Conservation

The Getty Conservation Institute Newsletter ■ Volume 22, Number 2, 2007

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The Getty Conservation Institute (GCI) 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.

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Front cover: The Lower Terrace Garden at the Getty Center with two works by Alexander Calder: *Spiny Top, Curly Bottom* in the foreground and *Jousters* in the background. The works are part of the Getty Museum's recently installed Fran and Ray Stark Collection, which includes twenty-eight American and European sculptures. *Photo:* Tahnee L. Cracchiola. ©2007 Calder Foundation, New York/Artists Rights Society (ARS), New York.

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Contents

Modern and Contemporary Outdoor Sculpture Conservation

Challenges and Advances

By Derek Pullen and Jackie Heuman

City on the High Mountain (1983) by Louise Nevelson. This work is part of the collection of the Storm King Art Center in Mountainville, New York. Storm King Art Center displays its collection of large, post–World War II sculptures in an outdoor setting—a five hundred acre site in New York's Hudson River Valley. *Photo:* Courtesy Storm King Art Center. ©2007 Estate of Louise Nevelson/Artists Rights Society (ARS), New York.

Conservators of outdoor sculpture can be forgiven for sometimes feeling that they are witnesses to a hopeless struggle between sculptures and their environment. The effects on both traditional and modern materials of exposure to weather, pollution, and neglect are relentless. Stone crumbles, metals corrode, wood rots, and paint peels or fades. While conservators have a wide choice of treatment options for stabilizing and restoring outdoor sculptures, ensuring that protection remains effective is a formidable task. The ideal of a balance between the sculpture and the outdoor environment is hard to achieve and extraordinarily difficult to sustain, and any overview of outdoor sculpture conservation quickly arrives at an overriding theme: maintenance.

With so much open-air sculpture in the public realm embodying symbolic, historic, and aesthetic value, the process of conservation requires negotiation and collaboration—drawing in, for example, art historians, custodians, conservation scientists, engineers, fabricators, and the sculptor or the sculptor's estate. It can be hard to understand that large, apparently solid structures become vulnerable when placed outdoors. Even the option of removing iconic, at-risk sculptures to safer conditions indoors can raise alarm, although such a practice has a significant precedent: in 1873 Michelangelo's *David* was moved indoors, and a replica was placed in Florence's Piazza della Signoria in 1910. Strong views have characterized outdoor sculpture conservation since at least the nineteenth century, and it can be said that the passionate response to this issue has been a positive feature, leading to fresh ideas and new perspectives. Today advocacy, debate, negotiation, and resolution are essential components of the conservation process for outdoor sculpture, for which the implementation of a long-term conservation strategy depends on commitment from those responsible for maintenance. Unless maintenance is regular, the environment will quickly regain the upper hand.

All outdoor monuments and sculptures eventually acquire new meanings and functions because their cultural context—our society and its values—changes. For this overview, we will concentrate on those outdoor sculptures of the twentieth and current century for which we, as a society, wish to retain their original purpose. In contrast, Egyptian temple statuary or Neolithic stone circles have acquired different meanings through age. They need to be conserved, but the reason for doing so has little to do with their original functions and everything to do with what they represent for us now. For these older monuments and sculptures, Western society currently recognizes age as a value to be preserved. However, with modern sculpture, we value newness as part of its aesthetic function, to be preserved, or at least managed, by maintenance. The challenge has been to conserve modern and contemporary sculptures without losing the functions and meaning that we expect them to retain in an outdoor context.

The traditional materials of stone and bronze have naturally dominated publications and conferences about outdoor sculpture, just as they do the sculptural landscape. Public perception of what constitutes damage for different materials varies. The physical erosion of stone carvings fronting medieval European cathedrals is widely deplored as involving a loss of historical information and aesthetic quality, yet reactions to comparable deterioration of bronzes have usually been less critical. Before a bronze left the foundry, it would normally receive a chemical patina—usually black or brown on early twentieth-century works. The damage to original

Locking Piece (1963–64) by Henry Moore, Tate, London. Moore's later bronzes left his West Berlin foundry patinated in a range of colors and sealed with a polyurethane coating. When the coating breaks down in sunlight and weathering, the exposed bronze darkens and oxidizes unevenly. Reproduced by permission of the Henry Moore Foundation.

delicate finishes was rarely regarded as a problem; in fact, the development of a green patina was often valued as an aesthetic enhancement. A prevalent misconception was that verdigris (to use the generic term for a variety of corrosion effects) was intentional rather than a corrosion layer that had replaced an original patina (see Phoebe Dent Weil's excellent discussion of patina, which is reprinted in the GCI's Readings in Conservation series volume *Historical and Philosophical Issues in the Conservation of Cultural Heritage,* 1996).

Early Developments

As early as the 1860s, the Berlin Patina Commission addressed the concerns of the changing appearance of outdoor bronze sculptures. In 1921 the *Times* of London drew attention to the "deplorable condition" of many of the statues in London. In 1929, "The Open-Air Corrosion of Copper: A Chemical Study of the Surface Patina" was published in the *Journal of the Institute of Metals* in London by W. H. J. Vernon and L. Whitby. The authors asserted that the green patinas were stable and protective, and their view may have encouraged complacency about the need for treatment of corroding bronzes. By 1951 J. F. S. Jack of the Ancient Monuments Branch of the Ministry of Works, London, observed: "Despite the relatively good corrosion-resisting properties of bronze, the heavily polluted atmospheres of industrial cities contain substances capable of causing corrosion." He recommended a maintenance program of twice-yearly applications of lanolin for the numerous bronze statues in central London. Even though the sculptures acquired a uniform black appearance, the underlying bronze remained in good condition. The program continued for nearly fifty years.

Mother Peace (1969–70) by Mark di Suvero (steel painted orange, 41' 8" × 49' 5" × 44' 3"). A gift of the Ralph E. Ogden Foundation Inc., this work is in the collection of the Storm King Art Center in Mountainville, New York. *Photo:* Courtesy Storm King Art Center.

It was only in the early 1970s, when conservators and scientists collaborated to study the mechanics of bronze corrosion, that the relevant terminology changed from *aged patina* to *corroded surfaces.* The condition of the Horses of San Marco in Venice gave rise to scientific investigation on a scale that set the pattern for other big projects, such as the Statue of Liberty, Ghiberti's gilded bronze baptistery doors, the Gates of Paradise in the Piazza del Duomo in Florence, the Albert Memorial in London, and the Equestrian Statue of Marcus Aurelius in Rome. The revelation of the recent effects of pollution and acid rain on sculptures that had survived for two thousand years alerted the conservation community to the urgency of the problem. This finding ran counter to the popular belief that bronze was indestructible. Henry Moore (1898–1986), the best-known British sculptor of outdoor bronzes, said, "Bronze is a wonderful material, it weathers and lasts in all climates. One only has to look at the ancient bronzes, for example, the Marcus Aurelius equestrian statue in Rome. . . . Under the belly of the horse, the rain has left marks which emphasize the section where it has run down over the centuries. This statue is nearly two thousand years old, yet the bronze is in perfect condition. Bronze is really more impervious to the weather than most stone." A few years later this statue was removed for conservation and eventually replaced with a much-criticized replica. Moore had been unaware of the extensive structural deterioration due to outdoor temperature cycles and pollutants, later revealed by a thorough technical examination. The original sculpture, now conserved, is currently displayed indoors in controlled conditions.

At the conference "Dialogue/89: The Conservation of Bronze Sculpture in an Outdoor Environment," Arthur Beale of the Museum of Fine Arts, Boston, presented an overview that highlighted not only the scale of the problem of environmental pollution and acid rain but also the growing public awareness of the need to maintain these deteriorating sculptures. There was consequently a greater willingness on the part of custodians to prioritize maintenance of works found to be most in need. At the conference, there was a debate (which continues today) on the pros and cons of removal of corrosion products on bronzes. It was agreed, however, that whatever treatment was carried out, the key to long-term protection for bronzes was regular maintenance and the renewal of protective coatings of lacquer or waxes; at the same time, there was consensus that further research on the ways in which these coatings respond to weathering processes was needed. Studies in Canada have identified and correlated the location of corrosion samples to increase understanding of corrosion and weathering processes.

Modern Sculpture

The ethics of repatination also invigorated debate. Some conservators preferred to clean and leave surfaces untouched, while others chemically repatinated or used more reversible methods, such as pigmented waxes or lacquers. Information from foundries about applied patinas and coatings can often inform a conservator's decision on how best to preserve sculptures. Problems with Henry Moore's bronzes illustrate common concerns faced by conservators of modern sculpture. His later sculptures left his West Berlin foundry patinated in a range of colors, from bright gold to dark browns, and sealed with a polyurethane coating. As the coating broke down in sunlight and weathering, the exposed bronze darkened and oxidized unevenly. This change in appearance dramatically altered the light and dark contrasts on the forms. At present, few believe that this is a desirable situation; even so, the confidence to repatinate resides with those few conservators and fabricators who knew Moore or have sufficient contemporary documentation of the sculptures' original condition to interpret his views. It is interesting to note that Moore admired the effects of

aging on older statuary yet protected his own works with a coating. Clearly the topics of repatination and the characterization of new and aged patinas require further research. It is urgent that contemporary accounts from fabricators, sculptors, and their assistants be captured.

Moore's views about his patinas and several other papers on modern outdoor sculpture were discussed at the 1995 London conference "From Marble to Chocolate: The Conservation of Modern Sculpture." Among the newer materials mentioned were aluminum, cement, concrete, and reinforced resins. Perhaps the most widely used newer material, employed by sculptors as prominent as Picasso, David Smith, Caro, and Calder, is mild steel. This material presents a challenge to traditional conservation ethics. Steel rusts unless protected by plating or an effective multilayer paint system that is continually maintained and even renewed when necessary. However, to maintain these works, radical restorations, such as repainting, are often necessary. Conservators stress the importance of interdisciplinary discussions with custodians, curators, and artists to ensure that the goal of treatment is in keeping with ethical guidelines, the artist's views on materials, and contemporary attitudes regarding authenticity.

Sculptors are increasingly using a variety of media, and conservators do not yet have adequate solutions to arrest the deterioration of many modern materials displayed outdoors. Technology and materials science have already changed the expectations of artists and audiences regarding the aging of sculptures. For instance, rusted sculptures, once thought unappealing, are now more aesthetically acceptable following the adoption of weathering steels by the building industry. These materials were developed in the 1930s to provide structural steel alloys that could be left unpainted. The steels (widely known under the trade name Cor-Ten) develop a stable rusted patina on exposure to the atmosphere and cycles of wetting and drying; yet sculptures made from Cor-Ten in the last forty years have shown alarming signs of deterioration. The Canadian Conservation Institute's conference "Saving the Twentieth Century: The Conservation of Modern Material," held in Ottawa in 1992, was one of the first international meetings to address the conservation problems of Cor-Ten. When Naum Gabo's *Head No. 2* (1966), made of Cor-Ten, was displayed outdoors, it quickly became apparent that water collecting in pockets was hastening corrosion, especially around welds. Gabo made another version in stainless steel for outside display, and the Cor-Ten sculpture was brought indoors.

There are still few published accounts of the problems associated with mixed-media sculptures. Conservation of these artworks tends to require expert input from beyond the conservation profession—from architects, engineers, health and safety specialists, fabricators, and materials scientists. A good example can be found in Paul Benson's account of the restoration of Claes Oldenburg and Coosje van Bruggen's *Shuttlecocks* (1994) at the Nelson-Atkins Museum of Art in Kansas City, Missouri. The artists had stipulated that the four giant shuttlecocks, made of aluminum and painted glass-reinforced plastic (GRP, also known as glass fiber or fiberglass), be repainted every two years—but after

Shuttlecocks **(1994) by Claes Oldenburg and Coosje van Bruggen, part of the collection of the Nelson-Atkins Museum of Art in Kansas City, Missouri. The artists had stipulated that the work—made of aluminum and fiber-reinforced plastic painted with polyurethane enamel—be repainted every two years, but after consultation a more sustainable, long-term solution using a new paint system was found.** ***Photo:*** **Courtesy of the Nelson-Atkins Museum of Art.**

consultation, a more sustainable, long-term solution using a new paint system was found.

Maintenance is the mantra of all outdoor sculpture conservators, and it is frequently declared to be "the only viable conservation strategy for outdoor sculpture." The title of the 1992 American Institute for Conservation of Historic and Artistic Works (AIC) symposium, "The Maintenance of Outdoor Sculpture: Whose Job Is It?" organized by Virginia Naudé, Martin Burke, and Glenn Wharton, focused on the challenges involved in determining what to do and in getting it done, year after year. The skills required go beyond conservation expertise: they embrace public relations, negotiation, and project management. The scale of the project required to maintain an outdoor sculpture is often commensurate with the size and prominence of the object itself. It can be difficult to convince custodians that treatment is desirable when corrosion is perceived as patina—but it can be even harder on new projects to secure maintenance funds before any change is apparent.

Advances

Founded in 1989, the Save Outdoor Sculpture! (SOS!) program in the United States and the Public Monument and Sculpture Association (PMSA) in the United Kingdom are nonprofit organizations that help local communities preserve and promote their sculpture. Both agencies have contributed to creating more awareness of the scale and urgency of the problem of preserving outdoor sculpture. The SOS! campaign (see p. 17) has collected information on over 32,000 publicly accessible outdoor sculptures across the United States, of which 54 percent were determined to be in urgent or critical need of conservation to survive. They are registered on the Smithsonian American Art Museum's online database, the Inventory of American Sculpture. In Britain, the PMSA's online National Recording Project fulfills a similar function by assessing the scale of the outdoor sculpture challenge—9,316 outdoor sculptures are recorded so far. The heritage preservation community is learning that these kinds of public campaigns work. They raise public awareness and funds for priority projects.

Many of the durability problems associated with contemporary outdoor sculptures can be anticipated before commissioned works are fabricated and sited, especially if conservators are consulted at an early stage. Online guides are available to help prepare specifications for new commissions and select conservators. One advance in recent years has been the establishment of good practice guidelines, written by conservators, which stress maintenance as the single most effective action to preserve outdoor works. In the future, most outdoor sculpture commissions will be initiated with contracts that specify conservator involvement, maintenance responsibilities, and ownership rights.

Portable technology and tools are particularly useful for outdoor work. Technological advances include handheld X-ray fluorescence (XRF) units created for onsite elemental analysis. Laser cleaning technology continues to develop and become more portable; although not a panacea, it has potential for both stone and metal cleaning. Various laser systems are under evaluation by conservators and conservation scientists, and laser cleaning is now

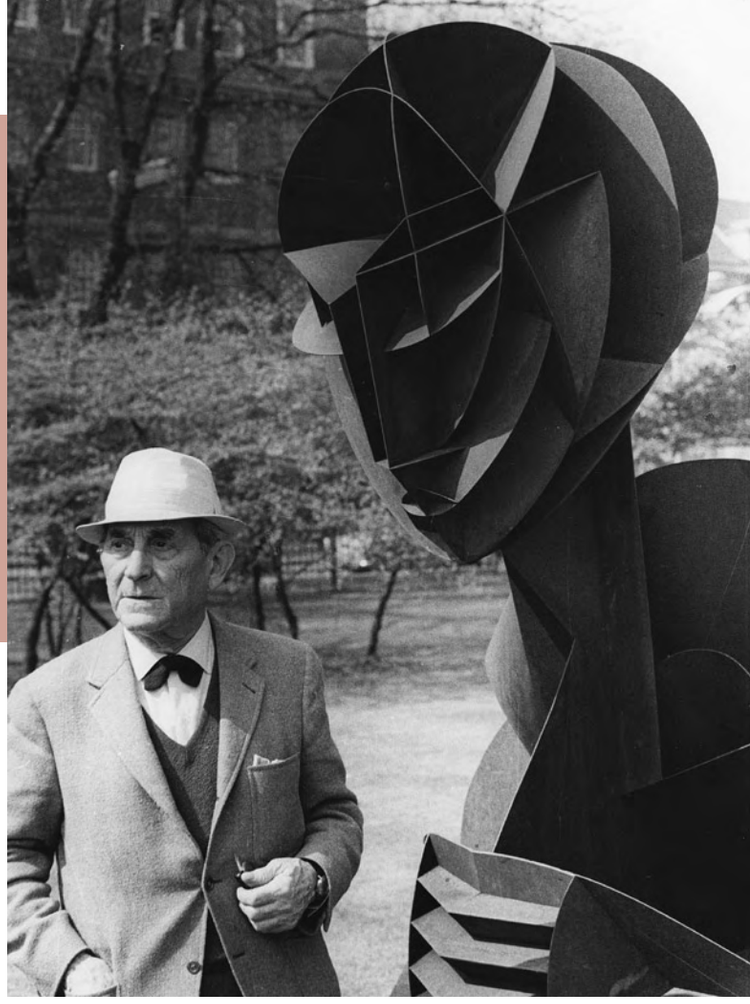
Another Place, a 2005 installation of a 1997 work by Antony Gormley at Crosby Beach, Liverpool, England. The work includes one hundred cast-iron sculptures sited on a beach where corrosion is part of the process of the artwork. While these sculptures will require regular structural inspections, the artist expects the figures eventually to succumb to the sea or to be buried in the sand. ©Antony Gormley. *Photo:* Stephen White, courtesy Jay Jopling/White Cube (London).

being applied to large-scale outdoor sculpture conservation efforts, such as the 2006 project to protect the Alexander Milne Calder bronze sculptures on Philadelphia City Hall, a collaboration involving conservation oversight by Andrew Lins of the Philadelphia Museum of Art. Better methods of documentation are being explored through photogrammetry and laser scanning, and online inventories offer the prospect of linking photographic and conservation treatment records to individual sculptures.

While conservation science helps identify, test, and predict material behavior, along with this information, we need to understand why artists choose a particular material and how they feel about changes to their work resulting from weathering. The International Network for the Conservation of Contemporary Art (INCCA), another online project, aims to collect, share, and preserve knowledge needed for the conservation of contemporary art. It encourages conservators to document their own experiences and to gather artists' views about the materials and techniques they use. The artist's viewpoint can enlighten the discussion surrounding contemporary works, including ethical issues of refabrication and replica creation. Similarly, questions about treatment, maintenance, or refabrication can be dealt with effectively at the commissioning stage.

Conservation projects involving outdoor sculpture can be large and complex. Unfortunately, conservation training does not often include project planning and management training. Furthermore, the conservation of outdoor sculpture is insufficiently recognized as an area of specialization; for example, within the AIC, outdoor sculpture is grouped with the Architecture Specialty Group, presumably because of a shared concern with immovable cultural objects. There is a definite need for a specialist education program at the graduate level to encourage more conservators to work in this area. Custodians of outdoor sculptures unwittingly allow unqualified operatives to damage sculptures with inappropriate treatments. More internship opportunities for conservators to gain hands-on experience are needed. Continuing scientific research will provide a clearer understanding of the effects and causes of degradation, and working with industry should help us find better solutions to complex problems. The common practice of casting an edition of multiple versions of the same bronze sculpture provides a research opportunity. What is effectively the same work can be located in several places around the globe with different climates and maintenance histories. Some versions of the sculpture will have remained indoors and have undergone alteration at a much slower rate than those situated outdoors. Comparing like with like and analyzing the differences may tell us a great deal about how form, material, and the environment interact. The real-life aging lab that is outdoor sculpture is an excellent place to test ideas.

Outdoor sculpture conservation, a relatively new discipline, is continually evolving to meet new challenges. Sculptures are becoming increasingly complex in structure and in the variety of media used, such as fountains, landscape, plants, and electronics. As the field broadens, conservators have to consider the rights of the sculptor to approve even emergency interventions. They also need to know when not to intervene, since some artists choose to face the outdoor environment head on. Antony Gormley has sited one hundred cast-iron sculptures on a beach where corrosion is part of the process (*Another Place,* 2005). While these artworks will certainly require maintenance in the form of regular structural inspections, the artist expects the figures to eventually succumb to the sea or be buried in the sand.



Artist Naum Gabo with *Head No. 2,* enlarged version (1966), Tate, London. When *Head No. 2,* made of Cor-Ten steel, was displayed outdoors, water collecting in pockets hastened corrosion. Gabo made another version in stainless steel for outside display, and the Cor-Ten sculpture was brought indoors. *Photo:* Sir Norman Reid, courtesy Nina Williams.

Nothing is certain in the conservation of outdoor works of art, except that all materials change faster outdoors, and only regular maintenance can delay that process. For sculptures sited indoors—a relatively benign environment—we can often put off routine treatments without causing further harm. For outdoor sculptures, delay is not an option.

Derek Pullen is head of sculpture conservation at Tate in London. Jackie Heuman is the senior sculpture conservator at Tate.

Outdoor Sculpture at the Getty Center

Getty conservators removing a failed polyurethane coating from the base of Henry Moore's *Bronze Form.* The sculpture is part of the Fran and Ray Stark Collection of the J. Paul Getty Museum, recently installed at the Getty Center. *Photo:* Tahnee L. Cracchiola. Reproduced by permission of the Henry Moore Foundation.

In June 2007 the Getty Center opened the Fran and Ray Stark Sculpture Garden, transforming the grounds with a major outdoor sculpture collection. The collection includes twenty-eight American and European sculptures donated from the collection of the late film producer Ray Stark and his wife Fran. When the Getty accepted the Ray Stark Revocable Trust's donation in 2005, an intense installation schedule was developed involving collaboration within the Getty, as well as with the trustees of the Stark Trust, Richard Meier & Partners Architects, Olin Partnership landscape designers, KPFF structural and civil engineers, Hathaway Dinwiddie Construction, living artists, and foundations.

The Decorative Arts and Sculpture Conservation Department at the Getty Museum—responsible for the care of this collection—became involved before the donation, advising on how a collection of this scale would impact operations. An initial step was to gather information about the outdoor environment at the Getty Center in order to understand the specific needs for protecting the collection. Getty staff—led by conservators Brian Considine, Julie Wolfe, and Katrina Posner—reviewed reports on urban pollutants, checked salt levels in the air, tested the water quality, and collected wind measurements for kinetic works. For each sculpture, the conservators specified criteria for installation, then presented these requirements to the installation team to ensure that potential damage could be minimized through careful placements, protective coatings, and seismic mounting.

Care of the collection began with thorough condition assessments, which included examination for structural instability. In some cases, weak areas in bronze castings were examined using X-radiography. Analysis of corrosion and coatings gave more information about the surface stability and guided selection of cleaning and coating protocols. Treatments primarily included reducing years of thick, dull wax buildup by using solvents, steam, and/or pressure washing. Recoating frequently involved the use of a microcrystalline paste wax that was compatible with existing wax on the bronze sculptures. The painted steel or aluminum sculptures had varying degrees of deterioration, and in the case of Calder's *Jousters,* a complete repainting was carried out after consultation with the Calder Foundation to ensure that the new colors conformed to the artist's original intent. When interviewing the living artists, conservators carefully collected extensive information about materials, techniques, and original appearance, so that any treatment undertaken would incorporate the artists' concerns. Two artists—Ellsworth Kelly and Jack Zajac—recommended that their works be repatinated because of their altered condition. The conservators and curators chose to implement the treatments while ensuring that the process was well documented. In both cases, the artists were actively involved.

An overall vision for the long-term preservation of the collection informed the planning and the treatments. The installation of the Fran and Ray Stark Collection, however, is only a beginning. More research work remains. Several major treatments were postponed until proper investigation could be undertaken. The maintenance plan is seen as an ever-evolving process, allowing for review, unpredictability, and the inevitability of change.

Julie Wolfe
Associate Conservator
Decorative Arts and Sculpture Conservation
J. Paul Getty Museum

Shared Responsibility

A Discussion about the Conservation of Outdoor Sculpture

Penny Balkin Bach is the executive director of the Fairmount Park Art Association in Philadelphia. A curator, writer, and educator, Ms. Bach has written extensively about public art and the environment and is the author of Public Art in Philadelphia, *published by Temple University Press, and "Lessons Learned: The Past Informs the Future" in the* Public Art Review.

David R. Collens joined the staff of Storm King Art Center in Mountainville, New York, in 1974 and is curator and director of the five hundred acre sculpture park and contemporary art museum, where his responsibilities include the planning and implementation of major exhibitions and the supervision of sculpture installations.

John Griswold holds a master's degree in conservation research from Queen's University in Canada and has been involved with outdoor sculpture conservation since 1987. He is a principal of Griswold Conservation Associates, LLC, based in Beverly Hills, California, and is also on the staff of the Norton Simon Museum as conservator.

They spoke with Julie Wolfe, associate conservator in Decorative Arts and Sculpture Conservation at the J. Paul Getty Museum, and Jeffrey Levin, editor of Conservation, The GCI Newsletter.

Jeffrey Levin: *It's become a given that regular maintenance is critical to the preservation of outdoor works of art. Is sufficient attention paid to maintenance with most outdoor collections—and if not, why not? Is it really only a matter of resources—or are the most effective approaches not being employed?*

Penny Balkin Bach: In Philadelphia and other cities where works have been acquired over time, we like to think of the outdoor collection as a museum without walls. But this is a collection in a very elusive sense. In the urban ecology, many outdoor sculptures are what I would call orphans—they may no longer have an advocate. The people who commissioned them may be long gone, and there may not be a city agency that's watching out for them. Insofar as municipal agencies do have responsibility for care of a collection, it's generally not a priority. Outdoor sculpture is not alone in that. Cities often don't take care of the maintenance of their streets, parks, and many other things, so outdoor sculpture suffers along with everything else.

In Philadelphia, fortunately, we have the Fairmount Park Art Association, founded in 1872 and the oldest public art program in America. We are a private nonprofit organization, and we work closely with the city. We're able to call attention to conservation issues—regardless of who may actually own a work or have jurisdiction over it—and act as a catalyst to bring together a lot of resources. Going back to your question: is sufficient attention paid to maintenance? No. Is it a matter of resources only? No. I think there is the issue of stewardship, which is a fairly new idea in urban public settings.

Levin: *Are you aware of other cities where this approach to preservation exists?*

Bach: The Art Association is somewhat unique because of our historic collection, but more and more cities do have private agencies working with municipal authorities. For example, the public art program in Charlotte, North Carolina, is overseen by a private nonprofit group, and they are setting aside funds for maintenance. Also, the concept of a government percent-for-art program incorporating funding for conservation is growing. Initially there was enthusiasm for commissioning artwork, but not an understanding of what was required to take care of it. This is something people across the country are wrestling with. Now some communities are passing, for example, 1.3 percent-for-art programs, where 1 percent is for the commission of the artwork and one-third of a percent is for maintenance.

John Griswold: There has been a real evolution in the approach to stewardship, and Penny needs to take some credit for that fact. The idea of a percent-for-art programming has been a real catalyst for creating an understanding for those in government that there should be a long-range plan for commissioning work and for maintenance. Maintenance programs and long-range planning have become buzzwords in the last couple decades. The extent to which this has been implemented varies quite a bit from region to region, but it's beyond the model of the municipal government taking it on alone. The key for the long-term preservation of outdoor sculptures is a maintenance plan.

David R. Collens: From the standpoint of what is being done at Storm King Art Center, it is still a learning curve. Our sculptures remain outdoors all year long, and there are always surprises. There are endless surprises with Cor-Ten steel sculptures, for example—the wonder material that did not turn out to be one. They have problems of decaying on the inside, no matter what maintenance you do. We discuss with a variety of conservators what needs to be done to sculptures, and it is often far more than just regularly washing or waxing or taking bird droppings off of them.

Levin: *What other kinds of things are involved?*

Collens: Many of the sculptures are twenty to thirty years old, and they are starting to suffer. It is more than sandblasting or chemically removing paint and repainting. It is really engineering. Bolts, welds, concrete foundations underground—a whole range of things that become far larger projects then originally anticipated. The resources brought to bear on this situation are a good portion of the Art Center's fundraising efforts and budget.

Two other comments on the question of maintenance: one is that a number of collectors are moving to large-scale outdoor sculpture on their properties, and while some of the conservators being called upon to maintain these pieces properly are certainly qualified, there are many others who are not. My other comment is that the federal government started collecting large-scale sculptures for urban areas back in the 1970s with no maintenance budget. Many wonderful pieces were created, but the government was caught off guard when it came to the repair of these pieces. They needed not just painting but serious work, which meant they had to be taken down or extra money appropriated to do the work.

Photo: Courtesy of Penny Balkin Bach

"Ongoing maintenance means less radical intervention in the long run."

— **Penny Balkin Bach**

Bach: For a number of years there has been a focus on conservation, but not necessarily maintenance. What we've begun to do in Philadelphia, when possible, is not to get to the point where major intervention is required. Ongoing maintenance means less radical intervention in the long run. We find that regularly inspecting sculptures and trying to solve the smaller problems as they arise is an effective way to manage our resources.

Griswold: We need to realize that it's a team effort, and that ultimately things stem from the artist's original intent and expectations. These are important guiding principles for how to proceed. It often falls on conservators to referee between different concerns, perceptions, and approaches—and going straight to the artist or the artist's estate or records about intent is key. But it's also understanding what the fabricator had in mind when, say, a complex Cor-Ten piece was fabricated and installed. Was there an understanding of the material that anticipated that enclosed spaces might pose problems of condensation? What was done over time to mitigate that? Did deferred maintenance prevent whatever steps were in place to be rendered ineffective? It all ends up being a very interesting set of circumstances that force us not to do this in isolation. Conservators

of outdoor sculptures who think they've got all the answers and can just step up with a recipe book on what needs to be done fall into the category that David was talking about. There are an increasing number of outdoor pieces out there and a lot of people ready to sign up for the job of maintaining them.

Levin: *Penny, your collection is a mix of works that are older and made with traditional materials, as well as modern pieces with newer materials. Are you finding more problems with the newer sculptures that were not anticipated when they were first created?*

Bach: Absolutely. Remember that bronze was supposed to have been an enduring material, and look what happened. No material is maintenance free. There are always going to be unexpected things that happen, and this certainly happened with bronze. In the 1980s when organizations like ours began to work on bronze sculptures, it brought attention to other problems. In the nineteenth century, no one foresaw how pollution and acid rain would affect that metal. We also didn't foresee what would happen with Cor-Ten. We need to constantly learn how to understand these materials better. A worrisome aspect of this is the reflex to commission work that is supposedly easy to maintain. I think that just because a material may require maintenance is not a reason to prevent it from being used in a public or outdoor setting.

Collens: Basically I would concur. I do not think conservators, curators, and others should be dictating to artists what materials to use. I know some conservators would like to tell sculptors to bronze everything and forget about wood and other materials. That is stepping into the creative area, and they should not.

Levin: *Is there some role that conservators or people in the conservation field could have that would be appropriate?*

Bach: When the Art Association commissions new work, we engage a conservator to consult with the artist to help the artist figure out how to do something—not to tell them how to do it. That puts the conservator in service to the art and the artist early in the process.

Griswold: At any given time we have a project or two that is just that—serving as advisor to a proposal that's being developed. It's exciting to work with an artist at the inception of a work of art. It's a wonderful dialogue. I've spoken to graduate classes of sculpture students, and the horror stories of the before and after tend to fascinate these artists and spark a sense of creativity. My approach with them is to tell them to bring more sophistication to the decision making process and to really express their intent. "How do you envision your work of art—with experimental materials or combining different materials in a particular environment? How do you envision that work of art aging?"

Often we have to deal with the reality that some contemporary art isn't necessarily linear in the sense of more enduring monuments. There is a lot of engagement on the part of the artist with the idea of deliberate impermanence and deterioration. Sometimes we're in the role of helping the artist have a clearer vision of how that process might run its course. As long as those commissioning the work, the public, and other stakeholders understand that a particular work of art may have a definite lifetime, then I'm all for it. An Andy Goldsworthy installation, for example, is often intended to show some sequence of decay, and the documentation and embracing of that *is* the process.

Julie Wolfe: *If impermanence is not deliberate, how responsible are artists to ensure durability of their works?*

Bach: I think that fabricators have gotten a bit of a free ride. They consult with the artist and make plans and decisions. A conservator involved in an early stage can be immensely helpful in keeping an eye on the method of fabrication. This is an area of oversight that has not been explored as it might. I think there's a lesson in the use of Cor-Ten steel. It's my understanding that the industry knew a lot more about how Cor-Ten was going to weather than the fabricators who made artworks in the 1970s. We now have inherited many problems because the work wasn't properly engineered to perform according to the known characteristics. When the artist chooses the fabricator, the fabricator really needs to be held to a high standard of performance and accountability.

Griswold: Very clearly, where the artist may fail in everyone's expectations is in the actual fabrication of a work and its performance, versus what all the drawings or mockups might have represented. The whole arena of negligence or of misrepresentation is not one we can explore in this conversation without someone who knows the legal issues. Certainly responsibility exists for anyone signing a contract to produce a tangible deliverable. But the arena of public art is fascinating because of the requirement for shared responsibility. If we just rely on a small pool of artists who know all the bureaucratic ropes and the range of materials that are likely to put facilities managers at ease, we are shortchanging the public in terms of the creative potential out there.

Collens: I agree. Years ago I was on a committee in New York City for sculpture, and the only people selected were sculptors who had a proven track record working in urban areas. A younger, less established sculptor might have a better idea artistically, but if the person did not understand the process of working with engineers, conservators, and a bureaucratic system to produce the sculpture for the subway or train station in New York, that person was not considered. This was a number of years ago, but unfortunately it ruled out some very creative people.

Griswold: The more that responsibility is shared for these works, the more we can look to the future with a clear understanding of what the expectations are and have contingency plans for what may go wrong. For example, we may anticipate that certain parts of a sculpture will have a finite life and choose the moment of creation to be the time to create a stockpile of spare parts.

Bach: The whole idea of planning along with artists and asking them to speculate or think about the unexpected is very exciting. It also means that one has the opportunity to ask artists how they want to be involved in the future. We've had some experiences where artists didn't want to be involved, and others where we carefully agreed together how something would be maintained.

Collens: Some sculptors, especially the major ones at Storm King, are very familiar with the materials that they are using, and the sculptures stand up well. Others who are less familiar with the materials might not want to be involved with the process of conservation, more than the painting and so forth. When we come up with problems, they certainly want to know about it. But clearly some sculptors do not have a lot of knowledge about the paints or welds or bolts being used. They leave it up to the fabricator.

Wolfe: *John, do you agree with Penny that fabricators have gotten a free ride on this process?*

Griswold: There are many well-qualified fabricators at this point in time, but even the qualified ones are rethinking what they did thirty years ago with Cor-Ten on major sculptures. For example, how do you fasten Cor-Ten with lead and have it hold up? The fastening devices are very different today then they were thirty years ago. I think everyone has learned a great deal.

Wolfe: *This discussion shows how important it is for conservators to work with the artist and fabricator, in order to learn better what the artist was going for in the end. That can be lost if a conservator isn't part of the process and isn't documenting it—keeping in mind that materials change over time, appearances will alter, and better materials will become available. This raises an interesting ethical question—how much liberty can conservators take in trying a new material that we think will be more appropriate to preserve the original state?*

Collens: There are a few situations at Storm King where sculptors have been involved with decisions and have chosen to refabricate—and in one case, the artist selected heavier steel than he could have afforded thirty years ago.

Griswold: It's important to get artists to record what they were thinking when they selected materials. If we can get them to articulate *why* they chose particular materials—and, in the long run, their performance criteria—then that might give us the freedom to steer toward what's available off the shelves fifty years hence that meet those criteria.

One other point I want to make—part of our role as conservators is helping to preserve authenticity. We have to realize that in a hundred years, for example, there may be one or two outdoor Calder pieces that retain the original paint and have therefore ended up being incredibly important as artifacts. We need to keep in mind that we look to works of art as primary documents of the artistic process. A discussion of maintenance of outdoor sculptures must at least acknowledge this growing value of authenticity. If it is collectively decided that a sculpture should be repainted, do we preserve a small part that shows the original paint, almost from an archaeological standpoint? A conservator is particularly trained in helping to facilitate that dialogue.

Collens: I'm just thinking historically of David Smith and Alexander Calder. They painted their large-scale sculptures—especially Calder—using what they considered the best paint at that point in time. But paint has improved so much that now Calder's sculptures are getting significantly better paints on them. Still, for Calder and Smith and many other historical sculptors, you should try to preserve the paints that are on the sculptures. It does not have to be a perfect paint surface. Clean and preserve as much as possible and historically valuable.

Bach: We always want to maintain as much of the original as possible. You have to begin from that point. For example, the Art Association has a Cor-Ten sculpture by Louise Nevelson, and we wrestled with refabrication. It had severe corrosion, and so we convened a roundtable to sit down and talk with us—artists, fabricators, curators—because, as stated earlier, it's a field of shared responsibility. There are different points of view, and listening to all and making an informed decision makes a lot more sense than a decision in isolation. After a very complex and wonderful discussion, we decided that we would keep as much as possible and not refabricate the Nevelson sculpture.

Levin: *David, would you endorse this collective approach to decision making?*

Collens: I think the diligent thing to do is bring in a broad range of people. I do recall the project the World Monuments Fund did in Romania on the Brancusi *Endless Column.* I was at a conference several years ago in Romania, and a range of people were brought in—engineers and metallurgists and others—to look at the core of the column and also how to resurface it. Basically, how to put it back to the way it was originally for a short time in the 1930s. A major effort goes into working on and preserving pieces, and one has to

Photo: Courtesy of John Griswold

"The more that responsibility is shared for these works, the more we can look to the future with a clear understanding of what the expectations are and have contingency plans for what may go wrong."

— John Griswold

weigh the value of the object. In the case of the Brancusi column, it is one of the great sculptures of the early twentieth century.

Griswold: What about consideration of an exhibition copy when the original object, in an outdoor setting, seems to be fragile and vulnerable and also incredibly important to preserve? Is that ever an option? We can point to high-profile examples of things that could be considered outdoor sculptures in a broad sense—the Gates of Paradise in Florence, for example—that were brought indoors for their own good, and very convincing replicas put in their place. In theory you can extend that principle to significant contemporary and modern outdoor pieces. It's a difficult question, and there are legal ramifications, certainly in California and in New York, where artist rights are well established and articulated and there is risk involved in undertaking interventions without express authorization from the artist or the estate. The Henry Moore Foundation, for instance, provides a lot of important guidance to conservators.

Collens: It's very important to communicate with living sculptors or their estates or foundations.

Levin: *What about the idea of an exhibition copy?*

Collens: It does not appeal to me.

Bach: Every instance can be so different. For example, there was a major renovation of Philadelphia's historic waterworks, which in the early nineteenth century was a great wonder of engineering, art, and architecture. William Rush created a number of wooden sculptures for that site that are now in the Philadelphia Museum of Art and the Pennsylvania Academy of the Fine Arts. But when the restorations of the Fairmount Waterworks were taking place, we considered the importance of the sculptures in relationship to the site, and we decided to cast fiberglass copies of Rush's *The Schuylkill Freed* and *The Schuylkill Chained* so they could be placed on top of the Entrance Houses where they were originally located. Initially it didn't seem like something I would favor, but the reproductions complete the architectural ensemble in such a way that I now can't imagine the buildings without them. Of course, the signage clearly says that the originals are in the museum. The point is that you have to consider the entire context, as well as the artist's intentions. In this case, the artist intended the sculptures to be part of the building's ornamentation, so removing them, we felt, was contrary to the spirit of his intentions.

Levin: *Do aesthetic values typically trump preservation of original materials? If a work is experiencing serious deterioration and some major refabrication is necessary in order to preserve the artistic intent of the sculptor, is that the choice you make?*

Collens: Definitely.

Bach: I think we preserve most of the aesthetics by keeping the most original material. We need also to be very aware of the public nature of public art. Not all sculptures fall into that category, but some do. If we know the artist intended the work to be in a public space, then we also have to assume that the artist, to some extent, understood that it might change materially over time. The idea of restoring a work so that it is pristine and perfect, in certain cases, may be contrary to its public nature.

Levin: *Do you think that the conservation of outdoor sculptures has received the attention it requires?*

Collens: I do not think it has gotten the attention it deserves or requires. Museums and collectors are investing large sums of money in outdoor sculptures, and some conservators tell me that collectors are balking at what they are charging to take care of these works. People do not realize that you have to invest the time and energy of a conservator to keep an object in good condition, whatever the material is.

Griswold: There are many areas of research that are exciting and need to be pursued, such as the corrosion of metals at sites where water is in direct contact or in the vicinity of works of art, as is so often the case. The more we draw from related fields—archaeology or corrosion engineering, for example—the more we can really understand what those dynamics are and how can we intervene in that cycle of chloride-related deterioration of bronzes. Some exciting research for outdoor painted steel is the work of Abigail Mack and her colleagues at the National Gallery, who are in hot pursuit of a more stable flat black paint, which is something of a holy grail. This is a flat black paint that we hear of being developed for radar invisibility by the military, and one of its qualities is very

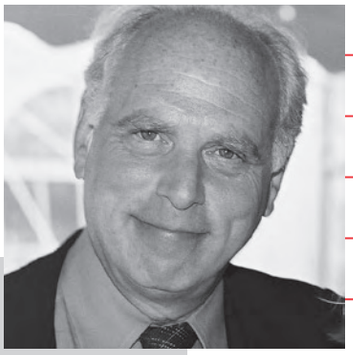


Photo: Courtesy of David R. Collens

> "People do not realize that you have to invest the time and energy of a conservator to keep an object in good condition, whatever the material is."
>
> — **David R. Collens**

high durability, along with a beautiful flat black surface. Basically, the more we're open to outside influences and continue to strengthen relationships already established with NACE [the National Association of Corrosion Engineers], a lot of exciting work can be done.

Bach: With new commissions, we are making history, and fortunately we have the opportunity to find out firsthand what the artist has in mind. For example, a number of years ago we commissioned a work by Martin Puryear, who traditionally works in wood, although not exclusively. The piece that he created was a pavilion that could be walked on, and so we established early on that for reasons of safety and aesthetics, it was his preference to repair or replace the wood planks in the area where people would walk. Because we addressed the issue, it's not a question we now need to consider.

Wolfe: *How much of a problem for outdoor collections is inappropriate or damaging actions by the public? Many collections have established a "no-touch" policy with respect to their outdoor sculptures—which can be difficult to enforce in a public space.*

Bach: I hesitate to say this, but relatively speaking, Philadelphia's vast collection of sculpture has had surprisingly little vandalism. We find that vandalism can be curtailed if it's handled immediately. Neglect opens the door for vandalism, so the more a community respects and maintains its sculptures, the more likely it is that the works of art will be respected. Personally, I don't believe in a no-touch policy for a public collection. A no-touch policy in an urban setting just draws attention to the work and might encourage more touching than normally takes place.

This is a role for public education. When the Art Association began waxing bronzes twenty-five years ago, we received many phone calls from people complaining that someone was out there painting all of the sculptures black. People didn't understand that they had been looking at corrosion. The public education aspect to our work is really important. Signage helps people know what they're looking at. Then there are tours, information on the Web, and working with kids. After we illuminated a number of sculptures in the park, people told us that they hadn't even noticed the artworks until we lit them. Working on public awareness helps people understand that outdoor sculpture contributes to quality of life and creates a sense of respect for a tremendous civic asset.

Collens: We try to discourage people handling the sculptures. Sculptures that are very sturdy are not going to fall apart if you climb on them, and the surface is not going to be seriously damaged from the oils from your fingers. They are not master paintings of the sixteenth century. But they are not playground equipment, either. Too much handling can be difficult for the surface, and people can be rather rough with them. Unfortunately, legal liability is also a great concern.

Griswold: There are many site-specific public sculptures that have been quite literally embraced by their community, and these sculptures have taken on a kind of importance that goes beyond what the artist originally intended. There's a need people have to touch something, to engage with it. We in conservation have to acknowledge the realities, right or wrong, of how sculptures are engaged. Sometimes there are non-malicious uses and traditions that are really fascinating—for example, the New York Public Library lion sculptures, which we worked on several years ago. During the World Series, the lions ended up wearing oversized baseball caps, and at Christmastime they had wreaths around their necks. One of the lions, *Patience,* I believe, had developed some cracks. Based on some research and in the course of treating that sculpture, we discovered that some of those cracks had been there from the beginning. In these huge blocks of Tennessee marble, there were some flaws that the carvers had discovered in carving it, and they inserted some bronze pins to help stabilize it. In the conservation and maintenance of these public works, we had to navigate the public love and sense of ownership of these sculptures with their vulnerabilities, and come up with an outcome that balanced the need for preservation for future generations with acknowledgment of present use.

Save Outdoor Sculpture!

A Community-Based Conservation Program

By Diane L. Mossholder

Every public sculpture has a story to tell—not only the story it was erected to commemorate but also the story of its care or neglect, often a reflection of how the community around it has changed over its life span. In some communities, public sculptures stand as landmarks and gathering places. In others, they are left in forgotten, overgrown corners, waiting to be rediscovered.

Public sculpture is entwined in a community's past, with lessons to teach about history, science, civics, and the visual, performing, and literary arts. Preserving these reminders keeps alive a spirit of community and informs citizens about their communal past. From the Statue of Liberty to a folk art piece in a small town, sculpture can be emblematic of a community's identity.

Unfortunately, outdoor sculptures are vulnerable to deterioration from pollution, lack of maintenance, vandalism, and accidents, and without proper care they eventually deteriorate, taking with them the stories they tell. While the threats cannot be eliminated, regular and appropriate care can mitigate them. But whether a sculpture gets this care depends almost entirely on how the people nearby feel about it—and whether they know it exists at all.

Leonard Crunelle's 1917 bronze sculpture of newspaper publisher George McCullough, in the middle of conservation treatment. The sculpture—located in Muncie, Indiana—was cleaned, repatinated, and coated with protective wax by Venus Bronze Works in 2002 as part of the SOS! initiative. *Photo:* Venus Bronze Works Inc.

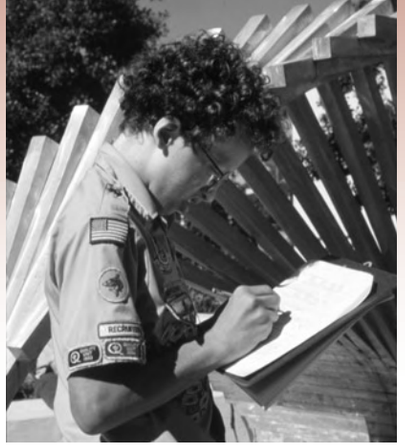
In 1986, Heritage Preservation (then called the National Institute for the Conservation of Cultural Property), based in Washington, DC, conducted the Public Monument Conservation Project, which set out to study publicly accessible outdoor sculptures and monuments that needed care but whose ownership was not always clear. That study led to the creation of Save Outdoor Sculpture! (SOS!), a partnership between Heritage Preservation and the Smithsonian American Art Museum.

Save Outdoor Sculpture! was launched in 1989 to document and improve the condition of outdoor sculpture in the United States. Through the survey and subsequent awareness and treatment campaigns, thousands of people of all ages across the United States have rediscovered or learned more about their local sculptures. As a result, many artworks have been saved from their slow slide into decay; many more remain to be rescued.

Rediscovering Outdoor Sculptures

SOS! began its efforts with a nationwide survey. Nonprofit organizations and state agencies were invited to submit proposals to manage a state or metropolitan-area survey. The selected groups designed their own criteria for the surveys; for instance, some included monuments and cemeteries, while others did not.

SOS! developed a survey questionnaire and a volunteer's handbook and tested them during a pilot study in four states in 1991. The program used a train-the-trainers approach, inviting state coordinators to Washington, DC, for hands-on instruction. They



Members of Boy Scout troops participated in the SOS! Survey, including this scout recording information about *Double Spiral Arch* (1987) by Linda Howard in Sarasota, Florida. *Photo:* Gerry Zeck.

returned to their states to teach the rest of the volunteer surveyors.

Eventually, about seven thousand volunteers were recruited and trained, including students, scout troops, veterans groups, civic organizations, local government employees, and entire families. They examined and reported on thirty-two thousand sculptures across the country; their survey forms were deposited into the Inventory of American Sculpture (IAS) at the Smithsonian American Art Museum, accessible through the SIRIS catalog (www.siris.si.edu).

"Creating a truly comprehensive database of America's outdoor sculpture could not have been done without the help of local SOS! coordinating agencies and the thousands of dedicated conservators and volunteers who documented and photographed outdoor sculptures across the country," said Christine Hennessey, Chief of the Research and Scholars Center of the Smithsonian American Art Museum. "We are immensely grateful to all who contributed and continue to contribute their time and expertise to helping us document America's cultural heritage."

The survey information was tested in the SOS! Random Sample in 1996–97, which compared volunteers' reports with opinions of the same sculptures by professional conservators. Of the 107 sculptures in the sample, the two opinions about basic surface condition agreed in 92 cases (86 percent). This sample verified the national survey's statistical conclusion that at least half of the outdoor sculptures in the United States were in need of attention.

"The SOS! survey mobilized people in every state and the District of Columbia to seek out and become invested in their public sculpture," said Susan Nichols, the founding director of SOS! "Once people rediscovered the sculptures in their communities—the history and context—they became advocates for their care and preservation. The survey started a process that led to assessments and conservation treatment."

Public awareness was integral to the survey. Coordinating organizations committed to at least one public awareness activity, with the goal of raising funds to care for sculptures. Some survey groups wore T-shirts and carried tote bags with the SOS! logo while they worked, inspiring questions from passersby. Cleveland SOS! helped its city launch an adopt-a-sculpture program and pass an ordinance requiring new sculpture to include maintenance funding. Other programs produced public service announcements, inspired media coverage of their efforts, held symposia, and even declared "sculpture months"—or sculpture weeks or weekends—with endorsements from mayors or governors.

In November 1996, SOS! held a meeting in Washington, DC, with participants from around the United States who celebrated the program's accomplishments and considered its future. More than two hundred people helped flesh out Phase II of the SOS! work plan, moving from documentation to care of sculptures in need. A new awards program ran from 1997 to 2002 and gave Assessment Awards paying for over 550 condition assessments by qualified conservators and sixty-four Achievement Awards funding preservation, scholarship, and public awareness activities. The Tender Loving Care program began in four communities in fall 1997, with conservators training volunteers to perform basic maintenance for outdoor sculpture. The program expanded in 1998, with the U.S. National Endowment for the Arts funding Maintenance Training Awards to support training sessions in nineteen communities.

In 1998, SOS! began its most ambitious project, the Conservation Treatment Awards, with funding that Heritage Preservation received from U.S. retailer Target Stores and the National Endowment for the Arts. American First Lady Hillary Rodham Clinton helped launch the $1.4 million project at the Francis Scott Key Monument in Baltimore, which was among the first sculptures to receive conservation treatment under the program. Nonprofit organizations and government agencies were invited to apply for the grants, which required matching funds. Review panels of experienced professionals in the fields of art history, conservation, and public art administration made recommendations for funding based on the significance of the sculpture, the urgency of its need, the ability of the applicant to carry out the project, and the applicant's plans for public awareness.

Conservation Treatment Awards were made to conserve 123 sculptures nationwide, saving them from slow decay by providing treatment from a professional conservator. Along the way, communities rallied around their sculptures, some holding elaborate rededication ceremonies after the treatment and others getting involved in the treatment itself as trainees.

In Hawaii, the town of Kapa'au participated in choosing the conservation treatment of *King Kamehameha I,* a beloved sculpture by Thomas Ridgeway Gould. Conservator Glenn Wharton initially intended to strip off layers of paint and restore the sculpture's original bronze patina and gold-leaf appearance. However, extensive discussion with the community revealed that the townspeople

had painted the statue in lifelike colors to give the statue a more human quality. Wharton worked with the Hawai'i Alliance for Arts Education and the King Kamehameha Celebration Commission to determine how the sculpture should be treated. Ultimately, a community-wide vote was held, and 71 percent of the town voted to continue the tradition of painting the sculpture. Wharton stripped the paint off the bronze, treated it with a corrosion inhibitor, and repainted it in colors chosen by community leaders and elders. Townspeople were trained in maintenance techniques and celebrated the sculpture's rededication in June 2001.

While the citizens of Kapa'au already valued their sculpture, some artworks were ignored until someone brought attention to them. From Girl Scout troops earning their SOS! patch to an American Civil War reenactor wanting to save a monument, people were inspired by Conservation Treatment Awards to learn more about sculptures and how to preserve them. SOS! has directly helped approximately one thousand sculptures, and many participants from the initial survey and awards programs continue to be active, advocating for maintenance endowments in percent-for-art projects and raising funds to care for specific sculptures in their communities.

Education Outreach

With knowledge gained through the survey and awards, SOS! developed the Inside Outdoor Sculpture Kit. It features learning activities and materials for grade school children, including science

The Francis Scott Key Monument (1911) by Marius J. A. Mercie. The monument, in Baltimore, Maryland, was badly in need of conservation treatment as it overlooked the kickoff of the SOS! Conservation Treatment Awards in 1998. *Photo:* Courtesy of SOS!

The Francis Scott Key Monument after conservation treatment. The monument received conservation treatment in the summer of 1999, when SAT Inc. cleaned the bronze and stone, replaced missing parts, and reapplied gold leaf. *Photo:* ©Ron Solomon.

experiments that duplicate the effects of acid rain on various sculpture media, as well as cleaning solutions and waxes that show how treatment protects sculptural surfaces. The exhibit *Preserving Memory: America's Monumental Legacy* toured U.S. venues from September 2002 through April 2005 (and is available for rental from Heritage Preservation). Its twenty color panels feature nearly two hundred artworks and encourage visitors to consider the creation of public sculpture and to reflect on their own community's historic and creative heritage. *Preserving Memory* also explains threats to outdoor sculpture, features communities that have taken steps to preserve these treasures, and includes special panels for children.

"Education has always been part of SOS!" explained Jill Wiley White, coordinator of SOS! "By helping people understand what threatens outdoor sculpture, we increase the chances that they will take steps to protect it. Sculpture is also a great multidisciplinary learning tool—it can teach history, art, and science and lead to more advanced subjects like sociology and politics."

SOS! also continues its educational mission through its Web site. Information about outdoor sculpture maintenance and conservation, as well as a special site for children that includes learning activities, helps visitors learn about and appreciate sculpture in general and learn ways to research sculpture in their area.

The Smithsonian American Art Museum's Inventory of American Sculpture continues to gather data and find new uses for it. After Hurricanes Katrina and Rita in 2005, many agencies lost their records. SOS! staff at Heritage Preservation sent Art Inventory SIRIS records to State Historic Preservation Offices in five southern states so arts administrators could begin to assess losses. SOS! also developed a rapid assessment form for volunteers to use in evaluating a sculpture's condition. Several new initiatives are under way at IAS, including a project to digitize all inventory photographs. SOS! has also inspired Heritage Preservation's newest program, Rescue Public Murals. Led by an advisory committee of muralists, conservators, art historians, and public art professionals, Rescue Public Murals is developing plans for identifying and documenting U.S. public murals, assessing the condition of especially significant outdoor murals, and raising funds to continue saving and documenting community murals.

Looking to the Future

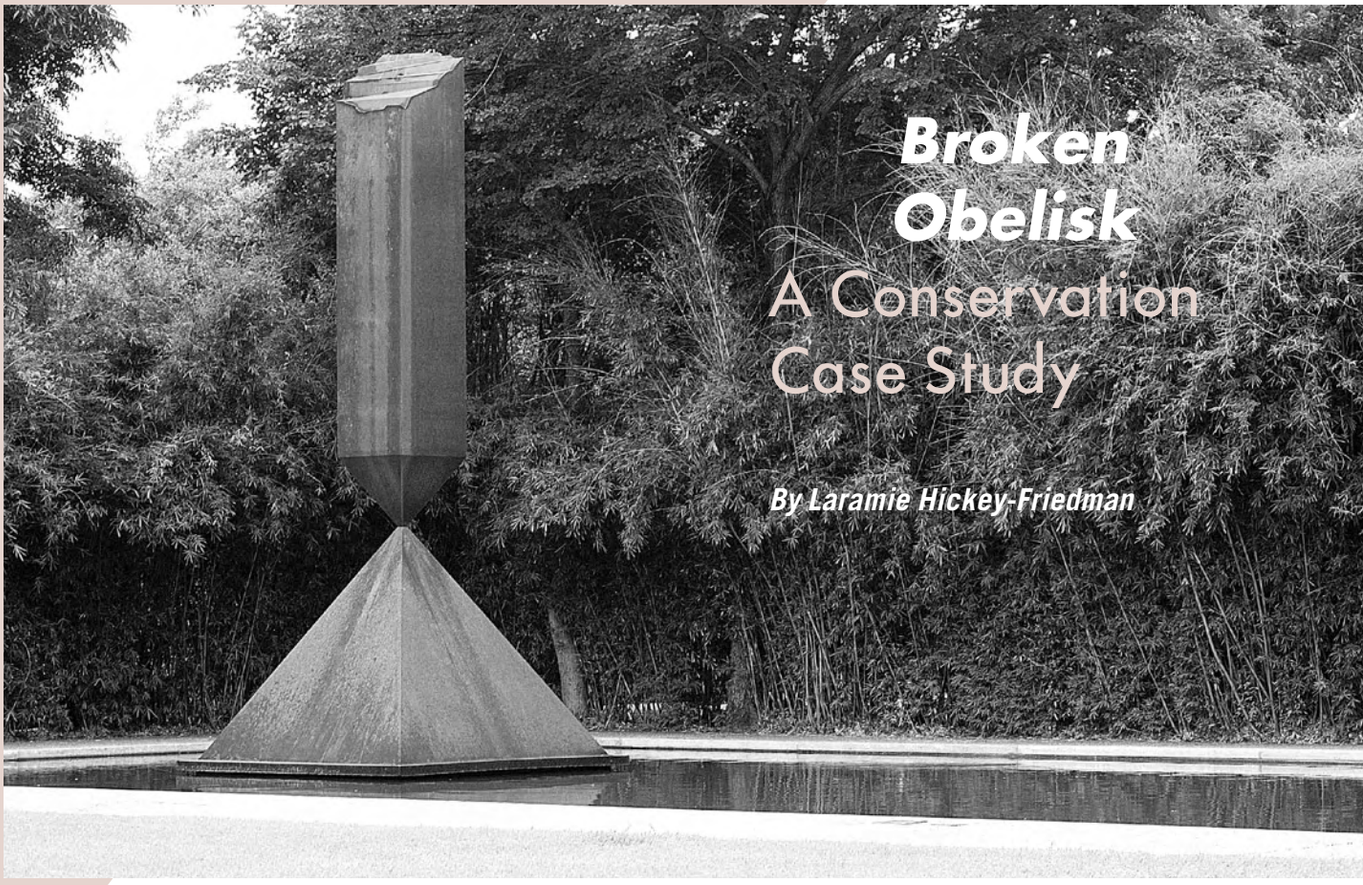
SOS! continues to look for ways to save more of the nation's collection of outdoor sculpture. Heritage Preservation is seeking funding for a new round of Assessment Awards and the Lincoln SOS!—Saving Abraham Lincoln's Monumental Legacy project, which has been endorsed by the Abraham Lincoln Bicentennial Commission. Assessment Awards are the first step in bringing neglected sculptures to light and creating constituencies to care for them. Meanwhile, half of the more than 220 sculptures of Lincoln are in serious disrepair as the nation prepares to celebrate the two-hundredth anniversary of his birth. SOS! aims to save significant Lincoln sculptures and give their communities a focal point for commemorative activities.

In its eighteen years, Save Outdoor Sculpture! has learned much about communities and their sculptures and what it takes to bring them together. The bad news is that much work remains to be done. The good news is that most people care about their sculptural heritage when it is brought to their attention, and some will go to great lengths to ensure that it survives for future generations. For SOS! that has been the most welcome lesson of all.

Diane L. Mossholder is Director of Communications at Heritage Preservation in Washington, DC.

To learn more about SOS! visit www.heritagepreservation.org and click on "Save Outdoor Sculpture!"

King Kamehameha I **(1880) by Thomas Ridgeway Gould. The statue was lost at sea on its way to Honolulu, where a replacement statue stands today. The original was later recovered and brought to Kapa'au, Hawaii. During and after conservation treatment, Kapa'au volunteers learned how to care for their town's sculpture.** ***Photo:*** **Glenn Wharton & Associates.**



Broken Obelisk
A Conservation Case Study

By Laramie Hickey-Friedman

Broken Obelisk **by Barnett Newman, after recent conservation treatment. The sculpture is part of the Rothko Chapel in Houston and is dedicated to the memory of Martin Luther King Jr.** ***Photo:*** **Brad Epley, The Menil Collection. Courtesy of the Rothko Chapel, Houston. ©2007 Barnett Newman Foundation, New York/Artists Rights Society (ARS), New York.**

The conservation of a monumental modern or contemporary outdoor sculpture is, to put it mildly, a complicated undertaking. In addition to the standard conservation concerns of preserving artistic intent and sculptural integrity within a reasonable budget, one has to consider the structural stability and safety of the sculpture, the impact on the public of the long-term removal of the sculpture during treatment, and, of course, the unknowns that should be expected but may not be apparent until a project has moved from proposal into treatment. The treatments themselves are complex and can involve committees and the participation of others in order to achieve the goals of the conservation project.

The recent conservation of the Rothko Chapel's *Broken Obelisk*, a monumental steel sculpture by Barnett Newman, illustrates these challenges. *Broken Obelisk* was envisioned and fabricated in the 1960s, when large outdoor metal sculptures were a rarity. The artist described his vision to his fabricators, Lippincott, with sketches, and they built the first two versions of the sculpture between 1964 and 1967 without blueprints. Much of the sculpture is pure geometry: a four-sided obelisk with a pyramidal point is inverted to touch point to point with a pyramid on the bottom. The result is a twenty-six-foot high sculpture of Cor-Ten steel (also known as weathering steel) that is seemingly balanced on the points of the pyramids.

The first two versions of the sculpture are at the Rothko Chapel in Houston and the campus of the University of Washington in Seattle. The Houston *Broken Obelisk* was purchased by John and Dominique de Menil for the Rothko Chapel, a nondenominational sanctuary founded by the de Menils.

When a third version of the sculpture (now at the Museum of Modern Art, New York) was fabricated in 1969, Lippincott made modifications in the fabrication process in an effort to mitigate structural flaws in the sculpture's design; these changes included following strict specifications for fabrication with Cor-Ten steel that were not well known when the earlier versions of the sculpture were produced. Nevertheless, forty years since their fabrication, all three versions of the sculpture have had at least one conservation campaign to remedy problems with the sculpture's design. The *Broken Obelisk* at the Rothko Chapel has required two campaigns, in part because of its placement over a reflecting pool.

Deterioration

The first conservation campaign for the Houston *Broken Obelisk* was undertaken between 1983 and 1984 to resolve inherent fabrication problems that were causing premature deterioration of the sculpture. That campaign included the structural modification of the pin system that joins the upper obelisk and lower pyramid, as well as

replacement of the metal on the pyramidal point of the obelisk and on the walls of the pyramid; in addition, the footing was replaced with an I beam (Barnett Newman approved the replacement of the material on the pyramidal point and the pyramid prior to his death). The engineered pin system included the installation of a large rubber bag housed inside the pyramid that was intended to reduce air pressure inside the obelisk, which might build up during the heat of the day in Houston.

In early 2003 the Houston sculpture underwent examination before the second conservation treatment campaign was planned. The sculpture had intermittent maintenance over the twenty years following the first campaign, and while there was minimal deterioration at the inherent weak point—the join between the top and the bottom—significant deterioration in other areas compromised the sculpture's stability. The location of the sculpture over the pool (in accordance with the artist's wishes) added to the sculpture's conservation problems. The main supporting I beam and attached bolts were severely corroded from submersion in chlorinated pool water, and engineers believed that structural failure was possible within four to seven years. The protective paint on the interior of the pyramid and the I beam had begun to fail, and corrosion was visible. During the first conservation campaign, a significant amount of expandable foam was sprayed into the top of the obelisk, and the result was that the interior walls of the obelisk were continually exposed to moisture; where the foam was in contact with the metal, water was held against the surface. This situation contributed to the accelerated deterioration of the obelisk from the inside out. Treatment was clearly necessary to stabilize the sculpture for its survival and for the safety of visitors.

The 2003–06 conservation campaign for the Houston *Broken Obelisk* was initiated to address structural issues with the heavily corroded I beam footing and spacers, to reapply a protective paint coating to the interior of the pyramid, and to renovate and update the reflecting pool. A committee was created because the coordination of the project was complex, and it was important to have input from all involved.

The initial committee for the conservation and restoration of *Broken Obelisk* included board members of the Rothko Chapel and the chief conservator, the sculpture conservator, and the chief curator from the Menil Collection (although *Broken Obelisk* belongs to the Rothko Chapel Foundation, the Menil Foundation and the conservators at the Menil are responsible for its maintenance and conservation). The committee grew to include Grounds from the Menil Foundation; Building and Security, and Finance from the Menil Collection; and the directors of both the Rothko Chapel and the Menil Collection. The Barnett Newman Foundation was also consulted on the project, both for its input on the artistic intent and because it provided significant financial support. Andrew Lins, chair of conservation at the Philadelphia Museum of Art and a specialist in metals conservation, including weathering steel, served as a consultant. Additionally, several outside contractors were brought in during the project.

The conservators' most important role on the committee was to communicate the structural needs of the sculpture, as well as artistic intent and aesthetic concerns. In this case, in which there were several treatment options that had to be weighed against artistic intent and the long-term stability of the sculpture, the conservators were responsible for conveying the implications of each option.

A major point of discussion regarding treatment involved replacement of original material—and balancing what was necessary with what was acceptable, with respect to artistic intent and

Extensive pitting at the top of *Broken Obelisk* in 2004. The pitting was caused by expandable foam that was sprayed into the top of the obelisk during conservation treatment in the 1980s, and the unintended result was that the interior walls of the obelisk were continually exposed to moisture. The metal in this section needed to be replaced. *Photo:* Laramie Hickey-Friedman, The Menil Collection. Courtesy of the Rothko Chapel, Houston. ©2007 Barnett Newman Foundation, New York/Artists Rights Society (ARS), New York.

Detail of the support pyramid of *Broken Obelisk,* prior to the sculpture's conservation. The sculpture's location over a pool (in accordance with the artist's wishes) exacerbated deterioration problems. *Photo:* Laramie Hickey-Friedman, The Menil Collection. Courtesy of the Rothko Chapel, Houston. ©2007 Barnett Newman Foundation, New York/Artists Rights Society (ARS), New York.

Contractor removing severely corroded steel from the footing of the sculpture in order to replace it with a stainless steel footing. *Photo:* Laramie Hickey-Friedman, The Menil Collection. Courtesy of the Rothko Chapel, Houston. ©2007 Barnett Newman Foundation, New York/Artists Rights Society (ARS), New York.

aesthetics. The concerns of the committee included preserving the edge of the pyramid's skirt and the cascade top of the obelisk, both considered the marks of the artist, since they are unique on each sculpture. These were the initial issues when the committee saw that to provide any guarantee of even short-term preservation for the work, severely corroded areas would have to be removed and new material welded in their place.

Public Impact

An important consideration during this conservation project was the impact that the extended removal of the sculpture for treatment would have on the public. *Broken Obelisk* is a well-known Houston icon, with an important political history (the work was originally dedicated to the memory of Martin Luther King Jr.). Many people regularly visited the sculpture, and some individuals came daily.

The Menil Collection and the Rothko Chapel were sensitive to the ways in which the project might affect the public, recognizing that even the temporary loss of a local landmark could create a public outcry. The committee issued press releases to announce the project, and a sign was erected at the Rothko Chapel to inform visitors about the project and the anticipated return of the sculpture. One local reporter followed the entire treatment, including the various deinstallation attempts. In all, it took three attempts with riggers and cranes, four months, and several collaborative consultations with contractors, engineers, and art handlers poring over twenty-year-old construction plans to finally free the frozen pin.

The committee felt that dramatic visual changes to the sculpture would be criticized even more than would be its temporary removal. This concern was a factor in making the priority of the treatment to stabilize the sculpture without compromising the patina and the overall aesthetic of the work. For this sculpture, which was severely deteriorated in some areas and stable in others, many treatment options were explored; unfortunately, there was no treatment proposal forthcoming that would guarantee the preservation of the sculpture if it remained in its current location. It was difficult to accept that a sculpture not much more than forty years old was so badly deteriorated that it required greatly invasive conservation treatment simply to slow the rate of deterioration—and that to guarantee its preservation, the work would have to be removed from the location where the artist sited it.

The severe deterioration of the metal necessitated considering the radical option of bringing the sculpture inside and possibly making an exhibition copy. While the decision to permanently remove the original sculpture from view was not implemented during this campaign, presentation of that option prompted many theoretical discussions about the impact that removal would have on the sculpture and the viewing public. It was clear to the committee that simply moving *Broken Obelisk* to a new location with a stable environment was not consistent either with the artist's intent or with public sentiment. That knowledge brought up the question of fabricating an exhibition copy, at first deemed unacceptable by the committee; gradually, however, the committee came to see that this approach was the only way to preserve the sculpture from further deterioration, as well as honor Barnett Newman's intention when he sited the sculpture over a body of water. Yet, ultimately, for the authenticity of the sculpture, approval for fabrication of an exhibition copy had to come from the Barnett Newman Foundation, and at the time of the project, it did not grant permission.

Reinstallation in January 2006 of *Broken Obelisk* in its original setting at the Rothko Chapel. *Photo:* Judith Hastings, The Menil Collection. Courtesy of the Rothko Chapel, Houston. ©2007 Barnett Newman Foundation, New York/Artists Rights Society (ARS), New York.

Steve McConathy, overall project manager for the conservation project and the renovation of the sculpture's setting, guiding the obelisk into place during the January 2006 reinstallation. *Photo:* Judith Hastings, The Menil Collection. Courtesy of the Rothko Chapel, Houston. ©2007 Barnett Newman Foundation, New York/Artists Rights Society (ARS), New York.

Decisions and Treatment

With the refabrication possibility put aside, two options were ultimately proposed to the committee for its approval. The committee was asked to weigh in on the treatment proposals because, even after nearly five months of examination and consultation, no treatment was identified that would guarantee long-term preservation of the sculpture without compromising the artistic intent. The project's decision making had gone beyond the technical aspects of conservation and required the broad expertise and experience of the committee to settle the philosophical issues related to preserving the sculpture's physicality, the artist's intent, and the emotional significance the work had acquired for the public.

The final treatment proposal embraced was the one that allowed the foam to be removed from the interior of the obelisk. The severely pitted cascade top was removed and patched, the foam and corrosion on the interior of the obelisk were removed, and a marine-environment coating was applied to the interior of the obelisk. The top was then rewelded into place. In addition, a low-profile vent was designed, fabricated, and attached to the existing hole on the cascade top to provide air circulation inside the obelisk and, it is hoped, minimize condensation. Also, the footing on the pyramid was replaced with a stainless steel footing. All interior surfaces of the pyramid were recoated with a coating system manufactured for immersion or polluted coastal use.

Given the condition of the upper section of the obelisk and the extensive loss of material overall, this treatment was the best option short of reconstruction, and it will extend the life of the sculpture to some degree. Because of the extreme outdoor environment to which *Broken Obelisk* is exposed, the inner epoxy coating on the obelisk will have a limited term of effectiveness, after which the same type of damage that was seen extensively on the cascade top will begin to occur again. The sculpture will be monitored to measure the rate of material loss due to outside exposure and to check for any coating failure. Ideally, for the long-term preservation of the sculpture, it should be brought inside.

Often during this project, the physical preservation of the sculpture seemed in conflict with the preservation of artistic intent. In the end, the process for developing the conservation treatment allowed for a thorough examination of the complex and interlocking issues presented by the sculpture's conservation. The difficult but well-informed decisions made by the committee did ultimately address the immediate preservation needs of the sculpture, but with an understanding that compromises had to be made.

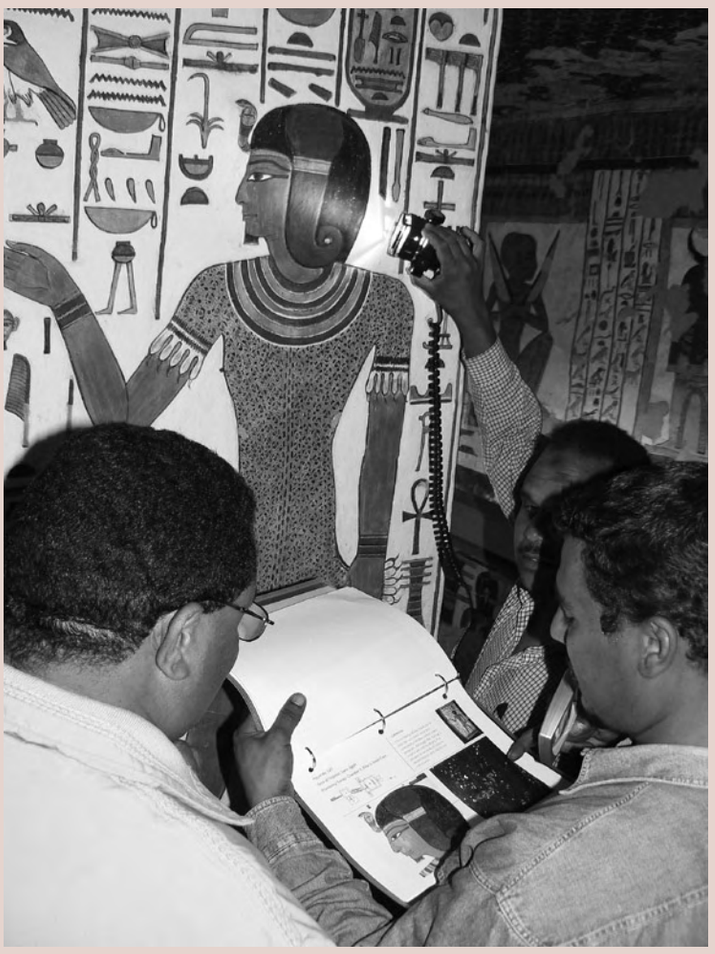
Laramie Hickey-Friedman received her master's degree in art conservation from the Winterthur Museum/University of Delaware Program in Art Conservation in 2000; she was the sculpture conservator on the Broken Obelisk *project. She currently resides in Lakewood, California.*

Valley of the Queens

As part of the Getty Conservation Institute's collaboration with Egypt's Supreme Council of Antiquities (SCA) for the conservation and management of the Valley of the Queens on the West Bank at Luxor, the GCI held the first of three courses on wall paintings conservation from February 12 to March 1, 2007. Seven Luxor-based SCA wall paintings conservators participated. The training aims to enhance knowledge and improve wall paintings conservation practice by introducing current principles of conservation theory, methodology, and decision making. In addition to the training, the conservators will work closely with the GCI team throughout the six-year project.

The course comprised classroom teaching and practical sessions in the Valley of the Queens. Teaching included an overview of current approaches to wall paintings conservation, discussion on the significance and values of wall paintings, an introduction to painting technology, and discussion of the causes of deterioration. Tomb site visits included study and identification of painting technique, previous interventions, and condition, as well as monitoring activities. One week was concentrated on documentation and condition recording as an introduction to the wall paintings assessments that the team will carry out as part of the overall project. The teaching was undertaken by wall paintings conservators Stephen Rickerby, a GCI consultant, and Lori Wong, a GCI project specialist.

Over the coming year, the SCA conservators will complete assignments that include condition recording and setting up monitoring protocols for the wall paintings in other tombs in Queens Valley. In addition, supplementary sessions on terminology and concepts have been organized throughout the year. The second training course is scheduled for February–March 2008.



Participants in a GCI wall paintings conservation course carrying out condition monitoring exercises in the Tomb of Nefertari, Valley of the Queens, Luxor, Egypt. *Photo:* Lorinda Wong.

Shuxiang Temple at Chengde

The Getty Conservation Institute, in collaboration with the Chengde Cultural Heritage Bureau and the Hebei Province Cultural Heritage Bureau, is developing an approach to the conservation of architectural decorative painting as a component of the application of the *Principles for the Conservation of Heritage Sites in China,* guidelines for the conservation and management of cultural heritage sites developed by Chinese national authorities in partnership with the GCI and the Australian Department of the Environment and Heritage.

The selected site, Shuxiang Temple, is the only largely unrestored temple among eight remaining Buddhist temples at the Imperial Mountain Resort of the Qing dynasty emperors, a UNESCO World Heritage Site, in the city of Chengde in northeast China. Shuxiang Temple is a classic Han-style temple complex built in 1774 by the Emperor Qianlong. After decades of neglect, only two buildings of an original twenty-two—the main structure, Huicheng Hall, and the gatehouse—retain both structural and decorative historic fabric. In particular, these two buildings preserve a significant amount of traditional polychrome painted decoration. This painting, typical of decoration on imperial wooden architecture of the period, consists of plaster and fiber applied to the timber in multiple layers to provide a smooth surface for the application of paint. Applied on exterior and interior surfaces, it served both to decorate the building and to protect wooden beams and elements against moisture and pests. Prominent architectural features below the roof eaves were decorated with colorful patterns and motifs that followed strict design standards denoting the official rank and function of a building.

These paintings, now much deteriorated, are a rare example of surviving mid-Qing architectural painted decoration at Chengde, where repainting has historically been the most commonly employed treatment. The conservation of historic painted surfaces on wooden architecture is a relatively new field in China; previously, little research and testing on appropriate materials and methods of treatment had been undertaken.

In 2005, working with colleagues from the China National Institute of Cultural Property (CNICP), the GCI began to address these needs with research and testing at Shuxiang Temple. To better understand the technology of these paintings and their susceptibility to deterioration processes, a condition assessment and analytical investigation of the paintings, including study of the traditional craft with a master craftsman, were undertaken. This process included both a literature review and detailed investigation of the *youman*-based plaster and hemp fiber stratigraphy of the painting (*youman,* a traditional binder for the plaster, contains wheat flour, limewater, and cooked tung oil).

The treatment methodology included both stabilizing the paintings and implementing preventive measures to slow deterioration. Treatment testing involved evaluating a range of traditional and modern materials, developing methods for treatment application, and determining the sequencing of interventions. Investigation began on painting fragments, followed by in situ testing, which led to the completion of demonstration areas on both the exterior and interior painting of Huicheng Hall. Laboratory testing and accelerated aging tests were also carried out at the GCI and the CNICP. Tests were documented and monitored, and evaluation procedures were developed in order to assess the working properties and performance characteristics of treatments over time. Treatment testing and design involved an interdisciplinary team of conservators, scientists, and craftsmen. This culminated in an internal experts review meeting in May 2007 with representatives from Chengde Cultural Heritage Bureau and Hebei Province Cultural Heritage Bureau. The conservation approach and results to date were favorably evaluated, and preparation of an implementation plan for the historic architectural paint at Shuxiang Temple is now under way.

Conservators at work stabilizing the interior painted decoration of Huicheng Hall, Shuxiang Temple—part of the Chengde Imperial Mountain Resort and Outlying Temples, China. *Photo:* Lorinda Wong.

Site Workshop in Tunisia

From March 19 to April 6, 2007, the GCI and Tunisia's Institut National du Patrimoine (INP) conducted a workshop entitled "The Conservation and Management of Archaeological Sites in Tunisia."

The workshop evolved out of a partnership between the INP and the GCI that was initiated in the late 1990s with the training of Tunisian site technicians in the documentation and maintenance of Roman-era mosaics. To complement this first phase of training, the GCI and the INP designed the recent workshop for approximately twenty-five young INP professional staff—archaeologists, architects, engineers, and historians—all of whom have some responsibility for archaeological sites and built heritage throughout Tunisia. The objectives of the workshop were to provide participants with a more comprehensive understanding of the principles and practices of conservation; to relate these international principles to specific situations encountered in Tunisia; to emphasize the need for holistic and interdisciplinary perspectives when devising

strategies for conservation; and to strengthen professional bonds among the course participants, most of whom had not previously worked together.

The GCI assisted the INP in the development, planning, organization, and implementation of the three-week workshop, which was held at the eastern coastal town of Hammamet. This location was selected because of its proximity to the sites of Pheradi Majus, Thuburbo Majus, and El Jem, each of which was used for training and field exercises. The workshop was taught by an international team of conservation professionals from Tunisia, Egypt, Canada, England, Italy, Belgium, and the United States, who collectively provided a broad context for the application of conservation principles.

The GCI and the INP plan to build on this activity through the continued mentoring of workshop participants. Three times in the coming year, participants will reconvene for about one week, meeting at a Tunisian site where the issues of archaeological site conservation and management are particularly challenging, as well as representative of the problems and conditions these INP professionals regularly encounter. These activities will be designed as opportunities for the practical application and reinforcement of the lessons learned during the spring 2007 workshop. Through the initial workshop and follow-up mentoring activities, the GCI and INP hope to nurture a new generation of professional INP staff who will be well equipped to lead the way in sustainable conservation of Tunisia's cultural heritage.

Participants in a site management workshop, co-organized by the GCI and Tunisia's Institut National du Patrimoine, undertaking a field exercise at the Roman site of Pheradi Majus in Tunisia. *Photo:* Jeff Cody.

Roundtable on Climate Control Strategies

On April 25–26, 2007, the GCI held a roundtable meeting on the island of Tenerife, Spain, focused on sustainable climate control strategies and alternatives to conventional air-conditioning systems for cultural institutions around the world. Twelve international experts in the field of climate control—including architects, engineers, conservators, and conservation scientists—participated in the meeting. The aim was to exchange knowledge and experiences; to identify areas in need of further study or new research; and to identify opportunities for education and training.

The Organismo Autónomo de Museos y Centros del Excmo. Cabildo Insular de Tenerife—the GCI's local partner in its project Alternative Climate Controls for Historic Buildings—hosted the meeting (see www.getty.edu/conservation/science/climate/climate_component2.html).

During the roundtable, several topics were addressed; these included current climate management strategies; the issues, threats, and emerging trends in climate control; the meaning of sustainability in relation to the preservation of cultural heritage; and whether cultural institutions such as museums, archives, and libraries can or should play a role in the debate about energy consumption.

The group agreed on the importance of managing environmental conditions in a responsible manner with respect to cost and energy consumption. Also recognized was the necessity to create suitable environmental conditions in order to reduce risks to collections and buildings, on the one hand, and the need to provide human comfort, on the other hand. Roundtable participants explored a range of strategies that would allow the control of indoor climates to be less dependent on high-tech air-conditioning systems. For example, implementing proper design in new buildings and using suitable materials—practices that today are often secondary to aesthetic concerns—can create more appropriate indoor climatic conditions. Many cultural institutions are housed in historic buildings, which were often ingeniously built to passively control the indoor environment. However, the knowledge of how to use and operate these buildings has nearly been lost. The process of recovering this knowledge and achieving sustainable solutions in climate management depends heavily on human support and engagement. It requires not only a change in attitude (e.g., adaptation of clothing to seasonal changes) but also active participation in making low-tech solutions work (for instance, closing or opening window blinds to affect the indoor temperature). The group considered that cultural institutions, by serving as role models, could help educate the public about sustainability issues.

The GCI will publish excerpts of the roundtable discussion in the Conservation section of getty.edu in late 2007. A publication, including the discussion papers produced by the participants, will be available on the Web and in print in 2008.

An April 2007 meeting in Tenerife, Spain, which focused on sustainable climate control strategies and alternatives to conventional air-conditioning systems for cultural institutions. *Photo:* Foekje Boersma.

Lighting Workshop

On April 16–17, 2007—prior to the annual conference of the American Institute for Conservation of Historic and Artistic Works (AIC)—over 150 participants gathered in Richmond, Virginia, for a preconference workshop entitled "Museum Exhibit Lighting 2007: Classic Issues, New Light." This workshop was presented by the GCI, the Canadian Conservation Institute (CCI), and the AIC.

The event had the features of a small conference, with plenary sessions on each of the two mornings, followed by breakout groups in the afternoon sessions. The plenary speakers were Christopher "Kit" Cuttle (retired from the University of Auckland), Carl Dirk (University of Texas at El Paso), Steven Hefferan (Hefferan Partnership Lighting Design), Paul Himmelstein (private conservator), Richard Kirschner (Shelburne Museum), Stefan Michalski (CCI), David Saunders (British Museum), and Paul Whitmore (Carnegie Mellon University). The breakout groups involved many of the same individuals, augmented by William Lull (Garrison/Lull Inc.) and James Druzik (GCI).

The workshop combined the traditional wisdom of preventive conservation, including risk assessment and thoughtful lighting design, with what the organizers saw as emerging tends in illumination and new research on conservation lighting. The response from those attending was that the meeting provided significant information on a subject of great interest, and that the quantity and richness of the material presented could have sustained an even longer workshop.

The GCI's involvement in the organization of the workshop is a reflection of its ongoing Museum Lighting project, which seeks to reduce damage to works of art on paper caused by museum lighting, through the reevaluation of current illumination guidelines, as well as the testing and design of new lighting (see www.getty.edu/conservation/science/lighting/index.html).

UNITAR Workshop

Attendees at the UNITAR workshop on the management and conservation of World Heritage Sites visiting the Atom Bomb Dome, a World Heritage Site in Hiroshima, Japan. *Photo:* François LeBlanc.

In April 2007, GCI staff participated as instructors and resource personnel in a weeklong workshop entitled "World Heritage Management over Time—Maintaining Values and Significance," presented by the United Nations Institute for Training and Research (UNITAR) in Hiroshima, Japan. This is the fourth in a six-year series of UNITAR workshops on the management and conservation of World Heritage Sites.

The UNITAR workshops, one of the main program pillars of the UNITAR Hiroshima Office for Asia and the Pacific, aims to facilitate better utilization of the 1972 UNESCO World Heritage Convention through providing support to national policy making and planning, as well as information exchange on best practices and case studies. UNITAR workshops are designed to train heritage site managers in a values-based approach to cultural and natural heritage resource management.

Eleven years have passed since the inscription of the Hiroshima A-Bomb Dome and the Itsuku-shima Shinto Shrine on the World Heritage List in 1996. To mark this occasion, in the 2007 session, UNITAR and its faculty decided to focus on the management of World Heritage Sites over time in order to maintain their values and significance. Designation as a World Heritage Site potentially entails significant changes to a site's tangible and intangible aspects. The two sites in Hiroshima have also seen a shift in their significance, and they therefore provided a case study for the training workshop, which gathered forty-seven participants from twenty-four countries, primarily in the Asia-Pacific region.

Photograph Heritage Symposium

The GCI, the Academy of Fine Arts and Design (Bratislava), and the Slovak National Library (Martin) are organizing a symposium, "Photograph Heritage in Central, Southern, and Eastern Europe: Past, Present, and Future," to be held November 5–8, 2007, in Bratislava, Slovak Republic. To date, representatives from Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, the Czech Republic, Germany, Hungary, Montenegro, Poland, Romania, Serbia, the Slovak Republic, and Slovenia have agreed to give presentations at the symposium detailing their countries' history of photography, their notable photograph collections, and past and present work in the preservation of their national photographic heritage.

For more information on the symposium, including registration and participation, visit the Getty Web site (www.getty.edu/conservation/science/photocon/index.html) or contact:

Gary Mattison
GCI Science Department Coordinator
Tel: 310 440-6214
Email: gmattison@getty.edu

Conservation Guest Scholars

The Conservation 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.

The program 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. Written inquiries should be directed to:

Attn: Conservation Guest Scholar Grants
The Getty Foundation
1200 Getty Center Drive, Suite 800
Los Angeles, CA 90049-1685
USA
Tel: 310 440-7374
Fax (inquiries only): 310 440-7703
Email: researchgrants@getty.edu

Deadline for application: November 1, 2007

2007–08 Scholars and Post-Doctoral Fellow

The GCI looks forward to welcoming five Conservation Guest Scholars and a new Post-Doctoral Fellow in conservation science in 2007–08.

Nancy Odegaard, University of Arizona
September–November 2007
Conservation and Conservation Science: Guidelines for Collaborative Study

Marcelle Scott, University of Melbourne
September–November 2007
Conservation Interdisciplinarity and Pedagogical Implications

Franziska Frey, Rochester Institute of Technology, New York
October 2007–March 2008
Connections between Imaging Practices and Digital Preservation

Véronique Vergès-Belmin, Laboratoire de Recherche des Monuments Historiques, Paris
January–June 2008
Toward Guidelines for Reducing the Risks of Pushing Salts into the Substrate (Stone or Brick) in the Case of Poultice Desalination

Zhang Yanhua, National Research Center for Historic Cities, Shanghai
January–June 2008
Creating Partnerships between the Public and Private Sector for Urban Conservation Implementation and Management in China

Catherine Schmidt, who recently received her PhD in chemistry from Northwestern University, will be the GCI's second two-year Post-Doctoral Fellow. She will be working with Karen Trentelman in the GCI's Museum Research Laboratory.

Getty Graduate Interns

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 Getty Foundation section of the Getty's Web site (www.getty.edu/grants/education/grad_interns.html). Written inquiries may be made to:

Attn: Graduate Internships
The Getty Foundation
1200 Getty Center Drive, Suite 800
Los Angeles, CA 90049-1685
USA
Tel: 310 440-7320
Fax (inquiries only): 310 440-7703
Email: gradinterns@getty.edu

Lectures

The GCI announces its fall 2007 schedule for the "Conservation Matters: Lectures at the Getty," a public series examining a broad range of conservation issues from around the world. Lectures are held Thursday evenings at 7:00 p.m. at the Getty Center. Events are free, but reservations are required.

To make a reservation or for further information, visit the Getty Web site at www.getty.edu/conservation/public_programs/lectures.html. Reservations can also be make by calling 310 440-7300.

September 27, 2007

Archaeologist Susan McIntosh of Rice University will speak about "Africa's Vanishing Past," a result of the looting of ancient sites in Mali, Ghana, Nigeria, and Niger, and the steps that can be taken to stem the destruction.

October 18, 2007

Don Williams, senior conservator at the Smithsonian Institution, educator, and author of *Saving Stuff: How to Care for and Preserve Your Collectibles, Heirlooms, and Other Prized Possessions*, will provide insight into professional museum techniques that can be used to protect valued personal possessions.

November 8, 2007

Rupert Featherstone, senior paintings conservator for the Royal Collection Trust, Windsor, United Kingdom, will speak about the conservation of two rediscovered paintings by Caravaggio in the queen of England's collection.

Robin Letellier 1944–2007

Colleagues and friends were deeply saddened to learn of Robin Letellier's sudden passing from a stroke on April 20, 2007.

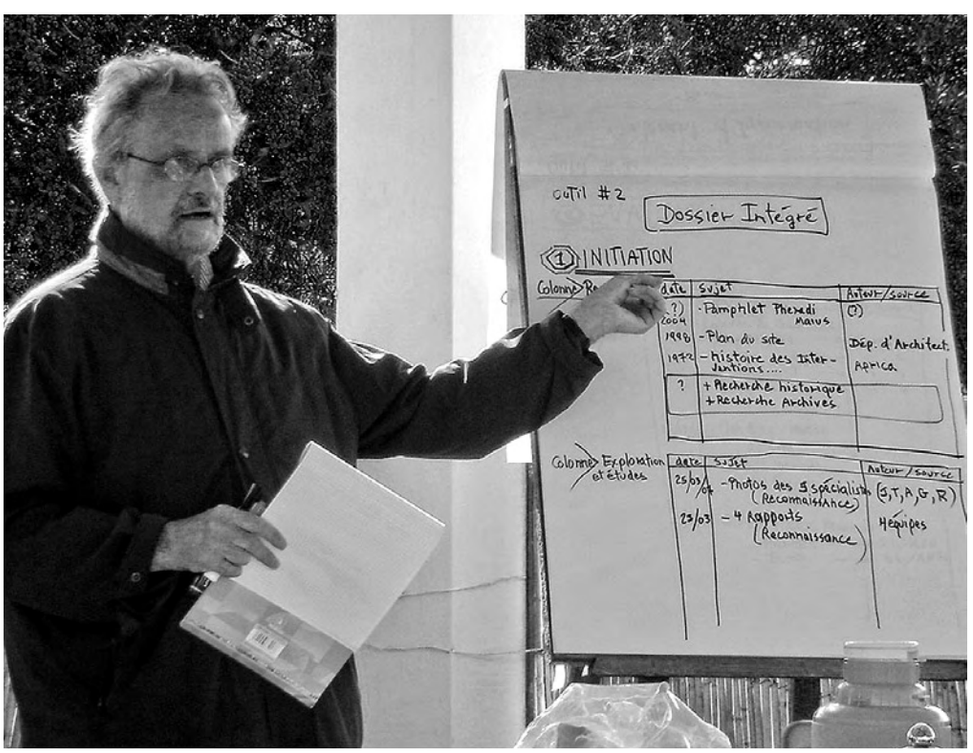
Robin Letellier, highly regarded for his professional skill, was well known internationally for his work in the field of recording and documentation of cultural places, carried out first at Parks Canada and later as an independent consultant. Letellier was further engaged in this area through his involvement with CIPA Heritage Documentation, where he served first as secretary and then as vice president. In addition, he was an integral part of the GCI/ICOMOS/CIPA RecorDIM (Recording, Documentation, and Information Management) International Initiative, which he coordinated from its inception in 2002. He was completing a book this year on heritage recording and documentation, which will soon be published by the GCI. Following the ICOMOS Fourteenth General Assembly and Scientific Symposium in 2003, Letellier was actively involved in the work that brought about the creation of the ICOMOS Scientific Council.

He was best described by his friends and professional colleagues as a person with a great sense of humor, a visionary, and a passionate and dedicated professional who lived life to the fullest.

At the time of his death, Letellier was at the University of Pennsylvania in Philadelphia to teach a class at the Graduate Program in Historic Preservation in the School of Design. He had just come from Tunisia, where he had been among the instructors in "The Conservation and Management of Archaeological Sites in Tunisia" workshop coorganized by the GCI and Tunisia's Institut National du Patrimoine (see p. 26). Letellier was first and foremost a teacher, and he died teaching.

The GCI expresses its condolences to Letellier's wife Céline and to his children, Chanterelle and Antoine.

Robin Letellier teaching at a spring 2007 site management workshop in Tunisia, coorganized by the GCI. *Photo:* Jeff Cody.



Michel Bouchard

Assistant Scientist, Science

Photo: Dennis Keeley

Michel Bouchard, who joined the GCI in October 2006, is part of the Institute's Museum Research Laboratory staff.

Michel, a native of Lebanon, received a master's degree in organic chemistry from the University of Cergy-Pontoise/Paris XI in 1997. He went on to earn his doctorate in spectrometry and archaeometry in 2001 in the PhD program at the National Natural History Museum of Paris, where his thesis examined the use of Raman microscopy in the analysis of corroded metals, stained glass, and prehistoric pigments.

His postdoctoral work at the University of Lille involved analysis of rare metallic oxides; this research was followed by participation within the French National Center for Scientific Research in work conducted by several universities and industrial firms, investigating approaches to incorporating anti-UV inorganic agents into varnish as a way to avoid discoloration of wood.

At the GCI Michel has assisted Getty Museum conservators with developing appropriate approaches to treatment by identifying and characterizing materials on objects using, among other techniques, Raman microscopy and X-ray diffractometry. He worked closely with Decorative Arts and Sculpture Conservation on the newly installed Stark Collection of outdoor sculpture, conducting analysis of metallic alloys, corrosion products, sculpture coatings, and paint layers. He has also worked on the analysis of furniture pieces in the Getty Museum's Decorative Arts collection, as well as analysis of objects under consideration for acquisition by the Getty Museum.

Since 1999 Michel has been part of an international team studying different prehistoric sites in Matto Grosso, Brazil. His participation, which has continued since he came to the GCI, involves analysis by Raman microscopy of pigments from cave paintings at these sites.

Tom Learner

Senior Scientist, Science

Photo: Dennis Keeley

Tom Learner is the head of contemporary art research at the GCI. He came on staff in January 2007 after a number of years of working with the Institute as a partner at Tate in London, on the GCI's collaborative modern paints research project.

Tom became interested in conservation during his chemistry studies at Oxford University, and while obtaining his master's degree, he did volunteer work at the university's Ashmolean Museum, where he could see the application of science to the work of conservation. After graduation in 1988, he earned a postgraduate diploma in the conservation of easel paintings at the Courtauld Institute of Art in London; he followed these studies with an internship at the National Gallery of Art in Washington, DC, that was split between scientific research and hands-on paintings conservation.

In 1992 Tom became a Leverhulme research fellow in conservation science at the Tate Gallery, concurrent with his PhD studies at Birkbeck College. His thesis focused on the characterization of acrylic and other twentieth-century painting materials. Four years later, he took a regular position at Tate, ultimately becoming their senior conservation scientist.

Tom came to the GCI to head up a new section on contemporary art research, which will continue work on modern paints while exploring expansion into other areas. As part of that exploration, he is planning a meeting of international experts to consider current priorities in the conservation of contemporary art. He is also working on the planning of "The Object in Transition," a joint GCI–Getty Research Institute conference on the preservation and study of modern and contemporary art, to be held in January 2008 at the Getty Center.