WAAC Annual Meeting: Presentation Summaries

The 2002 WAAC Annual Meeting was held October 6 - 9 in Oregon at the Portland Museum of Art. The papers from the meeting are listed below along with summaries prepared by the

Your Lease is up! Preparations to Move Collection Materials to a New Warehouse in Three Months

Albrecht Gumlich

The talk will focus on time saving choices and essential tools that made it possible to move three dimensional special collections objects from an old warehouse to a new facility. Staff from the Conservation and Preservation Laboratory at the Getty Research Institute had three months to conduct a condition survey of 130 objects, re-house numerous architectural models, and stabilize fragile items. Filemaker Pro database, a digital camera, and a clamp-on cutting edge were helpful tools to meet the tight deadline.

Sources of Materials Described:
Tru-Grip, 30" Pro Clamp & Guide, $35.99 at www.woodhaven.com.

Laponite Residues on Paper and Parchment

Andrea M. Totten

Laponite is synthetic inorganic clay of very small particle size that disperses in water to form a thick, thixotropic, colloidal gel. It is used as a poultice in the conservation of ceramics, textiles, books, and parchment to remove dirt and adhesive residues. Because the gel is extremely thick even at low concentrations of Laponite, it may be placed very specifically, giving the conservator a high degree of control and preventing the solvent from spreading to other areas of the treated artifact. The use of Laponite in ceramics conservation has recently been questioned due to the presence of residues that alter the surface characteristics of treated ceramics. Residues have also been found on feathers treated with a Laponite poultice.

This study intended to determine whether residue would also remain on paper and parchment substrates treated with a Laponite poultice. Samples were coated with Laponite gel that was scraped off after a fixed amount of time. Portions of the samples were also swabbed with ethanol. The samples were examined using polarized light microscopy, ultraviolet fluorescence microscopy, scanning electron microscopy with energy dispersive x-ray analysis, and Fourier-Transform Infrared spectroscopy to determine if residues were left on the substrate surfaces. Samples were then artificially aged and examined using colorimetry for changes in visual appearance.

Laponite residues were identified on all substrates types and in some instances were visible under magnification as a dried, cracked film. All analytical techniques revealed the presence of Laponite except optical microscopy and ultraviolet fluorescence microscopy where results were inconclusive. After accelerated aging, samples treated with Laponite had yellowed and darkened more than untreated samples.

Sources of Materials Described:
Laponite
Rockwood Additives, Ltd. (UK) or
Southern Clay Products, Inc. (USA).

Carbon Dioxide Cleaning of a Granite Base

Andrea Morse, Catherine Hayes

This paper describes a relatively new cleaning technique that utilizes dry ice and its application in a specific conservation treatment. Referred to as dry ice or carbon dioxide (CO_2) blasting, this method was originally developed for industrial use and has now, like many other industrial applications, made its way into the conservation world.

Originally, the city of Pasadena contracted Sculpture Conservation Studio (SCS) to treat the bronze portion of the Union Soldier memorial in Memorial Park. The success of the bronze treatment was viewed so well that SCS was asked to remove the paint coating on its base.

The roughly hewn, pink granite 6.7 foot high by 6.8 foot (at its widest) base had over the years successive applications of paint applied as a means to contend with graffiti. The cumulative paint coating was excessively thick (particularly within the undercuts), faded from weathering, and had a patchy appearance due to more recent, mismatched paint applications. Additionally, the paint had some cleaving and losses.

Time was of the essence, since we needed to clean the base prior to the end of Pasadena's fiscal year. While the paint was highly soluble in acetone and Jasco paint stripper, time and physical labor would not permit such treatments. Also, as this base was within an elevated garden planter, a required cleanliness was desired, making a Jasco combined pressure wash treatment not feasible.

This project seemed to be an ideal opportunity to test CO_2 blasting, an application used by industry and fire disaster cleaning companies. It utilizes a spray of dry ice crystals under high pressure to blast at a surface. The physics of this process works at three different levels: 1) the force generated by the physical impact of the dry ice particle, 2) an instant thermal difference between substrate and coating that encourages cracking and delaminating, and 3) the ability of the sublimed CO_2 gas to work its way into crevices under the coating, where it expands upon warming, further promoting removal.

The limited budget allowed SCS to hire a disaster clean-up company for only one day. This resulted in the removal approximately 80 percent of the paint coating, leaving behind more deeply embedded paint in the rough stone surface.

It was observed during treatment that graffiti applied directly to the stone, some appearing to be aerosol based, was almost entirely removed with this process. It came as a relief that a poultice treatment was not necessary.

Additional paint removal and cleaning included minor use of Jasco paint stripper and power washing. After the base was thoroughly washed and rinsed of all surface residues, an anti-graffiti coating manufactured by Prosoco, was applied to the base. Two coats were applied with a brush to all granite surfaces, with a third coat given to the more accessible, graffiti prone areas.

As treatments are sometimes governed by necessity, the usefulness of this technique proved ideal in expediting the removal of the paint coatings on the granite base. The benefits were, reduced labor, no alteration to the stone surface, and no secondary waste material.

The disadvantage of CO_2 blasting is the expense of the dry ice medium itself, which can makes the regular use of such a method prohibitive. For SCS it was an ideal way to access more quickly and easily the structure of the base to complete the project.

Sources for Materials Described:
Sacrificial Coating SC-1 removable anti-graffiti shield
Prosoco, Harry A Lowry & Assoc. Inc.
11684 Tuxford St.
Sun Valley, CA, 91352.

Disaster Kleen-up, Better Floors and Restorations
201 West Santa Fe Ave.
Placentia, CA, 92870.

Cryogenesis
2140 Scranton Rd.
Cleveland, OH 44113
http://www.cryogenesis-usa.com/.

Creating Easy to Use Site Monitoring Programs for Rock Image Sites in South Africa

J. Claire Dean

In many struggling countries, particularly those with fractured histories and poor economies, the development of tourism — "environmental" or "adventure" tourism especially — is seen as an essential part of economic recovery and development with massive potential. For many nations it is also a means to rediscover their cultural heritage and attempt to redress previous distortions and misrepresentations of their histories.

South Africa is an excellent example of such a country. It has become one of the most popular winter destinations for European travelers tired of Spain and Florida, but who either do not want to travel as far as Australia or Hawaii, or cannot afford to do so. The rapid loss in value of the Rand over the past few years has also spurred a major rise in tourists visiting the country, including an increasing number of Americans.

No longer content to show pictures of extraordinary botany, historic Cape Town, Nelson Mandela's new home in Soweto, or spectacular wildlife, a recent South African tourism advert featured a photograph of one of the country's most important and spectacular painted rock image sites, which also happened to be one of its least well protected. The Rock Art Research Institute (RARI) of the University of the Witwatersrand, Johannesburg, complained to the government demanding that such sites be managed and protected appropriately before facing the onslaught of uncontrolled visitation.

Lessons learned in other rock image rich countries, including Australia and the USA, have demonstrated that unmanaged visitation almost inevitably leads to rapid deterioration, if not loss. While much of this damage is unintentional and can be attributed to simple accumulation of wear-and-tear and a lack of understanding about the fragility of sites, the most immediate and destructive damage takes the form of deliberate vandalism — commonly graffiti and attempts to steal images.

The likely outcome of a lack of management coupled with the often remote locations of many South African sites, and the employment of poorly educated and ill-informed guides, formed the makings of a nightmare waiting to take hold of RARI's already over stretched staff.

As a result of RARI's protestations, the Institute was charged with the task of developing management plans for three very different rock image sites in various locations across the country. These plans included full documentation of the images and sites themselves and their condition, development of visitor facilities (including two new visitor centers), training of local guides, and the development of programs to monitor the on-going condition of the sites into the future. As RARI's conservator I was given the task of carrying out the condition assessments of the sites and developing a monitoring program that was low-tech, user friendly, affordable, and easy for non-conservators to carry out.

This paper will describe the monitoring program that was developed using the site featured in the Tourist Board advertisement — "Game Pass" in KwaZulu-Natal — as a case study. It will also include a few examples of exotic wildlife for good measure.

Mill of Dunnydeer: the Saga Continues

Jack Thompson

At the 1998 WAAC conference I described the medieval-style papermill I planned to build on my property in Idaho. During the summer of 1999 the pond was excavated. Over the winter it filled with water and retained the water through the summer of 2000. In September, 2000, the pond was drained through a ditch which was dug to allow installation of a pipe and valve to control waterflow to the millwheel, and the millsite was cleared and leveled.

By the summer of 2001 it was clear that water was draining from the pond through the filled-in ditch, so the ditch was excavated, and it was discovered that the pipe had been broken when the ditch was re-filled. New, and larger, pipe was laid in during the late summer of 2001 but it was not possible to install the new valve before the snows came.

In September, 2002, the new valve was installed. In October, 2002, following the WAAC conference, more pipe will be laid and the ditch will be re-filled, to await the rising tide. If water remains in the pond until the valve is opened, work can commence on the mill and millwheel.
Sources of Materials Described:
Whiskey and Ibuprofen, widely available.

Museum Insurance and Risk Management: Post 9/11/01

Gail Joice

The world of risk management and insurance is still experiencing the aftershocks of the terrible losses of 9/11/01. Museum exhibitions, major loans, art in transit, and insurance policies have all been affected by the tragedy of terrorist attack.

This paper will be reviewing the immediate effects of 9/11 on the transport of

traveling exhibitions, on the role of couriers under heightened security, and the changes in fine arts insurance coverage. The perspective of insurance underwriters will be presented in context of the recent history of major disaster claims, which have contributed to rising rates of coverage. Changes in US Indemnity coverage and a resolution by the Association of Art Museum Directors will also be discussed. Attendees are encouraged to participate in dialog about how to protect works of art in transit under the new restrictions.

Supporting an Abstraction: Design and Fabrication of a Support Mount for a Jean Dubuffet Sculpture

Jamie Hascall

During the preparation for installation of a large foam and fiberglass sculpture by Jean Dubuffet, a sizable crack was discovered in one of the supporting "feet," and concerns were raised regarding the structural stability of this section of the piece, and especially its survivability in the event of an earthquake. We designed and fabricated a support system intended to take the weight of the sculpture and improve its stability in a seismic event. This paper will discuss the elements considered in the design and fabrication of the mount and the results of the project.

Sources of Materials Described:
Phillyseal R (formerly Pliacre)
Contact for local distributor
130 Commerce Drive, Montgomeryville, PA 18936 USA
Tel: 215-855-8450
Fax: 215-855-4688
www.philadelphiaresins.com.

System 3 Epoxy and fiberglass cloth
Fiberlay
2425 NW Market St.
Seattle, WA 98107
Tel: 1-800-942-0660
www.fiberlay.com.

Investigation and Treatment of a Stone and Adobe "Kiva" Structure at Natural Bridges National Monument

John Griswold

This paper summarizes the work performed by Griswold Conservation Associates and Dean and Associates Conservation Services on Structure 5, a "kiva-shaped" structure of river stones and adobe mud, in a large rock shelter at Natural Bridges National Monument in Utah. Of particular concern was an unstable mud plaster panel bearing pictographic images.

Emphasis is placed on the examination and interpretation of physical evidence indicating the deterioration mechanisms involved.

The project presented an opportunity to compare systematically far-range infrared imaging techniques with surface temperature spot readings and moisture content readings using a Protimeter moisture meter. The importance of establishing the rate of visible deterioration through past documentation is underlined. Ethical considerations in formulating an amended or reconstituted adobe mud infill are explored.

The Charles M. Russell Hearse: It Ain't No Skunk Wagon

John Kjelland

This horse-drawn hearse is considered a rarity and is not only one of the finest examples of such a vehicle but also bears immense historical significance. Manufactured by James Cunningham, Son & Company of Rochester, New York, it carried Mr. Charles M. Russell (America's cowboy artist) to his grave outside of Great Falls, Montana, in 1927. Mr. Russell loved horses but detested automobiles, referring to them as "skunk wagons." This hearse fulfilled his wish of being drawn to his burial spot behind horses. The carriage now lies at rest in the Trails End Gallery in the Charles M. Russell Museum in Great Falls.

The intent of the treatment was to return the hearse to its 1927 appearance. Since any treatment changes an object to a degree, conservation strategies must maintain an object's historic integrity. Therefore, a reasonable understanding of the degrading effects of environment and time on the materials was integral to the hearse's completed appearance.

The hearse was removed from storage and brought to the Trails End Gallery in the Russell Museum for onsite conservation treatment. The hearse was first placed on a three-foot square iron dolly. The hearse could then be rolled and rotated to utilize natural and artificial lighting. Removing the young oil, or oil-bound resin top coating, from the earlier enameled paint coating was an arduous and time-consuming task. Aqueous gels and Histsolv-based gels were effective, with minimal swelling of earlier layers. Adequate fume ventilation techniques were used throughout the project. Other treatment tasks included cleaning and stabilizing textiles, leather, glass, and metals. Loss compensation included a seat covering and new front tires. The Gallery remained open with the hearse on display during the treatment.

Onsite conservation eliminates potential transportation damage and offers visitors a visual demonstration of a museum's commitment to its collection.

Getting Away from Wood: Low Cost Alternatives to Wood and Wood Products in Collections

Jude Southward, Cheri A. Jones, Matthew F. Crawford, Robert Akerley

Over the past decade the Denver Museum of Nature & Science, Conservation Department, has undertaken a number of collection storage upgrade projects. These have included designing and building customized storage supports for large, heavy, or awkwardly shaped artifacts and specimens. Shrinking budgets and limited resources, which make many ideal but high cost solutions impractical, have marked this same decade.

Consequently, a recurring goal of our more recent projects has been to find alternative materials to replace the less desirable option of wood and wood-based products such as plywood and particleboard. The criteria for these alternative materials are that they should be chemically inert, relatively low cost, and provide the necessary strength to support objects safely. The materials chosen also need to be processed with relatively equal levels of skill and utilize no more specialized equipment or training than would be needed for wood.

The result of our efforts has been a gradual evolution in mount designs that completely replace wood-based products with inert plastic substitutes. The benefits

include removing potentially harmful acids and volatile organic compounds from the storage environment and eliminating the labor intensive and marginally effective process of sealing and coating wood surfaces.

This presentation looks at a number of materials and designs that we have adapted to meet our needs. Additionally, several new products are being considered for use that have been selected from the recycled materials industry and seem to be promising, reasonably priced alternatives to traditional wood products.

Sources for Materials Described:
Coroplast™ corrugated board
Composition: polypropylene, Manufacturer/Distributor: GE Polymer Shapes (303-744-3700), Price: 8'x 4'x 4mm = $10/sheet.

Thermoclear™ (white or clear)
Composition: polycarbonate, Manufacturer: General Electric, Distributor: GE Polymer Shapes, Price: 8' x 4' = $50.22.

Acid-free blotter paper
Composition: unbuffered 100% cotton blotter paper, Manufacturer: University Products, Price: 32"x 40"/50 sheets = $142.

Polyplank™ polyethylene foam plank
Composition: open-celled polyethylene foam, 3.8-pound density, Distributor: Katze Paper, Price: approx. $100 per sheet.

Tyvek® sheeting 1422A
Composition: high-density polyethylene – fiber/spun-bonded polyolefin, Manufacturer: University Products, Price: 60" x 50 yards = $151.

Polyester batting
Composition: 100% polyester, Manufacturer: University Products, Price: 40" x 30 yds. = $77.

Tivar 1000
Composition: Ultra high molecular weight polyethylene, Manufacturer: Poly-Hi-Solidur, Distributor: GE Polymer Shapes, Price: 4' x 8' = $444.

High-density polyethylene - HDPE
Composition: high-density polyethylene, Manufacturer: Poly-Hi-Solidur, Distributor: GE Polymer Shapes, Price: 8' x 4' = $192.

Biofiber Composite Panels
Manufacturer: Phenix Biocomposites, LLC., P.O. Box 609, Mankato, MN 56002-0609, Tel: 800-324-8187, Fax: 507-344-5522, Email: sales@phenixllc.com.

Suzanne Briet: Mother of conservation documentation?

Mitchell Hearns Bishop

Renée-Marie-Suzanne Briet was an information science pioneer who published a seminal work that raised fundamental issues in regard to documentation and the nature of information. Briet asked if an Antelope was a document and went on to explain under what circumstances an animal might be regarded as a document. Automation of information and information seeking have caused Briet's ideas to be reexamined. Briet and her colleagues were highly influential in forming modern concepts of "documentation" that form the foundation for our basic assumptions about "conservation documentation." This paper will examine these assumptions and their history. It will also explore what these ideas mean in regard to the role of contemporary conservation documentation.

A Preliminary Report on the Removal of Fungus from Slides

Niccolo Caldararo, Candis Griggs

Removal of mold from photographic slides is a difficult process and one that has not garnered much comment in the literature. Slides with mold are altered in ways that reduce or destroy the information they contain. Our recent experiments and developments in methods we have utilized for several years have produced a reliable and safe process for cleaning slides of mold.

The Conservation Department at Seattle Art Museum

Nicholas Dorman

The conservation department at Seattle Art Museum was established in May 2001. At that time Julie Creahan (collections care manager), Marta Pinto Llorca (conservation technician), and Barbara Robertson (assistant conservation technician) moved across from the museum services department to join me (chief paintings conservator) in setting up the new department. Over the coming year, the department will expand to include an administrative assistant and an assistant conservator.

The conservation department will continue to address collections care issues (care of objects in storage and on display; monitoring movement of objects; liaising with independent conservators) and preventive conservation matters (pest and environmental control, earthquake damage mitigation). Framing, matting, and the provision of custom-made storage for individual objects will also be undertaken by the department.

In addition to managing such ongoing concerns, the department will also constitute an in-house facility for the conservation treatment and technical examination of works of art from the Seattle Art Museum (SAM) collections. Examination will form a fundamental part of the approval procedure for loans. It will also become the starting point for the conservation treatment of works of art and for displays or articles regarding technical aspects of their production. The proposed analytical resources include optical microscopy and lamps for ultra-violet fluorescence examination. In time we intend to campaign for the development of these facilities to include x-radiography and infra-red reflectography.

One of the first goals of the department is to establish a fully equipped conservation studio in the raw space that has been reserved for this purpose on the fifth floor of the downtown museum. The studio will be a flexible workspace, tailored to permit the treatment of a variety of objects by both staff conservators and independent consultant conservators.

Preventive conservation matters will remain one of the leading priorities of the department. The studio will also house an anoxic treatment tent for the safe fumigation of artifacts with non-toxic nitrogen or argon gas.

The department recently hosted the workshop *Safeguarding our Cultural Heritage: Emergency Response for Cultural Institutions,* held by the Foundation of the American Institute for Conservation of Historic and Artistic Works. In this intensive 3-day workshop a group of conservators, preservation architects, and librarians from the North West came together to consider strategies for the care of cultural property during and immediately following disasters.

In September the department will also host the workshop Protecting Collections on Display and in Storage, presented by the Balboa Art Conservation Center of San Diego.

The conservation department will be involved in docent training and lecture series such as the First Friday program.

Education will constitute one of the most important aspects of the department. Thanks to a generous donation, it has already proved possible for the department to host its first summer intern. Patricia Favero, from the conservation program at Buffalo in New York, has spent the last 6 weeks working on a documentation project for SAM. She has been examining a painting from the community, acquiring digital images of the painting, and seeking a format for the storage of conservation documentation at the museum. It is hoped that such internships and, ultimately longer fellowships will become an intrinsic aspect of the department.

Gamblin Conservation Colors, Their Development and Technical Notes

Robert Gamblin

Gamblin Conservation Colors were developed over a seven-year period. The project began after Rene de la Rie identified a resin that he thought might prove valuable as a binder for inpainting. The principles of the team in addition to Rene were Mark Leonard of the Getty, Jill Whitten, now in private practice in Houston, and Robert Gamblin. This presentation will outline the development process of the retouching colors including the materials testing and field studies. Also to be discussed are notes on the working properties of the colors.

Unsanctioned Works in an Unimportant Place: The Painted Columns of the Lovejoy Ramp

James Harrison

In 1948 the artist and Greek immigrant Tom Stefopoulos began a series of paintings on the columns of the old Lovejoy Ramp — a viaduct built to span the rail yard where he worked as a watchman. The paintings were a mix of Greek mythology, Americana, and biblical imagery, and became a part of Portland mythology. Learn about the ongoing effort to conserve and re-erect the 10 painted columns that were carefully extracted when the ramp was torn down in 1999.

Making it Work/Getting it Done: How Portland Maintains its Public Art Collection

Robert Krueger

No abstract submitted

The Conservation of Damien Hirst's *Still Pursuing Impossible Dreams*

Rosa Lowinger, Christeen Taniguchi, Amanda Black

In the early 1990s, British artist Damien Hirst made a series of pieces that involved butterflies. The majority of these were canvas paintings with butterflies strewn on the surface, appearing to be trapped in the paint. *Still Pursuing Impossible Dreams* (1992) is a large-scale work from that period. With this piece, the artist not only utilized butterflies on the surface of two canvases that are laid end to end on a steel fulcrum, but also scattered them on the floor of a large steel framed glass box that enclosed the paintings.

Still Pursuing Impossible Dreams is in a private collection, having been purchased by its present owner at the time it was first exhibited a decade ago. The owner contacted Sculpture Conservation Studio (SCS) because she began to notice that the butterflies were "disintegrating." Indeed the butterflies on the paintings were partially eaten, and the ones on the floor were completely destroyed. An important concern was to determine what to do about this. Should the butterflies be replaced? Should they be conserved? How much visual change was allowable and what form should it take?

All of these questions were answered by the artist's London gallery White Cube2. Hirst made it clear that his preference was to have the damaged butterflies replaced. The challenge now became finding these insects and getting them ready for the treatment. According to the artist, it was not necessary to find exact matches; replacement butterflies could be similar to the originals in size and appearance. It was more important to maintain the overall meaning of the installation. By attaching cocoons on one wall, and butterflies both on the floor and trapped in the surface of the paintings, Hirst refers to an entire process of birth, transformation, and death.

The piece was located in a remote resort town and required on-site treatment. Therefore there were many preparatory steps to conservation. The first of these was to find a source for butterflies. As it turns out, they are generally sold in a folded, desiccated state which requires hydration. This process involved placing the butterflies in hydration containers with distilled water, and injecting the center of the thorax with hot water to hasten the process. This took a minimum of two days to achieve. Squeezing the center of the thorax on the side with the legs, and gently blowing between the wings tested readiness. Full hydration resulted in the wings opening up easily.

After hydration was achieved, the butterflies were mounted onto Styrofoam pinning boards by first using forceps to fold open the wings. The wings were lined level to the top of the board so that they dried correctly. Small glassine sheets were used to encourage the wings to open and were then pinned down. Forceps were then used to help spread the top wings from the hind wings. This entire process was long and painstaking, taking a staff of four people two full days to prepare the butterflies.

On-site conservation was carried out over the course of three days by one conservator. Attachment of the butterflies on the canvas involved several approaches. Wherever possible, butterflies were retained. In three instances, only a

missing piece of the body was replaced. In some cases, the disintegrated butterflies were removed and replaced with ones that were as similar as possible in size and appearance. The decision for replacement was made in each instance by the conservator in consultation with the client or her art coordinator.

The replacements were made retaining the portions of butterfly that were embedded in the paint layer. New butterflies were placed on top of these areas and bonded in place. The original appearance was retained either by matching the edges of the replacement to the embedded portion, or by inpainting on top of the replacement butterfly. The butterflies were bonded in place using a 40% solution of Acryloid B-72 in acetone.

Consolidation tests had been carried out in Los Angeles prior to treatment to see if it was possible to add resiliency to the butterfly wings. The tests were done with Soluvar matte varnish and Acryloid B-72 in xylene. The Soluvar blanched the surface. The B-72 was partially successful but saturated some of the subtler colors. At the site, a thin 3% solution of B-72 in acetone was used to consolidate the new butterflies, especially on body parts that are attractive to insects. This was done in the hopes that the presence of the resin would discourage future infestation.

Conservators rarely face the prospect of treating entomological collections in the course of their work, and SCS was excited by this challenge. Creative and successful replacements of butterflies and butterfly pieces were made on this Damien Hirst piece, and consolidation was effectively used as a potential tool to discourage future infestations.
Sources for Materials Described:
The butterflies were purchased and literature on hydrating and mounting were obtained from BioQuip Products in Gardena, California and Insect World in Spring Valley, California. Both sources were also directly consulted. Additional guidance was obtained via the internet from Ianni Butterfly Enterprises in Cleveland, Ohio.

White Cube2, a gallery in London, was consulted in regard to the artist's ideas of the piece.

Conservation of Relocated "Immovable Works": Preservation at What Cost?

Susanne E. Friend

Murals are, theoretically speaking, immovable works of art. They are generally commissioned for a particular architecture or become a lasting statement of the physical or cultural history of a site. However, reality dictates that tastes change and that the interest and attention paid to any installation is linked to many, often conflicting, factors and pressures.

When tastes change the art usually suffers and what should be "immovable" is moved. The consequences are often severe both from the point of view of materials damages and the drastic aesthetic changes that also must take place. This talk will focus on the problems with working on relocated murals and some of the important lessons to be learned.

Restoration of Emanuel Fremiet's *Joan of Arc*

Jonathan Taggart, Nancy Thorn

Joan of Arc has been a symbol of determination, patriotism, feminism, and devotion since her resurrection to popularity in the 19th and 20th centuries. The gilded Joan of Arc equestrian sculpture by Emanuel Fremiet, located in Portland, Oregon, had fallen from this state of grace due to the ravages of time, neglect, vandalism, and pranksters. The sculpture, given to the city in 1925 gilded in gold leaf, is one of at least six others all from the original Fremiet casting. The coat of gold was its first and probably its last. The sculpture turned darker and greener until it blended into the foliage in the park-like traffic circle where it was placed. Most residents never noticed it, even though it stands twenty feet tall on its granite base.

The surface of the metal deteriorated as is typical of untreated outdoor bronzes, with the insulting addition of spray paint. The white granite stone surface was gray with graffiti. The statue's crown, flag, and pole were either deteriorated or missing. Inappropriate repairs in the past had led to iron staining. Finally, this sculpture had become the subject of continual pranks: caps, capes, and a fall pumpkin head appeared regularly.

The restoration of the sculpture was a coordinated effort between the city body responsible for the care of Portland's outdoor sculpture, the community, and two interested conservators - Jonathan Taggart (an objects and sculpture conservator) and Nancy Thorn (specialist in gilded objects).

The proposed treatment for "Joan" was to return her to her original gilded state, replacing or repairing all of the damaged sculptural elements, improving the site, cleaning the stone base, and establishing a maintenance program. The missing elements were refabricated using historic photographs and detailed contemporary photographs from other versions of this sculpture located in Paris, Philadelphia, and New Orleans.

Our initial hope was to work with the existing corroded bronze surface by applying the appropriate primer and size, then gilding over it. This would provide the possibility of reversing the treatment and returning to the pretreatment appearance. Over time, it became clear that preserving the corrosion layer would substantially reduce the effective lifetime of the gilding and result in a substantially greater maintenance cost in the future.

The decision was made to chemically strip the bronze surface to bright metal in preparation for the application of the primer, size, and gold. The stripping of the bronze, which was not undertaken lightly or without trepidation, proved to be surprisingly easy and effective.

The proposed package of primers, size, and gold was rather standard, but further investigation during the treatment led to some product changes which we felt would improve the durability of the treatment. These changes lead one to wonder if there might be yet another choice of materials and layering that could further increase durability and improve the surface appearance.

This paper presents the process of cleaning and re-gilding, and the research in-

volved in determining the best course of action, which at times changed daily.

Sources of Materials Described:
Sepp Leaf Products

Pacific Coast Paint

Imperial Paint Company.

The Treatment Strategy for the *Ram Caught in the Thicket*, Royal Cemetery at Ur

Tamsen Fuller

The treatment strategy for the *Ram Caught in the Thicket*, one of the best known artifacts from the ancient Near East, from the Great Death Pit of the Royal Cemetery at Ur in present day Iraq, was influenced by several factors, including said fame.

The Ram was excavated by Sir Leonard Woolley, known in his lifetime for his skill in excavating, documenting, and preserving archaeological materials, a reputation which stands today. It was excavated in the 1928-29 season, in a time period when public attention was captured by the ancient archaeological past, such as the Carter's discovery of King Tutankhamen in Egypt. And at the time of treatment, discussions about the Ram between curatorial and conservation typically included curators from three different institutions and scholarly bents.

Although there are gaps in its perfection, the physical history for the Ram is relatively well recorded. This documentation was essential to its treatment in 1997. Woolley provided critical details in describing the reconstruction of the Philadelphia Ram, as well as that of its "pair," a similar figure excavated nearby which now belongs to the British Museum. In situ site photographs for each Ram were invaluable primary data. Once at the University of Pennsylvania, the Philadelphia Ram is known through notes in archives, photographs in photo archives, and conservation records once that lab was established in the early 1970's.

One of the overriding influences on treatment was that the Ram was needed to travel for several years as part of a multi-venue Ur exhibit. This meant that the sculpture needed to be reconstructed in component parts for ease and safety in handling, packing, and transit. The parts needed to assemble and disassemble easily, and each part needed to be made durable in a way that the original almost certainly was not.

Some of the strongest directives placed on the Ram's treatment came from curatorial, for reasons of iconography and style. The first was to re-place the Ram's front hooves on the tree branches, as they are clearly seen in the in situ photograph, and the second was to give the animal's body a more characteristic profile.

Ultimately, the Ram told its own story, corroborating some details from other sources and altering some others. Many insights came from reconstructing the gold tree, a process involving reuniting torn and separated pieces of gold and working with the photograph of the Ram as found in the soil.

In the end, I was awed by the power to transform that is placed in a conservator's hands and, as an ethnographic conservator, even more respectful and fearful of that aspect of conservation called restoration.

Sampling Strategies and Testing Procedures for Identifying Arsenic and Mercury Pesticide Residues on Collection Objects at the Natural History Museum of Los Angeles County

Tania Collas, Allyson Lazar

Arsenic and mercury salts have historically had widespread use as pesticides on anthropological and natural collections. The collections at the Natural History Museum of Los Angeles County are unfortunately no exception.

As a first step in assessing and mitigating the health risk of these pesticide residues for collection staff, Tania Collas, Conservator, and Allyson Lazar, Curatorial Assistant for Anthropology, with the collaboration of other collection staff, set out to develop sampling strategies and testing protocols to determine the nature and extent of contamination in the collections.

The vastness of the museum collections, with roughly 30,000 organic anthropological objects and over 200,000 bird and mammal specimens, necessitated a sampling strategy that would be humanly feasible yet statistically valid.

To select samples, the authors used subjective criteria such as the provenance and collection date of groups of artifacts or specimens to identify the collection groups that had the most likelihood of contamination. They then randomly selected artifacts and specimens for sampling within the suspect groups.

For the pesticide identification process, the authors researched and attempted several simple spot tests for both arsenic and mercury on samples from anthropological artifacts and ornithology specimens. After struggling with the ambiguous results often obtained using microchemical spot tests, they were able to refine the testing procedures of two tests that are relatively quick and easy and are usually non-destructive.

While these tests can be useful for determining the presence of arsenic or mercury salts, they are qualitative only and cannot be used to determine the degree of contamination. Also, these tests cannot determine the presence of organo-pesticides. Other technical analytical procedures required for either quantitative results or identifying organic pesticides will be briefly outlined.

Sources for Materials Described:
Arsenic test kit
EM Quant Arsenic Test Strips (100/pack) (cat. No. M100261) includes arsenic test strips, zinc powder, and hydrochloric acid.
Fisher Scientific
Tel: 800-766-7000
Website: www.fishersci.com.

Diphyenylcarbazone
Tri-Ess Sciences Inc.
1020 W. Chestnut St.
Burbank, CA 91506
Tel: 818-848-7838
Website: www.tri-essciences.com
(Also available from most chemical suppliers).