encouraging to see the emergence of large-scale collaborations in which multiple institutions pool their resources to investigate plastics and other materials.

One specific need that is likely to become greater is the development of techniques to assess the condition of works of art in situ—techniques such as the microfader for determining the relative light sensitivity of any colorant on an object. In the same way, it clearly would be useful to determine the level of oxidation or deterioration in individual objects, instead of just identifying the materials used.

Modern and contemporary art presents complex ethical and philosophical conservation issues—for example, the conflict between conceptual, intangible values in works of art and the sanctity of the original materials.

Conservation Practice and Treatment

Conservators are often required to carry out treatments on modern and contemporary artworks without the desired level of understanding of the materials or processes themselves and without knowledge of the long-term consequences of their use; the result is a limited range of appropriate materials and treatment options. In such situations conservators might be reluctant to execute treatments—and fewer treatments, in turn, mean that future generations of conservators may have fewer case studies on which they can establish the success or failure of treatments. Although it may seem prudent to wait for scientific research to develop a tried-and-true method for conservation treatments before they are applied, in reality there is little chance of this happening. It is far more likely that the profession will progress when more conservators are able to describe treatments and decision-making processes honestly.

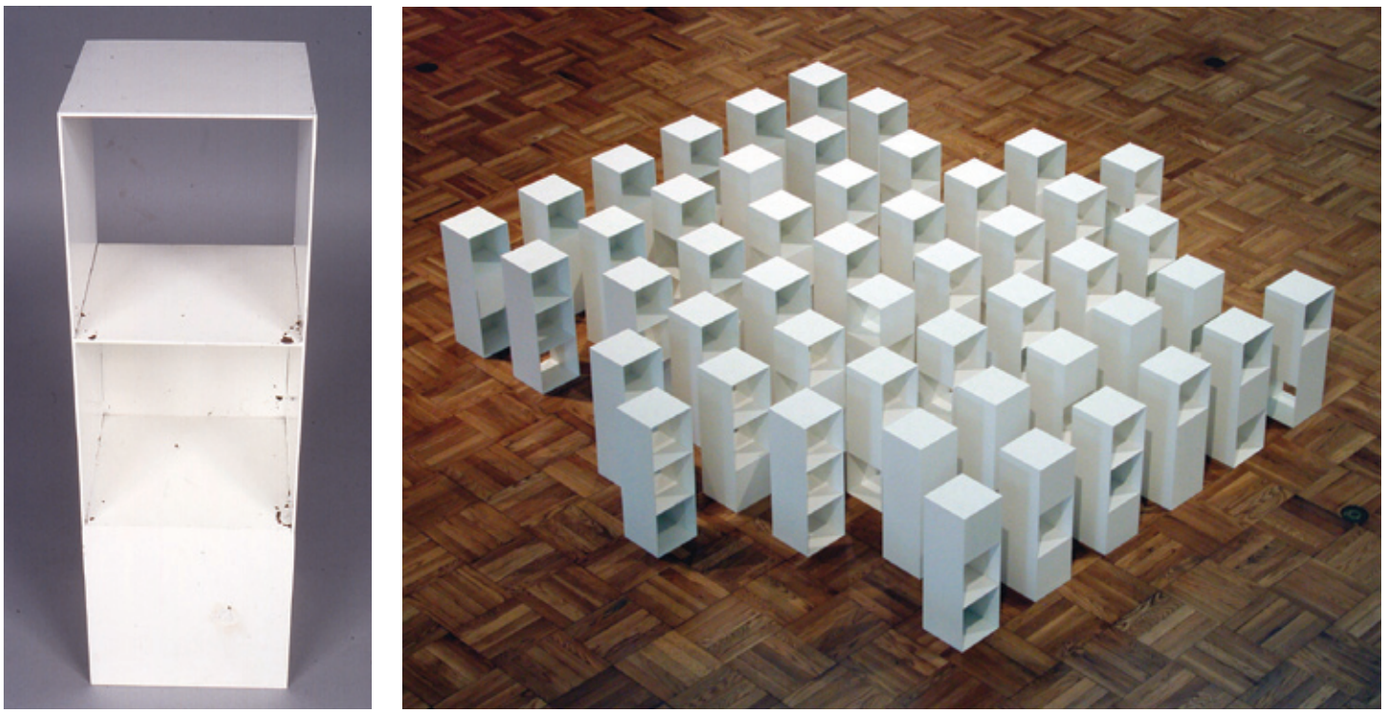
Would it not be better to encourage a range of approaches and treatments and to monitor the long-term effects of conservation treatments? But how do we encourage creativity and variation in approaches without trampling on ethics? For example, if it becomes necessary to sacrifice a small amount of white primer in order to remove a set of disfiguring and ingrained finger marks, would conservators tolerate (and admit to) a degree of primer removal in order to achieve the aesthetic benefits of an unblemished surface on a painting?

Redefining Our Roles

The fields of conservation and art history have traditionally relied on the authority that each brings to an artwork's meaning and to an understanding of its physical nature. With contemporary works, not only is there a curatorial/conservation blur when it comes to questions of meaning and material, but there is also a natural concern, on both sides of the profession, about shutting down interpretive possibilities for recently created works. A more active interdisciplinary dialogue among art professionals—especially between art historians and curators—is needed. These discussions should be guided by a highly informed conservator who can oversee treatments, bring context and a balanced overview to a particular problem, and engage the technical expertise that is needed, whether it be a structural engineer to keep a Richard Serra sculpture standing, a computer technician to establish guidelines for mastering digital art on servers, or a professional paint sprayer to recoat without error a Donald Judd sculpture.

The Artist's Intent

Inevitably searching for clarity and, ideally, consensus, conservators will often elicit the opinion of the artist. However, this approach is not without complexity or pitfall, and the potential for confusion and conflict is massive. The artist may prefer a treatment that compromises professional precepts, for example, or express uncertainty regarding possible solutions. We now



Sol LeWitt, *49 Three-Part Variations on Three Different Kinds of Cubes*, 1967–71. Enamel on steel, 49 units, each 23 5/8 x 7 7/8 x 7 7/8 in. (60 x 20 x 20 cm). Allen Memorial Art Museum, Oberlin College, Oberlin, Ohio; Fund for Contemporary Art, 1972. LEFT: Detail of one of the units. RIGHT: Post-treatment installation view. The discoloration and cracking affecting 33 of the units was deemed sufficiently antithetical to the artist's intent of a perfectly white, unblemished surface that removal and reapplication of the enamel was considered a justifiable treatment. © 2009 The LeWitt Estate / Artists Rights Society (ARS), New York.

recognize that attitudes change throughout an artist's lifetime; an artist may be intentionally or unwittingly deceiving; and artists' responses may differ depending upon how—and under what conditions—they are interviewed.

Is the artist always right? Or should we accept that an artist's intent can never be known with complete confidence? Of course, the middle ground of "it depends" has enormous value, and the profession does seem to be evolving sensibly in that direction. For example, it is becoming much less common to hear conservators speak of an *artist's intent* as a defined concept without parameters, and it is even less likely for that notion to be the driving force behind a treatment without this intent first being put into a broader context.

Documentation

In recent years, much emphasis has been placed on documenting works thoroughly, and this is especially true for modern and contemporary art. Given the complexities faced by the profession over how to conserve these artworks, the very least we can do is provide the next generation with as much information as possible about the works themselves—although the danger here, of course, is that with more focus on documentation, less time will be spent on treatments and other research. There are certainly many aspects of a work of art that we could document—and this challenge is most obvious for installation art. Several new parameters could, and probably should, be measured, such as light, sound, motion, time, and surfaces (including three-dimensional surfaces), in a process building on parameters explored in the Inside Installations project.[2] Unfortunately, for many of these aspects, techniques do not yet exist to measure them.

THE WAY FORWARD

Perhaps we are simply too close to the creation point of contemporary art to predict what aspect of it will be most valued in the future. Will it be reinstatement of the pristine surface of a minimalist sculpture that has been stripped and repainted repeatedly in order to preserve the formal integrity of the object? Or will the slightly discolored or cracked paint that happens to be the original coating turn out to be the valued element? And will replicas become more commonplace for displaying works that have long since deteriorated into states totally unrecognizable from the originals? Unable to predict the future, the conservation profession cannot assume the determining role at this moment. Rather, it is our responsibility to digest as much information as possible now and then to proceed in a manner that acknowledges and respects the unanswerable questions through diligent discussion and avid documentation.

Despite the complexities and uncertainties, there do seem to be avenues of inquiry that should enable the field to establish a framework that will benefit future generations of conservators. Scientific research must continue within a tightly connected network of researchers, so that discoveries are quickly shared and duplication in research is minimized. Conservators can and should play a far more active role in shaping research, as their

Janine Antoni, *Lick and Lather*, 1993–94. Chocolate and soap, 21 3/4 in. (55.2 cm) high, dimensions variable. Hirshhorn Museum and Sculpture Garden, Smithsonian Institution, Joseph H. Hirshhorn Bequest Fund, 2001. The materials used in this work are emblematic of the nontraditional materials whose aging properties and vulnerabilities are not yet fully understood by conservators. Photo: Lee Stalsworth. © Janine Antoni.

practical and theoretical input has been crucial in developing conservation strategies and treatments for materials in the past. As a profession of practitioners, we learn from our mistakes as well as from our successes, and there is no doubt that greater tolerance for trying different approaches to specific problems will ultimately improve our knowledge of how best to care for contemporary art.

The challenges are so varied, so unprecedented, and so unpredictable that—despite the anxiety—there cannot help but be a glint of pure excitement in the eyes of caretakers of modern and contemporary art. This is an area of conservation that requires—and will continue to require for a long time—a combination of cutting-edge research and difficult practical compromises, confrontation of ethical dilemmas, and constant innovative thinking. We are regularly faced with the responsibility of conserving highly important works of art—benchmarks of our contemporary culture—at a time when we lack professional consensus on what exactly to preserve and how exactly to preserve it.

Alarming? Yes! But what an incredibly exciting position to be in.

Thomas J. S. Learner is a GCI senior scientist. He heads the Institute's research on the conservation of modern and contemporary art.

For more information regarding the GCI's work in the conservation of modern and contemporary art, visit the Science Section of the GCI Web site at www.getty.edu/conservation/science/about/macar.html.

1. www.getty.edu/conservation/science/modpaints/modpaints_cimca.html.
2. www.inside-installations.org.

A Personal Reflection

BY CAROL MANCUSI-UNGARO

> *Art history only begins after the death of the work, but as long as the work lives, or at least in the first fifty years of its life, it communicates with people living in the same period who have accepted it or rejected it and who have talked about it. These people die and the work dies with them.* —Marcel Duchamp[1]

The notion that art can live only among the generation that created it would be hotly and justly debated by art historians and conservators. However, before we completely dismiss Duchamp's claim, let us consider the nature of preserving old masterpieces versus preserving modern and contemporary works of art. Imagistic art that dominated our history is readily recognizable. We can describe what is portrayed in concrete terms, and sensitive viewers may even empathize with the artist's creative impulse or at least respond in some expected way to the recognizable form. The work may evoke memories of a related experience or meaning implied by iconographic symbols, or it may offer enjoyment of unquestionable beauty. For instance, generations of worshippers and non-worshippers alike who make pilgrimages to the Sistine Chapel in Rome are awed by the staggering evocation of eternally felt humanity that Michelangelo distilled in paint on the ceiling of the pope's chapel. Few leave unmoved. Thus, we may conclude that at least imagistic art does not die with the generation that produced it, as evidenced by our continued devotion to the art of our gifted progenitors.

As a matter of course, conservators rely on familiar criteria to spawn our engagement with art, and we use those clues to structure the nature and the extent of our involvement. We draw on our visual experience to determine intuitively how the object should look. We codify artistic devices favored by an artist, and we depend upon our technical expertise to preserve the *artist's intention*, of which we are relatively certain because the image is known. The customary materials that shape it may be altered but are essentially unchanged. Thus, we can lighten, brighten, consolidate, or otherwise improve the impression within justifiable parameters.

What happens when the art we are asked to preserve is *not* recognizable, when we are confused by competing and often arbitrary forms, or when we cannot readily identify a familiar impression or emotional response? How do we, the arbiters of

visual clues, proceed when the defining feature may be hard to ascertain? We can usually determine that a particular physical element has changed by comparison with virgin examples. From scientific inquiry, we can even decipher the composition of a material and the presumed mechanism of deterioration. However, if we never saw the physical object in its youth, we may err in thinking that an intentionally stressed and aged bit of material was pristine at the outset. The incorporation of nontraditional artistic materials in unpredictable states of decay within art not universally understood or viscerally appreciated certainly complicates our charge to preserve. This is not to suggest that the treatments are more difficult but that the decisions of what or whether to treat can be more complex and are often without precedent. Ultimately, the physical matter may be conserved, but the motivation of the artist and the response of the viewer may be fatally impaired.

Perhaps this is what Duchamp was suggesting. When my twenty-something students stand in front of a 1950s Rauschenberg combine, for instance, some see only an antique. They do not delight—as I do—in the audacity of an artist who wed ordinary but incongruous materials for visual effect. They are beyond the "first fifty years" in Duchamp's conceit, while I am not. They did not experience the initial punch of the work, and now the aged materials have drastically affected its impact. Thus, in a certain way, the work dies—or so it would seem. Barnett Newman once asserted, "What I'm saying is that my painting is physical and what I'm saying also is that my painting is metaphysical. What I'm also saying is that my life is physical and that my life is also metaphysical."[2] When the immaterial in art depends so much on the physical state of the material (instead of by association or through recognition), then maybe the immaterial inevitably changes with the material? Short of actual re-creation, the restoration of a work's original impact requires historical knowledge that at best becomes a "semantic" reconstruction.

Most artists wish to retain the initial impact of their art. Some entertain the notion of acceptable aging and often appreciate a museum's commitment to historicity, even though privately they may prefer to rework the piece. Naturally, this may not be said for all artists in every instance. As the esteemed British conservator Herbert Lank once shared with me:

> I read with interest the discussion on "Time and Change" in the Getty Conservation [Institute] newsletter. On your point about Joseph Beuys possibly not wishing to have his fat and lard look older with time, I recalled a case on this about 35 years ago when I used to deal with accidental damage to contemporary works of art, which each time involved finding new solutions. [An auction house] had received for sale a construction by Beuys of a German U shaped knackwurst suspended from a rod by shoelaces. Unfortunately the Dutch owners had taken it off the wall overnight before packing. On returning in the morning to do so, they found that a large chunk had been bitten out of the base: their parrot was lying dead on the floor.
>
> Joseph Beuys, when asked about what to do, replied that a new sausage would not be a solution because the original was by then 10 years old, and that the "patina" was an essential element of the work.[3]

Lank meticulously restored the missing part.

This example, among countless others, demonstrates that conservators are not averse to replacing deadened or lost parts of a recognizable scheme. However, with some abstract contemporary works of art, when the impaired effect is overall, we struggle for an approach. Without benefit of established parameters for our intervention, we cannot arrive at a professional consensus concerning our diverse and uncharted re-creations. Furthermore, with the life span of materials often deliberately short, we must decide whether to attempt preservation at all, allow degradation, or embrace replication.

How can we preserve the life of the immaterial effect when the proprietary material was not made to last? Are the two inextricably tied in a knot that only the artist can fashion or undo? Maybe, in such instances, the original will remain only as an idea. Perhaps that is inevitable when materials are impermanent—but then, no materials are permanent. Maybe we must reconfigure categories of objects and even postulate that if the artist's hand never was of paramount importance to the work, then preservation may mean astute re-creation. We would then be restoring the immaterial through new material means, and that may be, certainly in terms of degree, a distinct break with the past.

Carol Mancusi-Ungaro is associate director for conservation and research at the Whitney Museum of American Art, and founding director of the Center for the Technical Study of Modern Art at the Harvard Art Museum.

1. Duchamp, in a filmed interview with Jean Antoine, 1966. Printed in the *Art Newspaper*, no. 27 (April 1993): 16. Unable to locate the original source of this quote, I may be using it out of a context that would have altered my interpretation of its meaning. However, that does not diminish its significance in the current argument.
2. Newman, "A Conversation: Barnett Newman and Thomas B. Hess," in *Barnett Newman: Selected Writings and Interviews*, ed. John P. O'Neill (New York: Knopf, 1990), 280.
3. Herbert Lank to Carol Mancusi-Ungaro, Jan. 8, 2003.

POPART

An International Research Project on the Conservation of Plastics

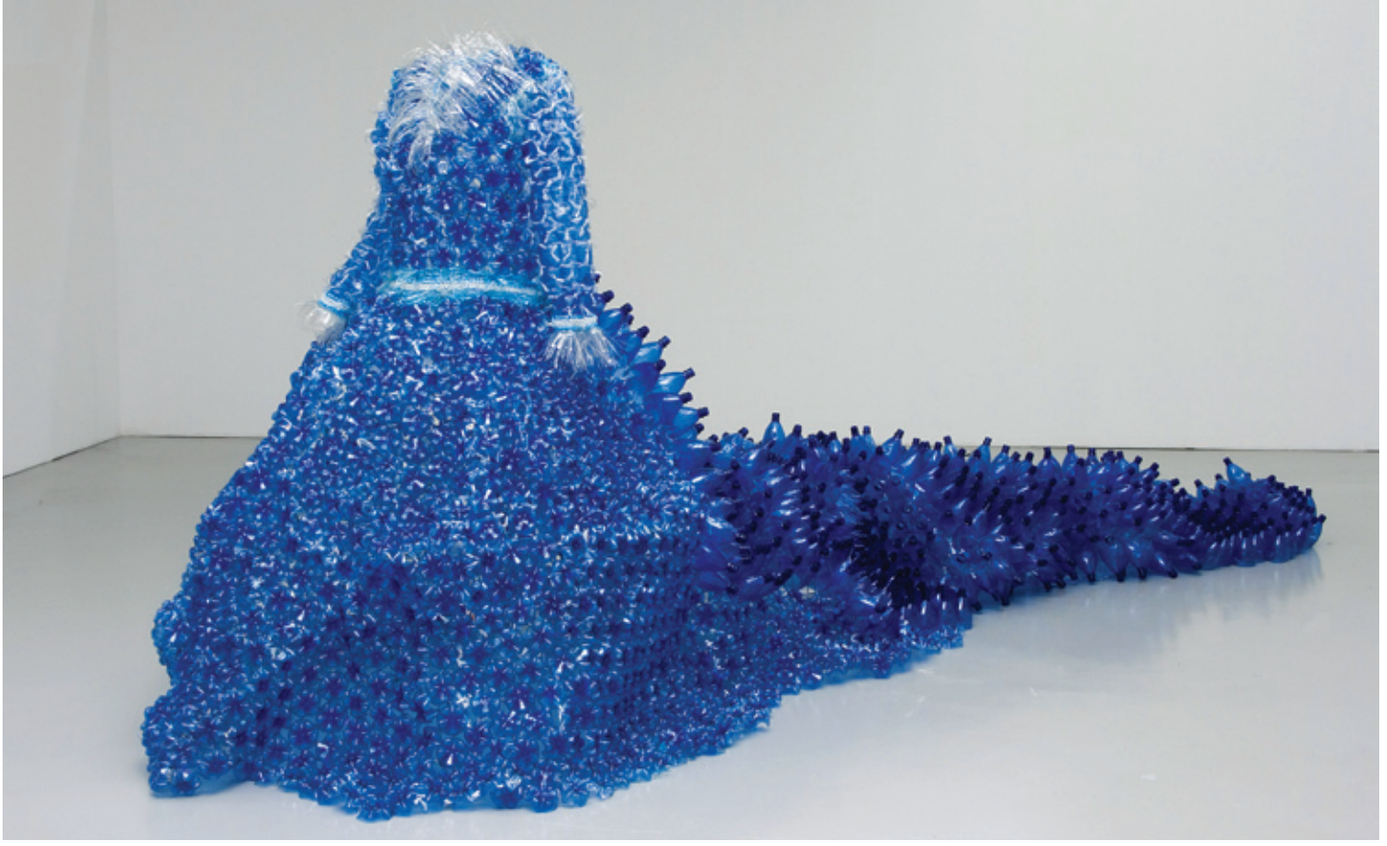
BY BERTRAND LAVÉDRINE, RACHEL RIVENC, AND MICHAEL SCHILLING

Antoine Pevsner, *Portrait of Marcel Duchamp*, 1926. Cellulose nitrate on copper with iron, 65.4 x 94.0 cm (25 3/4 x 37 in.) Yale University Art Gallery. Gift of Collection Société Anonyme. The work's originally clear plastic components now show extreme signs of degradation, including warping, cracking, and discoloration, which exacerbated corrosion processes in the metal pieces. Photo: Yale University Art Gallery. © 2009 Artists Rights Society (ARS), New York / ADAGP, Paris.

FOLLOWING THEIR INTRODUCTION at the end of the nineteenth century and their rapid proliferation since the 1950s, plastics have touched every facet of modern life. Their extraordinary versatility, together with the possibilities they offer for experimentation, have made them very attractive materials for designers, architects, and artists. Objects made wholly or in part from plastic form a significant area of modern and contemporary cultural heritage, including Enrica Borghi's *Vestito Blu* (2005), a spectacular piece made from bottles of mineral water and plastic bags.

Unfortunately, many plastics deteriorate rapidly due to irreversible chemical reactions, leading to a number of dramatic physical changes: discoloration, opacification, loss of gloss, crazing, cracking, warping, sagging, becoming sticky, crumbling, and powdering. Antoine Pevsner's *Portrait of Marcel Duchamp* (cellulose nitrate on copper with iron), for example, shows many of these forms of degradation. Interestingly, many of the plastic objects that exhibit more pronounced deterioration are made from just four specific classes: cellulose nitrate, cellulose acetate (both of which are probably present in the Pevsner piece), polyvinyl chloride (PVC), and polyurethane. However, other classes may also become problematic with time; even objects that appear to be in pristine condition and exhibit no visible signs of damage may still be at risk. This is because some mechanisms of plastic deterioration have been shown to include relatively long induction periods during which they appear largely unchanged, followed by rapid deterioration. Experienced conservators of plastic objects know all too well that appearances can, indeed, be deceiving.

Knowledge about the composition and aging of synthetic polymers—of paramount importance to curators and conservators entrusted with the care of plastic objects—is often not readily accessible. Despite some excellent individual studies into these issues, there is scant collective experience in dealing with these objects, few insights into the nature and use of modern materials in artworks, and no generally accepted criteria and methods for solving the conservation problems they pose. Thus, there is an urgent need for obtaining and disseminating information on the material composition, physical and chemical properties, and aging behavior of a range of plastics—information crucial for devising strategies to slow deterioration rates and for assessing treatment options and their potential long-term impact on plastic objects.



Enrica Borghi, *Vestito Blu*, 2005. Mineral water bottles and plastic bags, Plexiglas, 220 x 220 x 675 cm (85.8 x 85.8 x 263.3 in.). Collection Mamac, Nice. Photo: Muriel Anssens. © Enrica Borghi.

A RESEARCH CONSORTIUM

In recognition of these significant needs, the Getty Conservation Institute has joined a consortium of European institutions and laboratories, all of which are involved in the care or study of modern and synthetic materials, to develop and execute a three-year European Commission–funded project entitled Preservation of Plastic Artefacts in Museum Collections (POPART). Coordination and management of the project are orchestrated by the Centre national de la recherche scientifique (CNRS) through the Centre de recherche sur la conservation des collections (CRCC) in Paris. Other partners include the Centre de recherche et de restauration des musées de France, the Victoria and Albert Museum (United Kingdom), the Istituto di Fisica Applicata "Nello Carrara" (Italy), the Instituut Collectie Nederland (Netherlands), the Polymer Institute of the Slovak Academy of Sciences (Slovakia), Arc-Nucléart (France), SolMateS BV (Netherlands), Morana RTD (Slovenia), University College London (United Kingdom), and the National Museum of Denmark.

The main objectives of POPART are to identify the principal risks associated with the exhibition, cleaning, protection, and storage of plastic artifacts, and subsequently to develop a strategy to improve the preservation and maintenance of three-dimensional plastic objects in museum collections. More specifically, the POPART project focuses on four key research areas:

Analysis of Plastics

Identifying the type of material from which an object is made is often a prerequisite to decisions about its conservation. This step is critical for plastic objects because synthetic polymers exhibit such widely different stabilities and deterioration patterns. A particular conservation intervention might be appropriate for one type of polymer but have disastrous consequences for another.

One of the main objectives of POPART is to develop and evaluate a range of analytical tools and methodologies for identifying as many classes of plastics as possible, initially with a set of one hundred reference samples assembled for the POPART project and circulated to each partner institution. Priority will be given to noninvasive analytical techniques (those that do not require sampling), such as near infrared spectrometry (NIR), Raman spectrometry, and Fourier-transform infrared spectrometry (FTIR), and especially to those techniques that offer handheld portable devices, as these open up the possibilities of rapid, on-site surveys of large collections. Minimally invasive techniques, which require the smallest of samples, such as pyrolysis–gas chromatography/mass spectrometry (Py-GC/MS), will also be included because of the high level of detail they can provide on the chemical composition of the sample. The GCI is coordinating an interlaboratory round-robin evaluation of data reproducibility and efficiency of the different methods for characterizing plastics. One practical outcome of this study will be a collection of analytical databases shared by the research partners.

Collection Surveys and Condition Monitoring in Museum Collections

Another important objective will be the identification and documentation of typical deterioration patterns in plastic objects—

such as discoloration, change in opacity, crazing, cracking, changes to surface texture, and distortion. Documentation methods and condition reporting tools currently used for surveying collections will be compared and combined to create a single survey form. This will be used to survey a number of plastic collections in museums, including the Victoria and Albert Museum in London and the Museum of Modern and Contemporary Art in Nice. The aim is to document deterioration systematically and consistently, thereby allowing more direct comparison between the collections surveyed. Noninvasive spectroscopic characterization of the polymers in objects will also be performed as part of this process, and the focus will then turn to monitoring volatile products off-gassed by a group of selected objects and analyzing materials deposited on their surfaces.

Assessing Polymer Degradation

Studies into the degradation mechanisms of plastics and their ramifications generally require longer periods of investigation than the three-year timetable of the POPART project. However, some classes of plastics are far more problematic than others (i.e., cellulose plastics, PVC, and polyurethane) and require immediate attention. Degradation pathways for the two cellulose plastics have previously been investigated by those responsible for the conservation of early motion picture film. It is unclear, however, how much of this information can be applied to the study of three-dimensional objects, given the differences in composition between cinematic film and bulk polymer. In the case of PVC and polyurethane, a great deal of research is still needed on the influences of humidity, temperature, and oxygen on deterioration rates. Off-gassed volatile compounds will be studied in order to assess risks to museum collections as well as to museum staff. The GCI will apply several thermal analysis techniques to monitor polymer degradation and to track changes in the mechanical and thermal properties of polymers with aging.

Part of the sample collection of 100 reference plastics shared by POPART partners for comparison and assessment of different analytical techniques. Photo: Rachel Rivenc, GCI.

Evaluation of Conservation Treatments

One of the most complicated areas in conservation is the assessment of treatments, yet this is a primary concern for conservators. The POPART project felt it was important to include an aspect of conservation treatment within the scope of the project, and it was decided to concentrate on two very different treatments: cleaning and consolidation. As with all works of art, plastic objects eventually require surface cleaning, but very little is known about the effects of various cleaning materials on plastics, apart from the fact that many organic solvents can dissolve plastics. A systematic study on a small subset of plastics will therefore be executed to study various cleaning methods and to assess their potential for damage on those polymers. Highly experimental methods of consolidation will also be assessed for very fragile and deteriorated artifacts—in particular the use of in situ gamma ray polymerization.

One of the most important aspects of POPART will be the dissemination of research results to other conservation professionals. This will happen periodically throughout the duration of the project, through journal articles and conferences as the primary mechanisms, and through regular updates at the project Web site (popart.mnhn.fr/).

GCI COLLABORATIONS

The POPART project, which constitutes a major part of the GCI's research into the preservation of plastics, will involve six Institute scientists: Michel Bouchard, Herant Khanjian, Tom Learner, Alan Phenix, Rachel Rivenc, and Michael Schilling, as well as GCI Postdoctoral Fellow Emma Richardson.

In addition to POPART, the GCI has initiated a close collaboration with the Getty Research Institute to investigate various plastics and resins used by Finish Fetish artists of 1960s Los Angeles, whose work will be featured in the exhibition *Pacific Standard Time: Art in Los Angeles 1945–1980*, to be held at the J. Paul Getty Museum in 2011. The GCI is also collaborating with a number of other institutions on plastics research, including the Los Angeles County Museum of Art, Yale University Art Gallery, the Smithsonian Museum Conservation Institute, and the Disney Animation Research Library.

Bertrand Lavédrine is director of the Centre de recherche sur la conservation des collections (CRCC), Paris. Rachel Rivenc is a GCI research lab associate. Michael Schilling is a GCI senior scientist.

For more information on the GCI's research into plastics, visit the Preservation of Plastics section of the GCI Web site at www.getty.edu/conservation/science/plastics/index.html.

CLEANING ACRYLIC EMULSION PAINTINGS

BY BRONWYN ORMSBY AND ALAN PHENIX

David Hockney, *A Bigger Splash*, 1967. Acrylic on canvas, 96 x 96 in. (243.8 x 243.8 cm). Collection of Tate, London. Photo: Richard Schmidt. © David Hockney.

SINCE THEIR INTRODUCTION IN 1956, waterborne acrylic emulsion paints have been widely adopted by artists. These paints offer a range of technical differences in relation to traditional oil paints, including rapid drying, versatility, durability, and an ability to be thinned with water—properties exemplified in David Hockney's *A Bigger Splash*, where the paint was applied directly to bare canvas and could be repeatedly applied wet-on-dry in multiple layers to produce a crisp painting in pure, clean color.

However, as with all new materials used in art, targeted research has become increasingly important in order to determine appropriate conservation strategies, a fact not lost on Hockney himself:

> Oil paint has been used by artists for six hundred years, so modern conservators have six centuries of experience to draw on and develop. Acrylics, on the other hand, are little more than half a century old. It is extremely important and very welcome that . . . research into the future conservation of these relatively new materials is being done now to ensure these artworks will be kept in good condition for centuries to come.[1]

In contrast to traditional oil paintings, acrylic emulsion paintings are rarely varnished; as a result, airborne dust and dirt deposit directly onto the paint surface, building up over time. Eventually, this process may compromise the painting's appearance to such a degree that cleaning is warranted.

Surface cleaning of acrylic emulsion paintings can be difficult for a variety of reasons. Often the surfaces are delicately nuanced, and even the very slightest alteration—such as burnishing, tidelines, or a roughening of the surface—can critically influence appearance and coherence. These paints are generally soft at room temperature, and dirt can become firmly ingrained—in the worst case, possibly permanently embedded in the paint surface—hence the margin between successful dirt removal and damage to the paint film can be slim. Dirt deposition can also be exacerbated by greasy deposits on the surface, such as skin oils resulting from improper handling; indeed, the presence of tenacious dark finger marks is not uncommon with acrylic paintings. Artists' acrylic emulsion paints are also sensitive to a wide range of liquid agents commonly used for surface cleaning, and can be vulnerable to swelling and pigment removal. One of the key challenges, therefore, is to find cleaning agents which avoid or minimize this risk, but which are also effective at dirt removal.

In addition, conservators faced with cleaning acrylic emulsion paintings must consider important practical and ethical

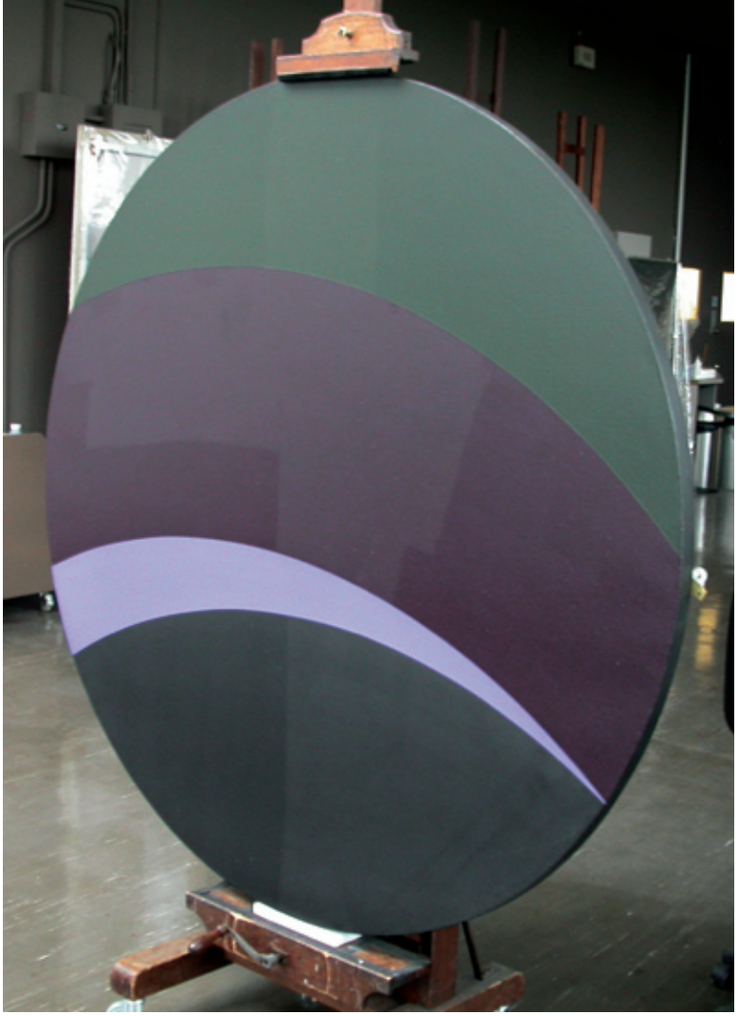
questions, such as the impact of cleaning treatments on any surfactants (detergent-type substances) that may be present as original constituents of the paint. The consequences of the removal of surfactant during cleaning have been explored to some extent; however, secure and consistent perspectives have yet to be developed. It is known that surfactant originally present in the paint can migrate and collect at the surface, where it may contribute to the retention of surface dirt, and that the removal of surface dirt can also result in the removal of this original surfactant material. Practitioners have not universally agreed whether this removal is desirable or acceptable. The long-term effects of such cleaning treatments remain uncertain.

In light of the complexities and difficulties confronting conservators working in this area, the Getty Conservation Institute (GCI) has embarked on several collaborative initiatives aimed at improving understanding of, and practical approaches to, the cleaning of works of art made from acrylic emulsion paint media. A partner in these efforts has been Tate in London.

RESEARCH AND COLLABORATION

Since 2003 scientists at Tate have been characterizing the surfaces of acrylic emulsion paints and exploring the consequences of surface cleaning treatments. A paper delivered by Tate and GCI scientists at the "Modern Paints Uncovered"[2] conference at Tate Modern in 2006 (coorganized with the GCI and the National Gallery of Art in Washington, DC) presented observations on the gradual buildup of surfactant on paint surfaces over time and on its subsequent loss through light exposure and water-based cleaning treatment. Assessment of bulk paint film properties such as stiffness, softness, and flexibility demonstrated that these physical properties were not significantly altered by water-based cleaning treatments, and that non-water-based systems (such as simple hydrocarbon solvents) did not remove surface surfactant. More recent research forming part of the Tate AXA Art Modern Paints Project has involved evaluating the surface cleaning treatment of five paintings from Tate's collection dating from 1962 to 1973.[3] Examination of these works of art has demonstrated that surfactant is not always present on painting surfaces, and that currently used cleaning systems will at least partially remove any surface surfactant present, often resulting in a slight increase in surface gloss.[4]

An opportunity to advance research into the cleaning of acrylic paintings arose in early 2008 when scientists at the Dow Chemical Company, based in Midland, Michigan, approached the GCI about establishing a collaborative research project on modern artists' paints. With the acquisition of Rohm and Haas Paint and Coating Materials in April 2009, Dow became one of the world's largest manufacturers of base latexes for acrylic house paints, as well as many other raw materials used in architectural and industrial paints, fine-art acrylic paints, cleaning products, and conservation materials. In spring 2008, GCI scientists Tom Learner and Alan Phenix began working with Dow research chemist Melinda Keefe and Tate conservation scientist Bronwyn Ormsby on a project to explore the potential of Dow's high throughput (HTP) testing and analysis facilities for developing cleaning formulations for the removal of dirt from artists' acrylic emulsion paint films.



Alexander Liberman, *Andromeda*, 1962. Acrylic on canvas, 1650 x 1650 x 40 mm (64.4 x 64.4 x 1.6 in.). Presented by the Montargent Foundation, 1964. Rotated oblique view of the painting in Tate's conservation studio during surface cleaning as part of the Tate AXA Art Modern Paints Project. This image highlights the differences between the cleaned (darker) areas and the lighter areas that have yet to be cleaned. Photo: © Tate, London 2009. © The Alexander Liberman Trust.

The goal of the project with Dow is to contribute to the development of frameworks for the selection of liquid cleaning agents for the removal of surface dirt from artists' acrylic paints—specifically, to identify effective cleaning formulations with low damage potential (i.e., risk) to paints of this type. High throughput research at Dow involves automated material handling, data handling and management, statistical design, analysis methods, and visualization tools that are used in parallel to increase dramatically the speed and success of their research and development programs. This methodology has been applied in many areas of Dow's research and development activity, including identification of catalysts for the production of plastics, formulation design for paints, and cleaners for hard surfaces and fabrics.

The initial outcome of this collaboration has been the development of methodologies for the rapid discrimination and screening of the cleaning efficacy of possible cleaning liquids, and for the evaluation of the effects of these liquids on representative test samples of artists' acrylic emulsion paints. Broadly speaking, the test method involves a series of automated test functions, including:

- an automated HTP cleaning test device capable of simultaneously cleaning up to twenty-four separate areas of a reference paint film;
- automated image analysis, coupled with data mining, for determination of cleaning efficacy of test liquids;
- analysis of the effects of cleaning liquids on paints using atomic force microscopy (AFM) for visualization of surface morphology; parallel dynamic mechanical thermal analysis (p-DMTA) for monitoring changes in mechanical properties; and desorption electrospray ionization mass spectrometry (DESI-MS) for chemical analysis of extracted original surfactants and/or residues from cleaning liquids.

The first results and insights from the GCI-Dow-Tate project were presented at the general session of the American Institute for Conservation annual meeting, held in Los Angeles in May 2009.

KNOWLEDGE TRANSFER

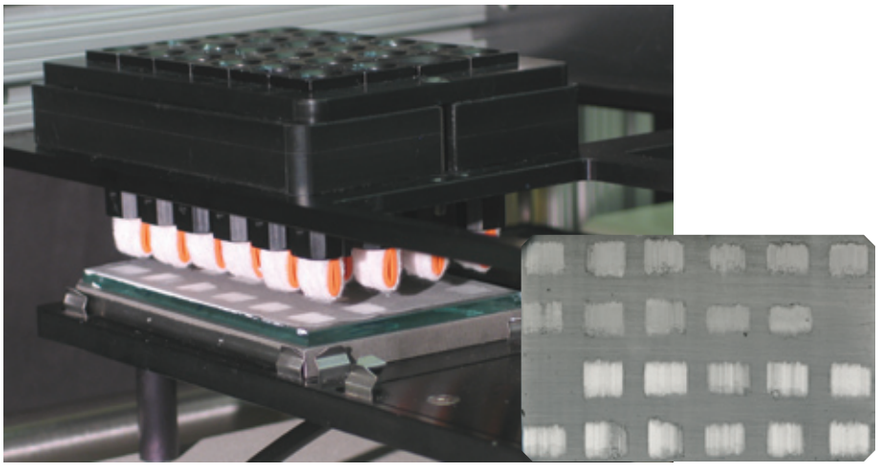
To promote and develop specific technical skills for the cleaning of acrylic emulsion paints within the conservation profession, it was seen that some form of knowledge transfer vehicle was needed, in order to disseminate the findings of recent scientific research and integrate them with the latest perspectives on cleaning technology. As a first step toward developing an advanced training package on the cleaning of acrylic painted surfaces, in July 2009 GCI held a colloquium on this topic, conducted as a trial workshop for practicing conservators.

Participants at the colloquium—entitled "Cleaning of Acrylic Painted Surfaces: Research into Practice"—were invited specialists (conservators, conservation scientists, and conservation educators) with expertise relevant to the conservation of acrylic painted surfaces. The event was led by Bronwyn Ormsby, Richard Wolbers (Winterthur Museum/University of Delaware Program in Art Conservation), Chris Stavroudis (independent conservator, Los Angeles), and Tiarna Doherty (J. Paul Getty Museum), with Tom Learner and Alan Phenix. The colloquium provided the opportunity for specialists in the field of artists' acrylic paints to explore strategies for problem solving relating to the difficult technical and ethical challenges presented by paintings in this medium. Additionally, the colloquium enabled experienced practitioners to evaluate new cleaning substances and formulations, including novel cleaning agents that have emerged from the GCI-Tate-Dow project.

The colloquium and the other initiatives described above—along with work being conducted by other researchers and conservation practitioners around the world—will, it is hoped, provide useful frameworks for the conservation treatment and preservation of these relatively new materials. While a considerable amount of modern and contemporary art is neither built nor intended to last for centuries—a reality which presents conservators with huge technical and philosophical problems—acrylic emulsion paintings, on the whole, represent an important medium of artistic expression that, given appropriate care, have the potential to convey their message, as Hockney put it, "for centuries to come."

Bronwyn Ormsby is a senior conservation scientist at Tate. Alan Phenix is a scientist with GCI Science.

1. Hockney, email message to Thomas J. S. Learner, 2006.
2. B. Ormsby, T. Learner, G. Foster, J. Druzik, and M. Schilling, "Wet-Cleaning Acrylic Emulsion Paint Films: An Evaluation of Physical, Chemical and Optical Changes," in *Modern Paints Uncovered: Proceedings from the Modern Paints Uncovered Symposium, May 16–19, 2006, Tate Modern, London*, 187–98 (Los Angeles: Getty Conservation Institute, 2008).
3. More information on this project, sponsored by AXA Art Insurance (www.axa-art.co.uk) can be found at: www.tate.org.uk/research/tateresearch/majorprojects/conservation_modernpaints.htm.
4. B. Ormsby, P. Smithen, F. Hoogland, T. Learner, and C. Miliani, "A Scientific Investigation into the Surface Cleaning of Acrylic Emulsion Paintings," in ICOM [International Council of Museums] Committee for Conservation, *15th Triennial Conference, New Delhi, 22–26 September 2008: Preprints*, 2:857–65 (New Delhi: Allied Publishers, 2008).



Dow's high throughput cleaning device and a soiled paint film cleaned with the device. The top 11 locations were cleaned with water and the lower 11 with a formulated aqueous cleaning solution. The increased activity of the formulated cleaning liquid is clearly evident. Two locations at the ends of rows 2 and 3 were left uncleaned as reference controls. Photos: Bill Heeschen. © 2009 The Dow Chemical Company.

INCCA

A Model for Conserving Contemporary Art

BY GLENN WHARTON

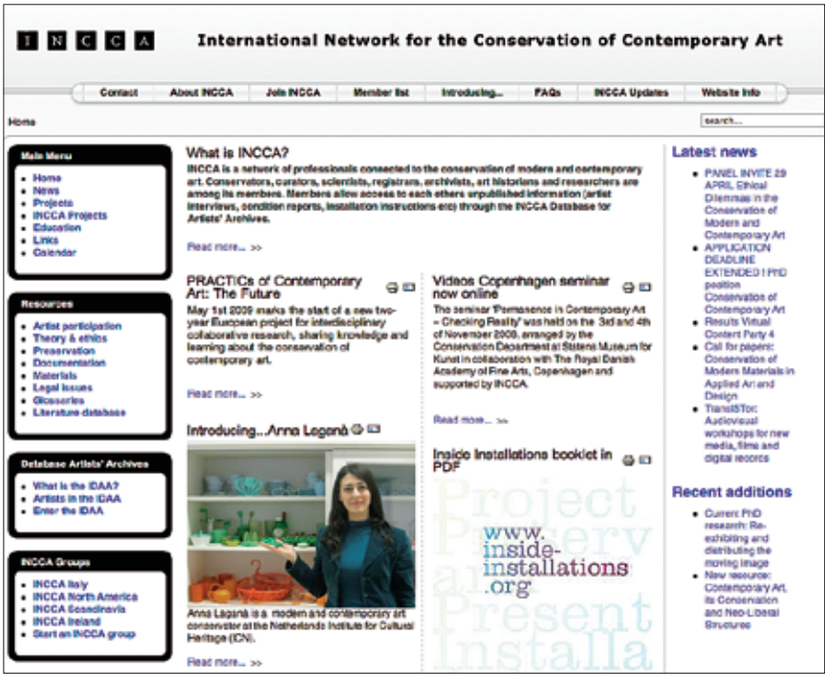
THE INTERNATIONAL NETWORK FOR THE CONSERVATION OF CONTEMPORARY ART (INCCA), a network of professionals connected to the conservation of modern and contemporary art, is gaining attention in the conservation community for the innovative model it promotes for conserving the art of our times. INCCA's mission "to develop, share, and preserve knowledge needed for the conservation of modern and contemporary art" is undertaken through the governing values of openness, active participation for the collective good, interdisciplinary collaboration, and recognition and involvement of stakeholders.

At its core, this is a pluralist model of cooperative research. It reflects the need to bring people with various skills and knowledge to the task of conserving today's multimedia art with its conceptual underpinnings. It does so by making use of the networked communities of contemporary arts professionals found across disciplines, institutions, and geographic distances through a new means of electronic communication.

INCCA'S BEGINNINGS

The 1990s was a fertile time for theoretical and practical development in the conservation of contemporary art. During this period, artworks that required an understanding of symbolism and conceptual intent entered museum collections at an increasing rate. These acquisitions compelled conservators and others to consult directly with artists in order to understand the work and develop new strategies of care. Among the conferences and publications produced during this decade, the 1997 symposium "Modern Art: Who Cares?," organized by the Foundation for the Conservation of Contemporary Art and held in Amsterdam, brought this trend to international attention. It was the culmination of a case-study-based research project that put artists together with conservators, art historians, materials scientists, philosophers, lawyers, arts managers, and critics to develop conservation theory and practice.

As a response to this seminal event, the INCCA network was formed in 1999 by a group of twenty-three individuals from eleven European organizations who agreed that international



The homepage of the INCCA Web site.

cooperation through a professional network could be a means of continuing the public conversation and sharing information promoted by the project. The Dutch government, realizing the potential of INCCA, offered office space and staff to support network activities, and currently INCCA's office in Amsterdam and core staff are funded by the Netherlands Institute for Cultural Heritage (ICN).

Today there are over two hundred fifty network members from thirty countries. Membership is based on the annual contribution of records to INCCA's databases. Those who are not able to contribute to the databases can assist the network in other ways, such as by organizing events that extend the public conversation about conserving contemporary art or by working with students and interns to help them make contributions to the network.

INCCA ACTIVITIES

Many people know INCCA through its dynamic Web site, which hosts pages devoted to current public events and past projects sponsored by INCCA and its members. One of these projects is the INCCA Database for Artists' Archives, an early and ongoing effort of the network. It houses unpublished research on contemporary artists from INCCA members, including project descriptions, analytical reports, student theses, and interview transcripts. Many members contribute their work to the database because they are unlikely to publish results from their day-to-day research elsewhere, yet they want to share these results with colleagues. Some artists have even approached INCCA directly to house documentation of their work.

In addition to the Artists' Archives, INCCA created a Literature Database of published work related to the conserva-

tion of contemporary and modern art that eventually grew to over two thousand entries. In 2006, INCCA decided to focus its resources on unpublished research and approached the Getty Conservation Institute (GCI) about managing these references. The GCI agreed to incorporate INCCA's Literature Database into its Project Bibliographies[1] and eventually to add it to the AATA Online database of abstracts of conservation literature.[2]

INCCA completed another major project in 2008—Inside Installations: Preservation and Presentation of Installation Art. This project, coorganized by five European organizations[3] and funded by the European Union, involved over thirty museum case studies. The aim was to research complex installation-based works through artist interviews, material analysis, and new forms of documentation. The results of this research, together with the theoretical papers commissioned through the effort, serve as a virtual textbook on conserving installation art. One case study—Tate's project on Bruce Nauman's *Mapping the Studio II* (2001)—provides museum professionals with an example of how to document installation art.[4] Research from the project is available on the Inside Installations Web site.

Plans are currently under way for another large European project: PRACTICs of Contemporary Art: The Future. PRACTICs will include thirty-four European museums, art institutions, and universities—as well as institutions from North America—and will culminate in an international congress, "Modern Art: Who Cares? II," to be held June 9–11, 2010, in Amsterdam. Other initiatives currently being discussed include expanding electronic communications—i.e., offering position papers and podcasts to stimulate online discussion on provocative issues and conservation projects.

INCCA IN NORTH AMERICA

Inspired by the INCCA model for collaborative research and public discussion, local INCCA groups began forming in Europe. Today regional groups exist in Italy, Scandinavia, and Ireland. As of this writing, a Central-East European group is being organized. American conservators also took note, and in 2003 the Solomon R. Guggenheim Museum in New York hosted a meeting to discuss creating a North American group. The GCI hosted a follow-up meeting on the West Coast in 2004. In response to the enthusiasm expressed at both gatherings for bringing INCCA to North America, the GCI offered to provide organizational expertise and support to help create a formal group.

INCCA–North America (INCCA-NA) was launched in 2006 at the American Institute for Conservation (AIC) annual conference. Since the European model of governmental support will not work for North America (the United States, Canada, and Mexico), the advisory committee decided to create a board of directors and a nonprofit corporation in the United States. Guided by its founding board of directors, including Inge-Lise Eckmann Lane, Ann Garfinkle, and Jay Krueger, INCCA-NA is currently obtaining its corporate status and will soon be in a position to raise funds for its own activities.

North American members are committed to maintaining the collaborative ideals of INCCA. Even before incorporation, INCCA-NA organized two panel discussions at College Art Association annual meetings: "Preserving Nam June Paik's Video Installations: The Importance of the Artist's Voice" in 2007, and "The Importance of the Artist's Voice: Conservation and the Work of Liz Larner and Michael C. McMillen" in 2009. Each session focused on specific artists and engaged audiences of art historians and artists in discussion about conserving their work.

INCCA-NA sees the Database for Artists' Archives as central to the sharing of information among artists and professionals. To this end, a training session for posting records in the database was held at the 2008 "Objects in Transition" conference at the Getty Center. Participants learned how to create metadata and upload abstracts from their past research.

To meet the needs of conserving contemporary art, conservators and others need to learn new skills, some of which have been developed in other fields, such as methods for interviewing artists. To fill this need, INCCA-NA organized a workshop at the 2008 annual AIC meeting titled "Interview Methodology for Conservators." Historian Richard Candida Smith from the University of California, Berkeley, led this workshop by introducing theory and practice used in oral history. While honing their skills through interviewing one another, participants learned high-level concepts about the construction of memory and methods of bringing interviewees back to prior experiences—for instance, their art production. In response to requests for another offering, the INCCA-NA program committee is organizing similar workshops at future conferences.

The task of advancing modern and contemporary art conservation theory and practice, as well as education, research, and publication, requires collaboration by many individuals and institutions. INCCA's success in advocating interdisciplinary research makes it a vital part of this effort. INCCA offers a model of collaboration critical for building resources and developing the knowledge essential for this new field of conservation.

Glenn Wharton is the executive director of INCCA–North America.

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1. Getty Project Bibliographies, gcibibs.getty.edu/asp/.
2. AATA Online Abstracts of International Conservation Literature, aata.getty.edu/nps/.
3. Tate in London; Restaurierungszentrum der Landeshauptstadt in Düsseldorf; Stedelijk Museum voor Actuele Kunst (SMAK) in Ghent; Museo Nacional Centro de Arte Reina Sofía (MNCARS) in Madrid; and the Foundation for the Conservation of Modern Art (SBMK) in the Netherlands.
4. Tate documentation on media installation *Mapping the Studio II* (2001) by Bruce Nauman, www.inside-installations.org/artworks/artwork.php?ref_id=&r_id=90.

COMPETING COMMITMENTS

A Discussion about Ethical Dilemmas in the Conservation of Modern and Contemporary Art

MATTHEW GALE, an art historian specializing in the twentieth century, is head of displays at Tate Modern. He has worked closely with Tate's Sculpture Conservation and Conservation Science departments in developing Tate's research on the replication of modern sculptures that are subject to unforeseen degradation. This work culminated in the cross-disciplinary conference "Inherent Vice: The Replica and Its Implications in Modern Sculpture," held in 2007.

SUSAN LAKE is chief conservator and director of collection management at the Hirshhorn Museum and Sculpture Garden. Her research interests include the painting materials of the American Abstract Expressionist painters and the conservation of modern art materials. Her book on Willem de Kooning's painting materials is scheduled to be published by the GCI in spring 2010.

JILL STERRETT, director of collections and conservation at the San Francisco Museum of Modern Art, has worked at the museum since 1990. She is a graduate of the Cooperstown Graduate Program and has published and taught on the subject of museums, conservation, and the legacy of contemporary art, including as a Fulbright scholar at the Universidade do Porto in Portugal.

They spoke with **TOM LEARNER**, a GCI senior scientist, and **JEFFREY LEVIN**, editor of *Conservation Perspectives, The GCI Newsletter.*

JEFFREY LEVIN With regard to the conservation of modern and contemporary art, do you think that conservators and curators are thinking differently about conservation issues than they were twenty years ago?

SUSAN LAKE Museums have become very skilled at the preservation of the irreplaceable, singular artwork. But when contemporary artists create objects that are intentionally ephemeral and installations that are provisional and improvised, we find ourselves torn between competing commitments. As conservators, we're guided by a professional code of ethics in which we identify the materials and the construction of the object, and based on our examination, we intervene to repair the work. But that code doesn't neatly apply when we are tasked with preserving artworks that are made of ephemeral materials, are conceptual or performance based, and include film and video. In these cases, conservators focus less on intervention to repair artworks than on documenting them. As has been observed, how to manage inevitable change versus how to arrest it is essential to the conservation of much contemporary art.

JILL STERRETT It's been said that museums are something we use to help us understand who we are. Art museums are a tool to respond to the art. But museums also exist within a cultural time, and we in conservation are not only responding to the art that artists are making, but working in institutions that are refreshing their connection to their communities. Museums, in this technological age, feel pressure to make everything accessible in a way that is different than when I entered conservation. In school we were taught that you sat down in a solitary way, examined your object, analyzed its materials, and then came up with a proposal, which was a solution that allowed for maximal preservation of this object. Yes, artists for the last fifty years have been experimenting with unorthodox materials, but the biggest change I see is that the problem solving around objects now has much more to do with how the object is going to be used. Who needs to see it? What is its relationship to the general public and to scholars? You're asking a range of additional questions that affect your solution.

MATTHEW GALE The question of access is very challenging. Large groups now have access to complex installations. That's where I see the challenges arising—and that's where I rely on conversations with conservation colleagues to consider how to

Photo: Rowena Fuller

> If cross-disciplinary activity hasn't been happening, it should be happening. . . . It does seem that from that you get a synthesis of knowledge of the work.
>
> —MATTHEW GALE

resolve these questions. Very often that involves going back to the artist. But as a curator, I'm further along the process from the one that you were describing.

LEVIN Would you all say that previous conservation standards remain but that now, with new demands, the number of issues to be considered has expanded?

LAKE Without a prescribed course of action—and acknowledging that many of the preservation-based questions raised are by nature subjective—decisions regarding conservation are best made by consensus among knowledgeable peers. I'm now less inclined to be guided by my individual assessment. Developing a preservation plan involves discussions not only with fellow conservators and curators but also with an array of other experts in the field that may include archivists, educators, registrars, audiovisual technicians, and database managers.

LEVIN Is collaborative decision making about the conservation of artworks more pervasive today?

LAKE Yes, decision making has become more collaborative. When it's not occurring, there's probably pressure for it to occur. But maybe we're a little ahead of the curve because of the kind of artworks that we're dealing with.

TOM LEARNER Working in an interdisciplinary manner would seem to benefit all areas of cultural heritage conservation—but with contemporary art, it seems absolutely essential. Conservators, on the whole, are very good at figuring out *how* to do things—such as designing a cleaning system to remove a varnish or choosing an appropriate adhesive for pieces of ceramic. But with contemporary art, isn't it often much more about figuring out what we should be doing? And to answer that, other areas of the art profession have to be involved.

LAKE It's been noted that in some ways we're operating more like ethnographic and archaeological conservation disciplines than we have before.

STERRETT Which is very interesting—because some of the problem solving in ethnographic conservation takes you right back to the community. It honors a variety of views in the creation of a proposal for a treatment. We're realizing that there are all kinds of opinions that can make beneficial and informed contributions to what we do.

LEVIN Ethnographic and archaeological conservation can involve an exploration of the values inherent in the objects by seeking the views of those outside of conservation. Are you all suggesting something similar for modern and contemporary art conservation?

GALE I was thinking about the question of values and how one establishes what they are. With contemporary art, instead of trying to draw upon a body of scholarship—which I assume would be the case in an archaeological situation—you're returning to the artist. That opens up a tremendous number of possibilities but also sets out certain parameters. You're duty bound to respond to what the artist is telling you rather than ignoring it. You also could be raising a number of questions that the artist may not have already thought through and saying, "Well, how are you going to help us deal with this?" And that may affect his or her practice from then on.

Last week I was working with an artist installing a complex work, and in passing conversation I described our Naum Gabo project, looking at the question of the inherent vice of the plastics used by Gabo in his works. It occurred to me as I was speaking that the piece we were installing had hundreds of objects in it, many of which are plastic. Alarm bells started going off in my mind. Am I going to be alarming by saying, "Well, of course, plastic has a fragility that Gabo had not anticipated or

planned for. He assumed that it was stable." It was a fairly casual conversation, but it would be logical to go back to the artist I was talking with and inquire, "How do we meet that challenge with this vast array of specially chosen objects?"

LEVIN Your mention of involving the artist raises the issue of artist's intent. Is the artist's intent the predominant consideration that should guide conservation decisions?

STERRETT A work made yesterday that enters into a museum or gallery today is, for all intents and purposes, in its infancy. To capture the artist's thoughts at that moment in the work's life is important to do. That said, it's not the only opinion we are after. There are curators, scholars—and the public. All of these opinions come together with that of the artist to tell a story. Then, to extend the work of stewarding collections, we want to collect all of these voices over time. Think about the generations of people who have interpreted artworks over time. Of course, scholarship shapes and refines meaning of works—and there's an opposite instinct with contemporary art, which is to resist locking down meaning too early. The work has just entered the world. We're trying to support an opening up of possibilities.

LEVIN Is one of the functions of the conservator today to manage change?

LAKE Preservation of much contemporary art has two main aspects. First, preservation of the various materials used in the construction. Second, preservation of the intention and meaning of the work—which in most cases extends beyond the material structure. Therefore, museums are faced with the need to maintain both the object's material dimension and its conceptual dimension.

STERRETT The artist's intent is still our touchstone. But it shifts. You interview artists when their work first comes into the collection and then, years later, call for a clarification. The artist might say, "That's not exactly what I meant"—or "That's what I meant at that time, but it's changed somewhat." So you have to acknowledge that you're working together and document not only what you did but also how you came to that decision. Inevitably it's subjective.

LEARNER This is bringing us back to those two established ethics in conservation—reversibility and minimal treatment—that often appear to be challenged in the conservation of contemporary art. If we're saying that we shouldn't lock down meaning and intention in these works, doesn't it then follow that we should resist treatments that are strongly guided by the artist's intention, given that that might involve all kinds of irreversible treatments? Aren't those two principles actually still as valuable and relevant as ever? And if so, maybe the best thing we can do is do very little and let the work have some kind of natural life.

STERRETT This is a prickly area. I'm sometimes concerned about using the term "contemporary art," as if it's somehow understood what we all mean by that. We have to be careful. Artists still paint. What comes to mind are changes in conservation being initiated in response to art that is inherently variable—take, for instance, installation-based art. This is not a paradigm shift that throws out all the traditional values. We're talking about an additive set of skills that doesn't undermine the foundations of the field, and which continues to rely on knowledge of materials and science and analysis—an additive skill set for a very prevalent class of work that is designed to vary over time.

LEVIN From a curatorial standpoint, Matthew, has the notion of managing change, as opposed to treating an object, altered the way that you look at your responsibilities—presenting and interpreting works for the public?

GALE Yes, I suppose it has in the way that we present work to the public. The thing that makes me most uneasy is where the impact of what the artist intended has to be restrained by the desire to show this to a large public, which is a constant balance that we have to maintain.

I'm thinking of a work that we just installed at Tate Modern [*Untitled (Tate)*, 1992–2000]. It's a reworking by the artists, Peter Fischli and David Weiss, of an installation they made when Tate Modern first opened in 2000, which has been in touring exhibition. Now it's been acquired for the collection and been reinstalled in a completely different way. It's based around a sort of simulacrum of reality in which they have re-created the ephemera of everyday life in polystyrene and then painted it. It's a complete trompe l'oeil installation, and the reaction when we first showed it in 2000 was that people just couldn't believe that it wasn't the real thing. They were picking things up—which, of course, trashed the piece. So that had to be curtailed and the experience by the public reined in.

LAKE The preservation of contemporary art has initiated a rethinking of some of the museum's fundamental practices. Since the 1960s, many artists have made highly experimental artworks using fragile, ephemeral, and degradable materials and made works with readily outmoded technologies. What do we conserve? The appearance, the material components, the concept, the function? Do we preserve the components, replace them, or remake them?

When contemporary artists create objects that are intentionally ephemeral and installations that are provisional and improvised, we find ourselves torn between competing commitments. —SUSAN LAKE

LEVIN How accepted is the idea of creating replicas, so that the visitor can experience what the artist intended when the work was first presented?

LAKE Early in my career, the idea of replica was antithetical. We are now beginning to see a shift, and the catalyst, in part, is contemporary art—particularly photography. For example, we have a work by John Baldessari that includes many small photographs [*Songs: 1. Sky/Sea/Sand, 2. Sky/Ice Plant/Grass*, 1973]. The photographs are rather precariously pinned to the wall, and the images are already somewhat faded. With the permission of the artist, we scanned the photographs in order to re-create an exhibition copy. The original is kept in a cold storage vault. The work was recently requested for loan, and we will lend the borrowing institution the exhibition copy. I doubt that our "preservation plan" would have been acceptable several decades ago. Although this practice is unlikely to extend to paintings, it is common, even necessary, with time-based media [film and video works of art].

STERRETT This past spring, a graduate student who was writing a thesis in a museum studies program called us and asked if museums rely on facsimiles in their programming. Our first reaction collectively was, "Oh, we don't show facsimiles." But then we realized, as Susan said, that we're in the business of making replicas all the time with forms of contemporary art and certainly photography. There have been remarkably creative solutions for tours of a photographer's work, which have relied on authorized exhibition copies that travel and that allow these works to be seen by millions of people. We copy—or migrate—video all the time. That's a process that we've also accepted as underpinning the way that we keep video installations alive.

However, it's a wholly different thing to consider what we did in creating a mock-up of Eva Hesse's *Sans II*. We were able to attain as near to the resin formulation as we could from the same manufacturer that she bought it from. We were able to work with her mold for making it, and we were able to work with her studio assistant, Doug Johns, and come up with a mock-up that's close in form to the original. What you got was insight into the translucency and transparency when the work was first made in 1968. Incredibly powerful to be able to see that. Would it ever go on display? No. Why? There would be real questions about whether it is authentic. I think the estate would have issues about the status of that piece. But a replica may be valued for reasons other than its exhibition. In museums, we do more than exhibit.

GALE What you're saying about having different mandates is critical to the ways one can approach this. But it's still a thorny set of issues. Examples of replicas pop up in my mind—such as the casting of Rodin works, for instance, which has never been seen as a particular problem. You can see *The Thinker* in Buenos Aires and in Paris and it's still a Rodin. These are incredibly problematic areas—and just as we've been describing how an artist might have one position at what you've called the infancy of an artwork and a different one as the work grows up in the world, I imagine that what each of us thinks about replicas will move and shift.

I first encountered this as a problem when there was an element on a Gabo piece that suddenly shifted and broke. It seemed to me, "Well, this is a geometrical work, it's made of plastics, let's run off another one." The thought—which only lasted a few moments—was that the qualities in the work, being geometrically defined and made entirely of modern materials from which the hand of the artist is somewhat removed, meant that one could flatten it out, make a template, and reconstruct it. But the presence of that thing in the world would raise questions. Does it adequately substitute for the original? If the original becomes completely unrecognizable, does the aura inevitably migrate to a second physical object? It seems to me that it does.

Your other option is to say, "Okay, the thing disintegrates, you haven't got an object to which the aura can migrate, therefore you've lost that particular work." What alarmed me about

Photo: Amanda Hunter Johnson

> Conservation has always called for analytical thinking, but now we're looking for abstract thinkers who are comfortable synthesizing solutions.
>
> —JILL STERRETT

Gabo is that his persistence in using those materials threatens to knock out a whole body of his work. If you believe that he was an important artist, then how do you respond?

STERRETT I'm completely undecided as to whether an object is "dead" if it no longer physically exists. That's one of the things that I'm struggling with. We remember things all the time without having any physical evidence of an object. I'm convinced that Eva Hesse's legacy will not be gone even if her latex works are no longer here. I think there will be memory of what she did.

LAKE Can't you have both? Can't you have the replica, as well as the degraded object? One doesn't preclude the other. In the future, we may be judged for not having made a replica when it was still possible to do so. Remembering a work for me isn't the same as being able to walk around it and see it in three dimensions. I would appreciate that opportunity, even if I knew it was a replica.

LEARNER But aren't there dangers in putting significant resources into determining how best to make replicas? Given that there are not many conservation scientists working in this area, might that be at the expense of research focused on what was needed to reverse or slow the deterioration processes in the original?

STERRETT My question isn't anti-replica. It does ponder the way memories are made—and the way objects are things we want to talk about in our lives. I'm not sure that goes away when the object is no longer there. In projects I've been involved with, I've felt inspired by the kind of memory that is infused into other formats besides the object—replicas, movies, slides, interviews—by scholars and conservators and artists' assistants and everybody else. It's incredibly moving how powerful that record becomes when we're struggling with an object that we can't do much for.

LAKE Do you think that definitive solutions will ever be possible, given the wide range of works produced and the diverse attitudes about preservation? Will we continue to approach each work on a case-by-case basis? Or will we eventually recognize recurring patterns and recognize common themes that will lead to a codification of all approaches?

GALE That's the ideal, certainly. It does seem to me that there must be some underlying things, even if it's simply that documentation of the object has got to be the first step, regardless of what other action is taken. Then at least you would have an audit of the object that can be compared to the last audit you took of it, and to the one taken in the future. And you have some sense of its life and its possibilities.

LEVIN Jill, do you share Matthew's optimism that you can establish some underlying standards of ethics for the conservation of these works? Or do you think it may be tough to get beyond the case-by-case?

STERRETT I have to admit that I don't aspire to something beyond the case-by-case. What we're trying to develop with contemporary art is a methodology around problem solving. I don't think that's going to lead to prescribed methods—*except* as it has to do with the way that we tease apart the challenges and arrive at our solutions.

LAKE That may be the methodology. You may interview the artist several times throughout his or her career. You thoroughly document each iteration of an installation. You document the rationale for your decisions, acknowledging that attitudes toward acceptable change will likely shift over time.

GALE To me, that turns into, "Do everything you can think of." You're interviewing the artist every two years, and you're documenting everything. The issue becomes: What *don't* you do?

LEARNER If we take that approach to its natural conclusion, it becomes "document every possible aspect of the work as frequently as you can," which would be impossible to implement on every work of art. If we're trying to devise a methodology, there has to be some priority in what is more important to do. Maybe it will be more about what don't you do. However, isn't there another issue here? If the field does implement and follow some agreed methodologies, then what happens in thirty years if some methodologies are considered to have been incorrect? It could be a far more worrying scenario if such a treatment were applied to significant numbers of works by a given artist, than if conservators had tried a range of approaches. At least that way we'd be maximizing the odds that some pieces exhibiting those desired values would survive in thirty years. That generation of conservators would be far better placed, after all, to judge which treatments or approaches were more successful than others. That said, we do need to be careful about not encouraging *any* kind of treatment. There has to be some kind of understanding or agreement over the limits of what is acceptable or not.

GALE What I have in my mind is not a broad code but, rather, the sets of questions that institutions need to think about. This is one of the things that I hope will come out of our project at Tate—positions on how you inform the public of what they're looking at if a work has degraded and a replica is on display. It's a broad-brush theory rather than the practicalities.

STERRETT Conventional thinking holds that in order to keep objects for future generations, we study the materials, put them in dark storage, and monitor the environment. And that, we hope, will sustain an object's life for hundreds of years. But what we've come up against with art made in the last fifty years—particularly installation-based art—is that if we do something like that, that's a sure sign of its demise. Why? Because, we actually have to test our knowledge of installing these pieces. They're only parts in storage until we put them together. They become the art according to a set of instructions that we get from the artist. If you put the work in storage and don't display it for ten years, you've diminished your ability to keep it because you might not be able to install it properly. The artist may or may not be around. On top of that, you may wrestle with obsolete technologies. If it's a time-based installation with videotapes, and if they're not migrated every seven to ten years, they might not be playable. All of a sudden, you start to see that preservation through the act of display is happening in the galleries. Ironically, this venue, which had been the death knell for overexposed objects, is now where preservation is enhanced.

GALE Is it because there are not methods to document the object, so you're relying on those memories and experiences to inform the next time? If these documentation methods *did* exist, then you could bring it out in ten years' time.

STERRETT You could, except that one of the things we've found is that the best documentation methods involve old-fashioned storytelling—somebody teaches you how to install the work, and you teach me. That can be better than pages of handwritten notes that somebody has to interpret.

LAKE This is may be stating the obvious. For much contemporary art, meaning has shifted away from the unique object—and conservation practice must reflect that change. A video installation is more than its component parts. A Sol LeWitt drawing is not just the instructions. New surroundings change an installation physically and contextually.

LEVIN Jill, I've heard you say that you felt there were many inspiring things happening in this challenging area. What are some of those things?

STERRETT Networks of people coming together to share information. There's always been a culture of sharing in the conservation field, but it's amplified now. Our capacity in museums to work with artists regularly is truly inspiring. Effective documentation methods are the crux of what we're trying to put in place. Ideally, these methods will create new insights into how these pieces live in the world. I'm extremely inspired by the way conservation efforts can and should connect with many other departments in a museum—how conservation can link with education efforts and how scholarship in the field is actually interesting to the general public. The motivations of an education department and a conservation department don't have to be viewed as independent. The same can be said of our curatorial colleagues. We're all noticing that these boundaries are not so hard and fast anymore.

LAKE I think that's reflected in the way museums are reorganizing themselves. We are now less inclined to discuss registrarial, conservation, and curatorial functions as separate activities. Rather, we mutually discuss collection care, collection management, and stewardship. Preservation efforts are often the result of collaborative efforts among conservators, curators, educators, archivists, and technicians.

GALE If cross-disciplinary activity hasn't been happening, it should be happening. As everyone has said, it does seem that from that you get a synthesis of knowledge of the work. Instinctively, I still incline toward giving the artist's intentions added weight, insofar as one can establish them. But other activities and other issues have got to be crucial to an understanding of the work.

LEARNER There must be plenty of occasions when there's disagreement, though. How does that get worked through?

LAKE Antagonistic positions are inevitable. An accepted, universal approach to conservation practices would be difficult to achieve. At best, we can clarify the antagonistic positions and bring clear choices to the decision-making process. If the debate and outcome are transparent and fully documented, future viewers, artists, and scholars will be in a position to better assess and evaluate the efficacy of our positions and treatment strategies.

STERRETT It's exciting to get into a good debate and to understand where you have dissension and why. Good solutions come from those conversations. When you allow these contentious conversations to happen, you start to see people align behind the mission that the museum has put forth—to align behind something that is larger than their department.

LAKE These transitions have not been easy for a lot of staff or for institutions. In fact, many of the issues that we've been discussing can be construed as a threat to our identity as conservators. But I think that what we're discussing expands the profession.

LEARNER It is interesting when you think about all the various activities being carried out on contemporary art that are considered part of conservation. It will definitely require the field to think more strategically to respond to this vastly expanded skill set. It probably needs a new approach in the training schools to incorporate some of these additional skills, but also for museums to recruit more actively from outside of conservation—such as turning to experienced videotape technicians to help conserve time-based media. I'm sure that most of us involved in the conservation of contemporary art are drawing on every part of our education and experience to process how best to respond to some of these issues. My case—a professional having both conservation and scientific training—is becoming pretty common now, but I am sure the field will benefit from those able to combine other, equally diverse backgrounds.

LAKE It seems to me that the early discourses between conservation scientists and conservators were the first move taken toward creating conservation as a more interdisciplinary field.

STERRETT Here's the line—and I'm sure you all have heard it, too—"Well, that's not proper conservation." Increasingly I scratch my head and think, "What does 'proper' conservation mean anymore?" We have colleagues who can answer that question very clearly for themselves. And I get the feeling that it has to do with sitting at the bench and inpainting. Outside that definition, it's something else—but not conservation. There's this feeling that we have to honor that. And there are all kinds of reasons to honor that. But at the risk of not looking beyond?

LAKE Interestingly, training programs acknowledge some of these changes. Science is certainly an important component of course work. However, discussions of the profound practical and theoretical issues involved in the conservation of contemporary art are still lacking in U.S. training programs.

STERRETT There are skill sets that serve a more traditional mode of conservation, and there are skill sets emerging that underpin success for people working with contemporary art. And they're not always one and the same. Conservation has always called for analytical thinking, but now we're looking for abstract thinkers who are comfortable synthesizing solutions. Rather than master practitioners, we're looking for people who are master facilitators in many ways. That demands skills that are different from those required to restore a Rembrandt spectacularly.

LAKE Traditional conservation practices—maintaining the object's physical and constituent features—still exist. But other approaches to preservation are also available. And it's important to acknowledge that although the strategies employed in the conservation of much contemporary art look different from traditional conservation, the rationale is still based on established standards of collection care and management.

Key Resources

Conservation of Modern and Contemporary Art

ONLINE RESOURCES

Art Materials Information and Education Network (AMIEN)
www.amien.org

Conservation and Art Material Encyclopedia Online (CAMEO)
cameo.mfa.org/

Documentation and Conservation of the Media Arts Heritage (DOCAM)
www.docam.ca

"Inherent Vice: The Replica and Its Implications in Modern Sculpture"
Papers presented at this 2007 conference, in Tate Papers, *issue 8, Autumn 2007*
www.tate.org.uk/research/tateresearch/tatepapers/07autumn/

Inside Installations: Preservation and Presentation of Installation Art
www.inside-installations.org/home/index.php

ICOM-CC Modern Materials and Contemporary Art working group
www.icom-cc.org/32/working-groups/modern-materials-and-contemporary-art-/

International Network for the Conservation of Contemporary Art (INCCA)
www.incca.org

Matters in Media Art
www.tate.org.uk/research/tateresearch/majorprojects/mediamatters/

Modern and Contemporary Art Research at the Getty Conservation Institute
www.getty.edu/conservation/science/about/macar.html

The Object in Transition
Videotaped sessions from this 2008 Getty conference
www.getty.edu/conservation/publications/videos/object_in_transition.html

Preservation of Plastic Artefacts in Museum Collections (POPART)
popart.mnhn.fr/

Variable Media Network
variablemedia.net/

BOOKS AND CONFERENCE PROCEEDINGS

Art d'aujourd'hui, patrimoine de demain: Conservation et restauration des oeuvres contemporaines (2009), Paris: SFIIC.

Conservare l'arte contemporanea: Problemi, metodi, materiali, ricerche by Oscar Chiantore and Antonio Rava (2005), Milan: Electa.

The Conservation and Maintenance of Contemporary Public Art, edited by Hafthor Yngvason (2002), London: Archetype.

Conservation of Plastics: Materials Science, Degradation and Preservation by Yvonne Shashoua (2008), London: Butterworths.

From Marble to Chocolate: The Conservation of Modern Sculpture, edited by Jackie Heuman (1995), London: Archetype.

The Impact of Modern Paints by Jo Crook and Tom Learner (2000), London: Tate.

Material Matters: The Conservation of Modern Sculpture, edited by Jackie Heuman (1999), London: Tate.

Modern Art: New Museums, edited by Ashok Roy and Perry Smith (2003), London: IIC.

Modern Art: Who Cares? edited by Ysbrand Hummelen and Dionne Sille (1999), Amsterdam: ICN.

Modern Paints Uncovered, edited by Thomas J. S. Learner et al. (2007), Los Angeles: Getty Conservation Institute.

Monumenti effimeri: Storia e conservazione delle installazioni by Barbara Ferriani and Marina Pugliese (2009), Milan: Electa.

Mortality Immortality, edited by Miguel Angel Corzo (1999), Los Angeles: Getty Conservation Institute.

Plastics: Looking at the Future and Learning from the Past, edited by Brenda Keneghan and Louise Egan (2008), London: Archetype.

Research in Conservation: Analysis of Modern Paints by Thomas J. S. Learner (2005), Los Angeles: Getty Conservation Institute.

Saving the Twentieth Century: The Conservation of Modern Materials, edited by David Grattan (1991), Ottawa: CCI.

For more information on the conservation of modern and contemporary art, search **AATA Online** at aata.getty.edu/nps/

GCI News

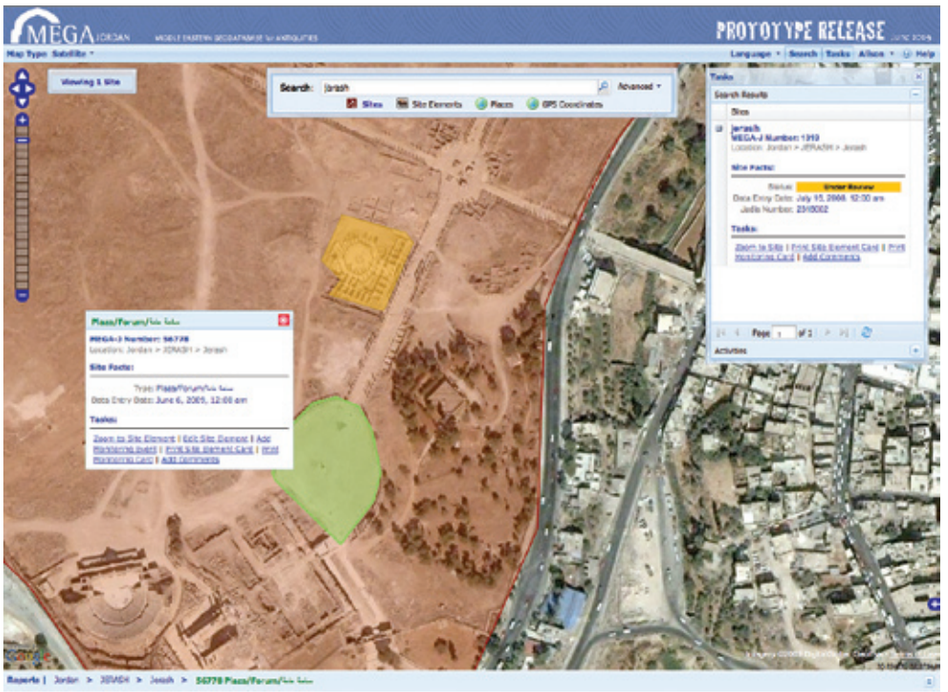
Project Updates

MEGA PROTOTYPE INSTALLED

In June 2009 a prototype of the Middle Eastern Geodatabase for Antiquities (MEGA) was installed at the Jordanian Department of Antiquities (DoA) for testing in three governorates. MEGA-Jordan is a geographic information system (GIS) created to help protect, conserve, and manage Jordan's vast number of archaeological sites. The system will maintain a kingdom-wide inventory that will standardize and centralize data on archaeological sites (including site and site element locations and boundaries), associated archaeological periods, and existing conditions and threats. MEGA-Jordan has been designed to facilitate controlling the impact of rapid development on Jordan's archaeology, to aid in heritage tourism planning, to help the DoA in formulating national research strategies, and to serve as a resource for archaeological scholarship.

MEGA-Jordan was developed with state-of-the-art tools so that it is extremely easy to use and requires no specialized training. The bilingual system (Arabic and English) is Web based and will permit regional DoA offices, other governmental authorities, and Jordanian and international researchers both to access data within the system and to contribute new data. It will also allow electronic input of data from the field. It is compatible with other GIS tools, enabling data to be shared among government agencies and researchers, and will allow printing of updated reports on the status of sites.

MEGA-Jordan uses open source software. Unlike proprietary systems, the source code is not exclusively owned by a private company and will not require expensive licensing fees. The code is readily accessible, enabling the DoA to update and modify the software as required to meet Jordan's future needs. This will also allow the system to be adapted for use in Iraq, in partnership with the Iraq State Board of Antiquities and Heritage (SBAH), as well as by other countries.



TOP: The remains of the ancient city of Gerasa (modern Jarash), Jordan, are increasingly encroached upon by urban development. Photo: David Myers, GCI. ABOVE: MEGA–Jordan record for the archaeological site of Jarash showing area (in green) of DoA ownership. Satellite photo: © Digital Globe 2009.

The results of testing MEGA-Jordan by the DoA will be used to make modifications so that the system best meets the department's work requirements. The full system will be deployed kingdom-wide in spring 2010, after which the system's developers will provide ongoing technical support to DoA staff for an additional two years.

MEGA is being developed through partnerships between the Getty Conservation Institute, the World Monuments Fund, and, separately, with the Jordanian Department of Antiquities and the Iraq State Board of Antiquities and Heritage.

For further information on the Middle Eastern Geodatabase for Antiquities project, visit the project's Web pages at www.getty.edu/conservation/field_projects/jordan/index.html.

Conservators conducting a visual examination of the wall paintings on the north and west walls of Tutankhamen's burial chamber. Photo: Robert Jensen.

New Projects

CONSERVING THE TOMB OF TUTANKHAMEN

In 2008 the Getty Conservation Institute and Egypt's Supreme Council of Antiquities (SCA) entered into a five-year partnership to collaborate on a project for the conservation and management of the tomb of Tutankhamen.

Few, if any, of the many extraordinary twentieth-century archaeological discoveries match the enduring fascination of the tomb of Tutankhamen, the Eighteenth Dynasty pharaoh who reigned for less than ten years. The treasure, the famous curse, recent CT scans of the mummy, speculations that the boy king was murdered, and mega-exhibits that travel the world keep the mystique alive for the public. Visitors to Egypt's Valley of the Kings on the West Bank at Luxor, having seen the pharaoh's treasure in the Egyptian Museum in Cairo, line up to see the small tomb known as KV62, with its painted burial chamber, the original stone sarcophagus, the outermost coffin, and the mummy of Tutankhamen.

Pressure on the tomb from tourism led the SCA to seek help from the GCI for the tomb's conservation and management. The first field campaign to examine these issues took place in February 2009. Working in the close confines of the burial chamber and watched by an endless stream of curious visitors, the project team focused on examination and comprehensive documentation (photo and graphic) of the tomb and its wall paintings, looking specifically at condition, painting technology, and previous treatment interventions.

Project team members are undertaking extensive research, including review of reports, publications, analyses, historic photographs, and other sources of information. The aim is to synthesize all reliable information with the team's current findings over a two-year period, followed by preparation of a detailed conservation plan and presentation to the SCA for review and approval. Treatment may then require an additional two years to complete, and it will include examination of the sarcophagus and the gilded coffin within.

Among the curious features of the tomb are the disfiguring brown spots on the wall paintings. These were present when Howard Carter discovered the tomb in 1922. Ever since, conjecture has continued with regard to what they are, whether they are growing, and why other tombs in the Kings Valley do not exhibit a similar phenomenon. The project will seek to settle this issue.

Overall, the project aims to be comprehensive in approach. It includes training and involvement of SCA personnel, lighting and ventilation in the tomb, interpretation, and a visitor management plan. The next field campaign is scheduled for November 2009.

To learn more about GCI's project to conserve and manage the tomb of Tutankhamen, visit the project's Web pages at www.getty.edu/conservation/field_projects/tut/index.html.

Recent Events

AIC HONORS THE GCI WITH ITS HIGHEST ORGANIZATIONAL AWARD

On May 20, 2009, the American Institute for Conservation (AIC) honored the Getty Conservation Institute with the highest award it bestows on conservation organizations—the Distinguished Award for the Advancement of the Field of Conservation. The award was presented at the AIC's annual meeting, held this year in Los Angeles.

"The Getty Conservation Institute is well

deserving of this award," said Eryl Wentworth, executive director of the AIC. "From its establishment, the GCI has supported professional development in conservation in so many ways—from education, to projects in the field, to conservation science research. Given the broad range of professional development opportunities they continually provide to the conservation profession, it's very appropriate that the GCI be honored in this way."

"I am delighted to accept this award on behalf of the Getty Conservation Institute," said GCI director Tim Whalen. "At its core, the GCI's strength is, and always has been, the depth of its intellectual capital and the dedicated professionals and organizations with which it has had the privilege to work for so many years. This award is an important validation of our ongoing efforts, and we are very pleased to accept it."

Conceived in 1996, the AIC's Distinguished Award for the Advancement of the Field of Conservation recognizes vital and long-standing support of the professional development activities of conservators, and it has been given only seven times since its inception. Previous recipients include the Mellon Foundation, the Stanford University Libraries, and the Samuel H. Kress Foundation.

The Getty Grant Program, now known as the Getty Foundation, also garnered the award in 1996.

GROUTS WORKSHOP HELD

In May 2009 the Getty Conservation Institute organized a workshop at the Getty Center on "Injection Grouts for the Conservation of Architectural Surfaces." The objective of the workshop was to provide an overview of the characteristics, properties, and uses of injection grouts for the conservation of plasters, wall paintings, and mosaics, with a focus on the desirable properties and parameters for their use in conservation.

The workshop was developed in the context of the GCI project Injection Grouts for the Conservation of Architectural Surfaces: Research and Evaluation, an ongoing interdisciplinary study between conservators and scientists at the GCI to evaluate injection grouts used in the conservation of wall paintings, plasters, and mosaics. Since the first injection grouts for the conservation of architectural surfaces were developed at the International Centre for the Study of the Preservation and Restoration of Cultural Property (ICCROM) nearly thirty years ago, a large number of commercial and custom-mix grouts have become available and are in use by conservators in the field. However, little systematic research has been done that could allow conservators to evaluate and compare different grouts in the laboratory and field. Moreover, few test methods have been developed specifically for injection grouts.

The GCI project aims to prepare guidelines and protocols for evaluating hydraulic lime-based grouts, combining laboratory testing and field study. The results of the project to date were disseminated in this workshop through a combination of lectures and laboratory activities with hands-on exercises and demonstrations that covered basic components of grouts, desirable working properties and performance characteristics, laboratory testing, selection of grouts, and practical application of tests in the field.

For further information on this interdisciplinary study, visit the Injection Grouts Web pages at www.getty.edu/conservation/field_projects/grouts/index.html.

PANEL PAINTINGS SYMPOSIUM HELD

On May 17 and 18, 2009, over 230 attendees from twenty-three countries gathered at the Getty Center for the symposium "Facing the Challenges of Panel Paintings Conservation: Trends, Treatments, and Training."

The symposium was the public launch of the multiyear Panel Paintings Initiative, a collaboration of the Getty Conservation Institute, the Getty Foundation, and the J. Paul Getty Museum. The initiative aims to increase specialized training opportunities in the structural conservation of panel paintings, as well as to provide greater access to information and teaching resources—creating these resources, when necessary—for the field of conservation.

During this two-day event, presentations by conservators, curators, scientists, and specialists in the structural treatment of panel paintings highlighted recent developments in the conservation of panel paintings as well as the pressing need for more training opportunities for panel conservators. In addition, the symposium featured several periods for discussion, which yielded many insightful contributions from both speakers and attendees.

As the initiative moves forward to address the training needs of this rich and complex

Participants at "Injection Grouts" workshop carrying out laboratory exercises with GCI graduate intern Hande Cesmeli (center). Photo: Leslie Rainer, GCI.

field, it will be informed by the results of a needs assessment survey expected to be completed by the end of 2009 and guided by an expert advisory committee, as well as by input from practitioners and professionals in the field. Formal residencies at a number of leading museums and conservation studios, and short courses in specialized subjects for both panel paintings conservators and conservators from related disciplines will also be developed. In addition, work is under way to produce educational resources for the field, beginning with an online, searchable bibliography.

Video footage from the symposium is available on the Conference Videos page of the Videos and Audio section of the GCI Web site. Proceedings of the conference will be published by the GCI in both print and electronic formats.

For updates on the progress of the Panel Paintings Initiative and the development of educational resources, visit the Initiative's Web site, www.getty.edu/conservation/education/panelpaintings/index.html.

INTERNATIONAL COURSE ON STONE CONSERVATION HELD

The Getty Conservation Institute—in partnership with ICCROM, the University of Venice, UNESCO—Bresce, Soprintendenza per i Beni Architettonici e Paesaggistici di Venezia e Laguna, and Soprintendenza Speciale per Patrimonio storico, artistico, etnoantropologico e per il Polo Museale della città di Venezia e dei comuni della gronda lagunare—organized the 16th International Course on Stone Conservation, which was held in Venice April 16–July 3, 2009.

The International Course on Stone Conservation, first held in 1976, has long served a vital educational role by offering an accessible and intensive format in which to learn theoretical and practical methodologies for stone conservation. It has also provided a constructive and intimate forum for professionals to meet and exchange ideas about the conservation practices and challenges in their home countries. Following a multiyear review period, the course was relaunched in 2009 with the GCI as a new partner.

An international group of recognized heritage conservation professionals instructed-nineteen participants from a wide variety of

Stone course participants gather with instructors Gionata Rizzi, Stefano Volta, and David Odgers for hands-on demonstrations at La Scuola Vecchia di Santa Maria della Misericordia in Venice. Photo: Susan Macdonald, GCI.

disciplines, including conservators, architects, archaeologists, conservation scientists, and other professionals involved in stone conservation. The participants, from nineteen countries, had the opportunity through the ten-week course to meet other professionals and share experiences and issues—an important aspect of the course. They received instruction in the following topics and skills as they pertain to stone conservation:

- conservation theory and principles
- stone mineralogical and physical characteristics
- stone as a building material—use and construction
- mechanisms of decay—material and structural
- methods of recording for documentation and analysis
- methods of analytical investigation
- planning and selection of conservation interventions
- repair techniques
- maintenance and preventive conservation
- multidisciplinary teamwork in conservation
- developing and managing a stone conservation project

The course was conducted through pre-course reading, classroom lectures and discussions, group work, participant presentations, laboratory research, on-site work, and site visits. An emphasis was placed on applied methodologies and practical applications through problem-based learning. Participants were given ample opportunities to test the theories and lessons taught in the readings and in the classroom by applying them to actual conservation scenarios.

The GCI is committed to addressing the need for stone conservation training and to developing and disseminating reference and teaching materials related to stone conservation education. An interactive Web site was used for the duration of the course as a teaching resource, and it will continue to serve the needs of the participants after they return to their countries.

For more information on the GCI's work in education, visit the Education section of the GCI Web site at www.getty.edu/conservation/education.

CONSERVATION GUEST SCHOLARS

The Getty Conservation Institute is pleased to welcome the 2009–10 Conservation Guest Scholars. The guest scholar program at the GCI supports new ideas and perspectives in the field of conservation, with an emphasis on the visual arts (including sites, buildings, and objects) and the theoretical underpinnings of the field. It provides an opportunity for professionals to pursue scholarly research in an interdisciplinary manner across traditional boundaries, in areas of wide general interest to the international conservation community.

2009–10 Conservation Guest Scholars

Dina Francesca D'Ayala
Senior Lecturer, University of Bath
"Ensuring Safety, Preserving Significance? A Significance-Based Seismic Safety Approach for the Protection of Architectural Heritage"
September–December 2009

Ronald Van Oers
Program Specialist, UNESCO World Heritage Center
"Cities under Siege—Heritage Preservation in the Urban Century"
November 2009–February 2010

Roy Stephen Berns
R. S. Hunter Professor in Color Science, Rochester Institute of Technology, Center for Imaging Science
"The Use of Color and Imaging Sciences in the Analysis and Display of Visual Arts"
January–June 2010

Monique Fischer
Senior Photograph Conservator, Northeast Document Conservation Center
"Characterization of Digital Output Media"
January–March 2010

Daniela Pinna
Coordinating Director, Biological Section, Scientific Laboratory, Opificio delle Pietre Dure
"Assessment of Methods and Products Applied for the Control of Biodeteriogens Growing on Artificial and Natural Stone Objects: State of the Art and Perspectives"
January–March 2010

Michael Taylor
Cultural Resources Manager, United States National Park Service
"Cultural Routes: Preservation, Protection, and Interpretation Strategies"
April–June 2010

Christina Young
Senior Lecturer, Courtauld Institute of Art
"An Experimental Investigation into the Interpretation of the Glass Transition Temperature in the Context of Paintings"
April–June 2010

POSTDOCTORAL FELLOW SELECTED

Emma Richardson of the Textile Conservation Centre is the recipient of the 2009–10 Postdoctoral Fellowship in Conservation Science. She will work as part of the Modern and Contemporary Art Research project team during her two-year residence (September 2009–August 2011).

The Getty Conservation Institute's Postdoctoral Fellowship in Conservation Science is a two-year program. The next application deadline is November 1, 2010. Guidelines and application forms for the 2011–13 fellowship will be available on the Getty Foundation Web site in July 2010.

Upcoming Events

GUEST SCHOLAR APPLICATIONS

The Conservation Guest Scholar Program is now accepting applications for the 2010–11 scholar year. To apply online or for further information, please visit the Conservation Guest Scholars section of the Getty Foundation Web site at www.getty.edu/foundation/funding/residential/conservation_guest_scholars.html or contact the Getty Foundation at researchgrants@getty.edu. The deadline for applications is November 1, 2009.

GETTY GRADUATE INTERNS

Applications are now being accepted for the 2010–11 Getty Graduate Internship Program. Graduate internships at the Getty support full-time positions for students who intend to pursue careers in fields related to the visual arts. Programs and departments throughout the Getty provide training and work experience in areas such as curatorial, education, conservation, research, information management, public programs, and grant making.

The GCI pursues a broad range of activities dedicated to advancing conservation practice and education, in order to enhance and encourage the preservation, understanding, and interpretation of the visual arts. Twelve-month internships are available in the Field Projects, Science, and Education departments of the GCI.

Detailed instructions, application forms, and additional information are available online in the Graduate Interns section of the Getty Foundation Web site: www.getty.edu/foundation/funding/leaders/current/grad_internships.html. For further information, contact the Getty Foundation at gradinterns@getty.edu. The deadline for applications is December 15, 2009.

2009–10 GCI Graduate Interns

Sebastiaan Franciscus Godts: MOSAIKON and Mosaic Shelter Assessment projects

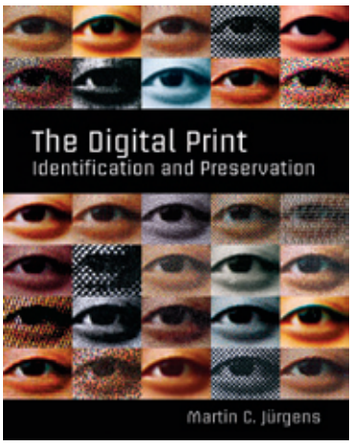
Kristina Marie Nugent: Southeast Asia Initiative and Historic Cities and Urban Settlements projects

William Fremont Peter Raynolds: Valley of the Queens project

Rene Riedler: Museum Lighting Research project

Petra Vávrová: Conservation of Photographs Research and Training project

New Publications

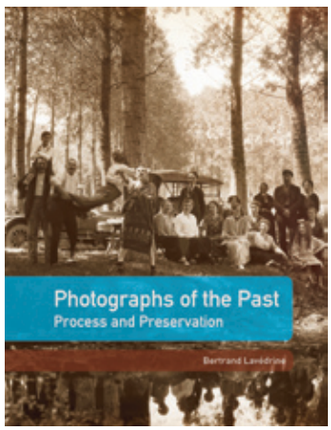


The Digital Print
Identification and Preservation
By Martin C. Jürgens

This invaluable resource demystifies the complex, rapidly changing, and sometimes confusing world of digital print technologies. It describes the major digital printing processes used by photographers and artists over the past forty years, explaining and illustrating materials and their deterioration, methods of identification, and options for acquiring and preserving digital prints. A removable poster provides a ready reference for identifying specific processes and materials.

Anyone involved in identifying and preserving digital prints—from conservators, curators, archivists, and registrars to photographers, artists, and printing studios—will welcome this comprehensive, one-of-a-kind volume.

Martin C. Jürgens, a conservator of photographs in private practice in Hamburg, Germany, specializes in the conservation of historical and contemporary photographic materials and digital prints.

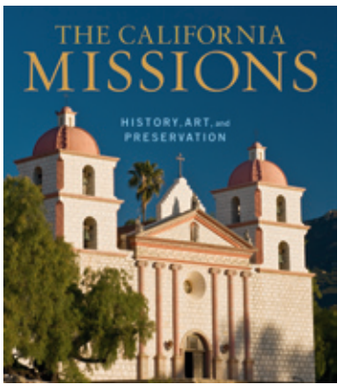


Photographs of the Past
Process and Preservation
By Bertrand Lavédrine
with Jean-Paul Gandolfo, John McElhone, and Sibylle Monod
Translated by John McElhone

In recent years, interest in old photographs has grown significantly among a broad public, from collectors, conservators, and archivists to amateurs seeking to preserve precious family albums. Although the medium of photography is barely one hundred and fifty years old, its relatively brief history has witnessed the birth of a wide range of photographic processes, each of which poses unique conservation challenges.

This volume provides a comprehensive introduction to the practice of photograph preservation, bringing together more information on photographic processes than any other single source. Introductory chapters cover issues of terminology; the rest of the book is divided into three parts: positives, negatives, and conservation. Each chapter focuses on a single process—daguerreotypes, albumen negatives, black-and-white prints, and so on—providing an overview of its history and materials and tracing the evolution of its technology. This book will serve as an irreplaceable reference work for conservators, curators, collectors, dealers, conservation students, and photographers, as well as those in the general public seeking information on preserving this ubiquitous form of cultural heritage.

Bertrand Lavédrine is director of the Centre de recherche sur la conservation des collections (CRCC), Paris. Jean-Paul Gandolfo teaches at the École nationale supérieure Louis Lumière, Paris. Sibylle Monod oversees research publications at the Centre national de la recherche scientifique, Paris. John P. McElhone is photograph conservator at the National Gallery of Canada, Ottawa.



The California Missions
History, Art, and Preservation
By Edna E. Kimbro and Julia G. Costello
with Tevvy Ball

Illustrated in color throughout, *The California Missions: History, Art, and Preservation* combines engaging text with historical paintings, archival photographs, and recent photography to create a vivid profile of these iconic institutions. Initial chapters recount their founding and early history, examine their rediscovery in the late nineteenth century, and trace the beginnings of the mission restoration movement. Subsequent chapters present mission architecture and wall murals, survey the rich holdings of European and Native American art in mission collections, and examine the challenges involved in preserving the mission heritage for future generations. The second part of the book provides concise historical profiles for each of the twenty-one missions. There is also a glossary.

The late Edna E. Kimbro was a renowned architectural conservator and historian and a founding member of the California Mission Studies Association. Julia G. Costello is an internationally recognized expert on archaeology and cultural resources, with particular expertise in the California missions. Tevvy Ball is an editor with Getty Publications.

Getty Conservation Institute publications can be ordered online at the Getty Bookstore (www.getty.edu/bookstore) or by calling 800-223-3431 (United States) or 310-440-7333 (international).

CONSERVATION PERSPECTIVES
THE GCI NEWSLETTER

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The J. Paul Getty Trust
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Kathleen Gaines, *Associate Director, Administration*
Giacomo Chiari, *Chief Scientist*
Kathleen Dardes, *Head of Education*
Susan MacDonald, *Head of Field Projects*

Conservation Perspectives, The GCI Newsletter
Jeffrey Levin, *Editor*
Angela Escobar, *Assistant Editor*
Picnic Design, *Design*
Color West Lithography Inc., *Lithography*

Conservation Perspectives, The GCI Newsletter is distributed free of charge twice a year to professionals in conservation and related fields and to members of the public concerned about conservation. Back issues of the newsletter, as well as additional information regarding the activities of the GCI, can be found in the Conservation section of the Getty's Web site, www.getty.edu/conservation/

The Getty Conservation Institute works internationally to advance the field of conservation through scientific research, field projects, education and training, and the dissemination of information in various media. In its programs, the GCI focuses on the creation and delivery of knowledge that will benefit the professionals and organizations responsible for the conservation of the visual arts.

The GCI is a program of the J. Paul Getty Trust, an international cultural and philanthropic institution that focuses on the visual arts in all their dimensions.

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The Getty Conservation Institute
1200 Getty Center Drive, Suite 700
Los Angeles, CA 90049-1684
Tel 310 440 7325
Fax 310 440 7702
gciweb@getty.edu
www.getty.edu

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THE GCI NEWSLETTER

The Getty Conservation Institute

GCI project specialist Leslie Rainer (left) and intern Sharra Grow, removing masking tape from two test murals that will be used to evaluate the effectiveness of coatings that are designed to protect outdoor painted surfaces from sunlight and/or graffiti. Photo: Tom Learner, GCI.