

from the 37th Annual Conference of the Canadian Association for Conservation of Cultural Property

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Acknowledgements

The CAC Winnipeg 2011 conference organizing committee gratefully acknowledges the support of the following institutions, companies and individuals whose collaboration and generosity contributed so much to the success of this event.

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A special thank you goes to all those who donated items and volunteered their time for the Silent Auction.

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CAC · 37TH ANNUAL CONFERENCE AND WORKSHOP

Winnipeg 2011



Workshop Reception

Date: Monday, May 23 Time: 6:00 – 8:00 pm Location: Le Musée St. Boniface Museum, 494 Taché Avenue Enjoy a reception at Le Musée de Saint-Boniface Museum which is housed in The Grey Nuns' convent, Winnipeg's oldest building. Built for the Grey Nuns who arrived in the Red River Colony in 1844, the structure is an outstanding example of Red River frame construction. The Museum presents an impressive collection of artifacts that reveal the lives and culture of the Francophone and Métis communities of Manitoba, including a special exhibit about Louis Riel, the "father" of Manitoba. Guests will have the opportunity to tour the museum and visit the gift shop. Visit the website for more information and directions: http://msbm.mb.ca

Conference Reception

Date: Wednesday, May 25 Time: 6:00 – 9:00 pm Location: The Manitoba Museum, 190 Rupert Avenue This reception will open *Museum 911: Conservators Protecting our Treasures*, an exhibit about conservation at the Manitoba Museum.

The Manitoba Museum is renowned for its vivid portrayal of Manitoba's rich and colourful history, Planetarium shows, and Science Gallery exhibits. The Museum's collections reflect the heritage of Manitoba and other regions of the world. Nine interpretive galleries explore the interrelationship of people and their environment. The Museum is noted for its three-dimensional walk-through galleries. Highlights include the *Nonsuch*, a full-size replica of a 17th century sailing vessel, and the Urban Gallery, which takes you back in time to Winnipeg during the 1920's. http://www.manitobamuseum.ca

CAPC Reception

Date: Thursday, May 26 Time: 4:00 – 6:00 pm (TBC) Location: Winnipeg Art Gallery, 300 Memorial Boulevard The Canadian Association of Professional Conservators invites you to attend a complimentary wine and

cheese reception immediately following the afternoon session on Thursday, May 26. Please join us in Eckhardt Hall to learn more about CAPC accreditation, its benefits and how to apply. All are welcome!

Banquet

Date: Friday, May 27 Time: 6:00pm Cocktails and Site Tours, 7:00 pm Dinner Location: Fort Gibraltar, 866 St. Joseph Street Transportation: Bus provided from Delta hotel

Begin the evening with a 25 minute guided tour of this rebuilt North West Company fur trade post during the cocktail hour (cash bar). Guests will then dine in The Great Hall and be entertained by lively voyageurs. http://www.fortgibraltar.com

Menu Options :

• Slow roasted Manitoba Bison with lingonberry sauce with mushrooms, caramelized onions and dijon demi glaze



- Rosemary Chicken scaloppini with roasted sweet bell pepper sauce
- Pan fried Manitoba Pickerel fillets with tarragon vanilla beurre blanc
- Polenta Napoleon with grilled vegetables and portabella mushrooms on a roasted red pepper coulis (This vegetarian option can be made vegan if specified)

All meals are accompanied by soup, vegetable sides, dessert and tea & coffee.



Workshop 1: Printmaking: Artist Meets Conservator

Duration: Wednesday, May 25, 2011 Location: Martha Street Studio, 11 Martha Street, Winnipeg Instructors and Speakers Miriam Rudolph, Leif Norman, Crystal Maitland, Shelagh Linklater

This workshop will introduce Conservators to printmakers and printmaking through lectures, discussion and hands on activities. Participants will learn the basics of the composition and creation of intaglio prints and cyanotypes, as well as identification, deterioration, storage and care of these materials. A selection of historic prints will be available for participants to examine. In the morning, participants will learn about intaglio prints and create an acetate etching. In the afternoon, participants will learn about some historic photographic processes and create a cyanotype. Supplies, breaks and lunch are included in the registration fee.

Instructors and Speakers:

Miriam Rudolph received a BFA from the University of Manitoba in painting and printmaking. She also has a degree from the Faculty of Education and is actively involved in the Winnipeg art community. Her printmaking practice concentrates primarily in the areas of intaglio (etching) and linocut.

Crystal Maitland completed her undergraduate studies in chemistry and then specialized in paper conservation, graduating from Queen's University Masters of Art Conservation Program. Since 2008 she has held the position of Paper Conservator at John Hopkins University Sheridan Libraries in Baltimore, Maryland.

Shelagh Linklater received a BFA from the University of Manitoba and a Certificate of Art Conservation Techniques from Sir Sanford Fleming College. She worked for the Archives of Manitoba since 1987 and taught collection care to other provincial institutions through The Manitoba Heritage Conservation Service.

Leif Norman has a chemistry degree and works full time as a freelance photographer. His main hobby is researching silver gelatin photo processes of the late Victorian period in order to make negatives from scratch for the large camera he built. In the past he also dabbled in pinhole photography, cyanotypes, and slam poetry.



Workshop 2: Advanced Issues in Emergency Preparedness and Response

Presented in partnership with the Canadian Conservation Institute, May 24-25, 2011, Winnipeg, MB

Day 1: Preparing for Collections Salvage

Two half-day hands-on sessions offered concurrently, morning and afternoon, to accommodate up to 40 participants. These sessions are intended for professional conservators or those with conservation training and responsibility for disaster response at their institution.

Session A: Salvage Planning and Triage

Facilitator: Irene Karsten, Canadian Conservation Institute

This session will focus on emergency assessment skills needed to plan and implement successful salvage projects. Conservators will learn how to use institutional floor plans to assist emergency planning for collections. Emergency risk coding uses floor plans to document the level of vulnerability to water emergencies across a storage or exhibition facility, using published information on material risks. The coding exercise can give conservators a better sense of the relative risk of objects in a collection facility in advance of an emergency. The floor plans also form the basis of scenario planning, a simple table top exercise that can be used with institutional staff to both develop and test emergency plans. Scenario planning charts and exercises allow staff to better visualize an emergency and plan a specific response in terms of actions, supplies, equipment, space, and personnel needed. Participants will leave the workshop with the tools and information needed to use such techniques in their own institution or for client institutions.

Session B: Salvage Techniques for Wet and Fire-damaged Collection Material Facilitator: Jane Dalley, DF Heritage Conservation Services

This session will give participants hands-on experience handling, stabilizing, and cleaning a variety of water-soaked and fire-damaged artifacts and archival media. Emphasis will be on finding low-cost approaches to salvage using materials that are commonly available. Participants will develop critical thinking skills for the application of salvage techniques and methods for training others in these techniques. Appropriate personal protection for salvage situations will also be emphasized.

Part 1. Handling and Stabilization for Packout/Salvage

This exercise provides participants with the information and the opportunity to respond to a disaster situation through a planned emergency response scenario which challenges them to respond and develop their emergency response and salvage techniques. Using a hypothetical scenario, participants will learn the steps involved in pack out and salvage. Decisions will be based on media, value, health concerns and on information pulled from publications e.g. the Field Guide to Emergency Response. Participants will also discuss criteria followed by commercial salvage response companies.

Part 2. Cleaning Damaged Artifacts and Archival Media

Using current wisdom and available published information, participants will practise handling and rehabilitation of water and fire-damaged artifacts and archival media. Topics include dealing with dirt,



mud, soot and ash; brushing, vacuuming & soot removal techniques; the organization of workspace; and the importance of working cleanly.

Day 2: Museum Emergency Preparedness and Planning within the Community

Facilitator: Irene Karsten, Canadian Conservation Institute

Although emergency preparedness and planning literature for heritage institutions usually recommends contact with local emergency services personnel, most of the information on planning describes in-house activity. This day-long workshop will focus on broader community-wide initiatives in emergency preparedness and the kinds of information and services that can help heritage institutions plan more effectively for emergencies. The role of community networks, of community emergency responders and emergency management offices, and of restoration companies and insurance adjusters, especially in the event of major disasters, will be explored. Invited speakers from across Canada will include representatives from community emergency management organizations, cultural organization networks, and the restoration and insurance industries.

Session 1. Preparing for Emergencies in the Community

Speakers from provincial and municipal emergency preparedness agencies

Emergency management organizations play a critical role in response to emergencies that affect larger communities, such as floods and earthquakes. Drawing from the knowledge and experience of Manitoba EMOs, this session will review the role of emergency management organizations and first responders in emergency response. Planning and preparedness at the provincial and municipal level will be reviewed. Programs, sources of information and training options that can help heritage professionals prepare their own plans will be summarized. The relationship between EMOs, first responders and institutional staff during a large scale emergency will also be addressed.

Session 2. Museum – Community Emergency Preparedness Initiatives Speakers from regional and territorial heritage networks

Preparing for emergencies can be facilitated through networks that encourage sharing of information, provide information, ideas, and tools to help heritage institutions get prepared. This session will highlight the efforts of a few exemplary projects in the area of emergency preparedness.

The London Heritage Council in London, ON is working closely with area museums and municipal emergency officials to provide training and ensure that museums develop plans. The Tourism and Culture Emergency Management Committee of the Yukon Territorial Government has coordinated emergency planning for museums in the territory and developed kits and mobile offices to assist in emergency response.

Session 3. Recovery in Large Scale Disasters: Working with Outside Professionals Speakers from the fire/flood restoration industry

In larger disasters, damage to collections and facilities may exceed the ability of institutional staff to respond on their own. The restoration industry can often play a critical role in response and recovery particularly for archival collections, museum documents, and building restoration. This session will



introduce heritage professionals and conservators to the methods and business practices of the restoration industry.

Session 4. Paying for it All: Insurance and Collection Recovery

Speakers from the insurance industry

Emergency response, particularly in the case of larger disasters, requires purchasing supplies and equipment and hiring contractors that fall outside of an institutions regular budget. Insurance is often used to pay for these expenses. This session will focus on the process of dealing with insurance adjusters when an emergency has occurred: the steps that need to be followed in making a claim, information needed by the insurance company, and issues around damage to irreplaceable cultural property.

An interactive group session over lunch will allow participants to think about the effects of a large disaster on a heritage institution and to brainstorm response needs and questions in relation to working with EMOs, restoration experts and insurance companies. Questions generated in this session will be introduced in the afternoon sessions and will be gathered to develop question/tip sheets for working with emergency and insurance professionals.



CAC 2011 Conference Program

Wednesday, May 25

6:00 – 9:00 Conference Opening Reception and Registration Manitoba Museum, 190 Rupert Ave.

Thursday, May 26

- 8:30 Registration Opens Winnipeg Art Gallery, 300 Memorial Blvd.
- 9:00 10:00 Introductions Per Guldbeck Lecture Cathy Collins
- 10:00 10:30 Break

10:30 – 12:00 Books and Archives

Session Chair: Iona McCraith

Snap, Crackle, Pop? How to Silence your Book: A Comparison of Different Materials and Techniques for Hollow Tubes, *Manise Marston*

Archival Preservation and the Preservation of Archival Value, Ala Rekrut

The Evolving Role of the Archival Conservator in Canada, Greg Hill

- 12:00 1:30 CAPC Lunch
- 1:30 2:30
 Should Joe Care Marketing Preservation

 Session Chair:
 Dee Stubbs-Lee

 Speakers:
 Eric Nordgren, The Mariners' Museum

 Philippe Mailhot, Saint-Boniface Museum

 hanna_g, aceart inc
- 2:30 3:00 Break
- 3:00 4:00 Should Joe Care Marketing Preservation
- 4:00 6:00 CAPC Reception Winnipeg Art Gallery, 300 Memorial Blvd.
- 6:00-8:00 Emerging Conservators Meet and Greet Location TBA



Friday, May 27

8:45 – 9:45 Material Science and Digitization

Session Chair: Charlie Costain

Wallpaper Reproductions Goes Digital, Neil Brochu

Separation of Historically Important Dyes using Capillary Electrophoresis, *Shokoufeh Ahmadi, Ghodratollah Absalan, Douglas Craig, Douglas Goltz*

9:45 - 10:15 Break

10:15 – 12:00 Fine Art

Session Chair: tba

Compatibility of Traditional and Synthetic Consolidants for Treating a 16th century Polychrome Polyptich, *Srebenka Zeskoski, Romana Jagić*

Restoring Visual Harmony: Analysis and Treatment of Murals by Elihu Vedder, *Meaghan Monaghan*

Saving the Mendel/Perehudoff Mural Room: A Unique Application of a Modified *Strappo* Technique for Acrylic Paint Layers on Plaster Walls", *Ian Hodkinson*

12:00 – 1:00 Regional Representatives Lunch

1:00 - 2:30 Objects

Session Chair: Colleen Day

Taking Charge of your Batteries, *Kendrie Richardson* The Conservation of the Dymaxion House in the Henry Ford Museum, *Clara Deck* Conservation Standards during Construction, *Jasmina Jovanovic-Vlaovic*

- 2:30 3:00 Break
- 3:00 5:00 Annual General Meeting

Conference Banquet
Fort Gibraltar, 866 St. Joseph St.
6:00 Cocktails and historic site tour
7:00 Dinner



Saturday, May 28

Morning tours

1:00 – 2:30 Training

Session Chair: Gayle McIntyre

It's the P.I.T's: Evolution of a Booklet, Susanne Sutherland

The Politics of Totem Pole Conservation: Observations from the 2010 Caring for Totem Poles Workshop, Kitselas Canyon National Historic Site, October 4 – 7, 2010, *Owen Thompson*

Adventures in Mentoring: Conservation Internships at a Smaller Lab, *Dee Stubbs-Lee and Gayle McIntyre*

2:30 - 3:00 Break

3:00 - 4:30Risk Assessment and Sustainability

Session Chair: Jose Milne

Reducing Risks on a Limited Budget: Lessons Learned from Pilot Risk Assessments *Irene Karsten, Stefan Michalski, Maggie Case and Julie Stevenson*

Conservation Assessment of the "Nonsuch" at The Manitoba Museum in 2010, *Andrew Todd*

Preserving Collections, Saving Energy, Charlie Costain

Wrap-up

Snap, Crackle, Pop? How to Silence your Book: A Comparison of Different Materials and Techniques for Hollow Tubes

Manise Marston, Conservator, Books, Library and Archives Canada Session: Books and Archives, May 26

Hollow backs, or 'hollow tube' bindings originated in France around 1770, and became widely used in the 19th century, particularly in publisher's cloth and leather bindings, and in 20th century library bindings. A hollow tube is a piece of paper folded twice, making three equal parts, with two parts adhered together to form a tube. One side of the tube is adhered directly to the spine of the text block as a spine lining, while the other side is adhered to the interior of the covering material. There are many benefits to this binding structure. A hollow tube helps maintain a balance between flexibility, strength, and rigidity, all of which are required to create a functional text block.

A conservation treatment project consisting of eight identical bound volumes from an incomplete series dating from 1832-1837 came into the Book Conservation Section of Library and Archives Canada. These cloth-bound, quarto volumes from Thomas Moore's *The Works of Lord Byron* series were in poor condition: the spine linings and adhesive layers were loose, covers were detached, and the cloth was heavily worn, especially at the joints.

A hollow tube of Ingres machine-made paper was added to the spine of Volume 11, resulting in a strong, functional repair. However, the spine was limited in flexibility and had a tendency to snap or kick-back when opened, similar to a spring-back account binding. After consultation and investigation, it was concluded that the thickness of the new material was responsible.

As a result, it was decided that this treatment project would become a formal study on the comparison of different materials and techniques used to create hollow tubes. Eight variations of hollow tubes were evaluated and compared based on the following criteria: openability, flexibility, integration of components, preparation time and ease of application.

The results of this study show that the hollow tube technique remains a viable option for book conservation. There are many variables that can be custom tailored to the period and format of the book.



Archival Preservation and the Preservation of Archival Value

Ala Rekrut, Manager, Preservation Services, Archives of Manitoba Session: Books and Archives, May 26

Archival literature and practice treats the preservation of electronic records as fundamentally different from the preservation of older forms of archival records. As a conservator, I believe this suggests both an unnecessarily narrow conception of preservation as well as inadequate preservation practices to meet basic archival goals. This paper considers how we got here, what it is about archival records that needs to be preserved, identifies some disconnections between archival preservation goals and current archival preservation practice, and suggests how some new connections can be made.

In "traditional" archival theory, the materiality of records has usually been assumed to be incidental to, and largely disconnected from, the "intellectual" or "information" value of records, a perspective quite different from how other heritage professions view material culture. While this is still the dominant paradigm, over the last three decades archival theory has been re-oriented around the concept of records as evidence of the dynamic functional context of their creation. This contextualist shift supports an increased acknowledgement of materiality as integral to archival value and brings archives closer to other memory institutions. At the same time, electronic records, generally perceived as immaterial, have required archivists to identify and preserve the essential elements that define the record-ness of records. Conceptual tools developed for this purpose can be applied back to non-electronic records to increase our understanding of the integral role played by materiality in the preservation of archival value.

Methodologies cited in archival preservation literature as best practices for older forms of records are object-oriented rather than context-oriented: they are focussed on managing the longevity of the individual material components of records without consideration for the relationship between materiality and archival value. They are therefore ineffective for addressing and protecting the evidential possibilities within records' materiality. However conservators working in archives can look to our own broad conservation principles and practice for practical ways to adjustment archival preservation practices to bring them into alignment with the goal of preserving those aspects of records which contribute to their archival value.



The Evolving Role of the Archival Conservator in Canada

Greg Hill, Senior Conservator, Archival and Photographic Materials Canadian Conservation Institute Session: Books and Archives, May 26

Historically, archival conservators in Canada are trained in the fields of paper, books and photographs. With roots in the British apprenticeship tradition the focus was on developing high level hand skills over many years. By the mid 1970's with the formation of the Canadian Conservation Institute and the Queen's University Art Conservation Program, there was a shift toward a more science based approach.

Preservation of cultural property has always been one of the primary mandates of archives and during the 1970's and 80's conservation departments expanded with large volume, item level treatments being standard practice.

Economics and increased demand for the archival record resulted in a general shift away from item level treatment toward higher volume treatment solutions in the late 80's and 90's. Mass de-acidification research flourished and "stabilization" or minimal treatment of collections became the accepted norm. This also signaled a shift in emphasis in archives preservation activities away from conservation treatment. Many institutions have built high quality environmentally controlled facilities adopting preventive conservation as the focus of their preservation program. Though informed and promoted by conservators, these activities were often directed and implemented by non-conservation professionals. This trend was further entrenched with archives aggressive move to digitize collections and make them available on line. Full treatment has became increasingly viewed as a luxury.

So where has this left the archival conservator? In the face of this decreasing demand for high level treatments, maintaining high level skills is exceedingly difficult. The advent of the digital age has challenged the profession on other fronts as well. Conservators are required to broaden their skill set to include electronic media. Furthermore, the number of conservation positions is diminishing and hard economic times have precluded, in many cases, succession planning and effective knowledge transfer. Opportunities for emerging conservators are few. Beginning with the conservation educational programs the training of conservators must reflect these changes within the archival community and develop broad based flexible learning environments with a strong emphasis on communication skills.



Special Session: Should Joe Care – Marketing Preservation

Speakers:

Eric Nordgren, The Mariners' Museum *Philippe Mailhot,* Le Musée Saint-Boniface Museum *hanna_g,* aceart inc

The CAC Ottawa 2010 Conference held a special session, "Should Joe Care? Continuity, Viability and Advocacy for Conservation". It was a forum for discussion on the viability of conservation as a profession and community. One of the recommendations from the session was to develop marketing strategies for conservators. As a group, conservators enjoy working quietly away in the background. If we do our work well, "Joe" does not even know we exist. This year's special session, "Should Joe Care – Marketing Preservation" will showcase three different approaches to reaching the public. Can we tap into the next generation with electronic media? How do we get attention from traditional media? How do we get creative? The session will also provide an opportunity for audience participation during the panel discussion.

Engaging the Public in the Conservation Process – The USS Monitor Project at the Mariners' Museum

Eric Nordgren, Senior Conservator, The Mariners' Museum Session: Should Joe Care - Marketing Preservation, May 26

Public engagement is an important aspect of the project to conserve the American Civil War ironclad USS *Monitor* at The Mariners' Museum in Newport News, Virginia. The *Monitor* Project is a collaborative effort between the National Oceanic and Atmospheric Administration (NOAA) and The Mariners' Museum (TMM), both of which have engagement with the public as one of their primary missions. Once NOAA decided to excavate significant portions of the *Monitor* wreck site off Cape Hatteras, North Carolina, it was realized that a large-scale, long-term effort would be required to successfully conserve over 200 tons of artifacts. NOAA and TMM experts also realized that engaging the general public and cultivating their long-term support was of equal importance to constructing a state-of-the-art conservation lab and dynamic exhibit.

Conservation of large marine artifacts is a decades-long and usually out-of-sight process. The design of the Batten Conservation Lab and USS *Monitor* Center at TMM incorporates views of the conservation spaces in addition to the exhibition galleries, so that the artifacts are presented to the public while still actively undergoing conservation. Three live webcams, a dynamic website, regularly updated staff blogs, and use of social media and interactive video conferencing are employed to reach out to the public online, while media coverage, special behind the scenes lab tours, public lectures, and special events help to engage visitors to the USS *Monitor* Center. Particular effort is made to communicate information about the conservation process and the necessity for thorough treatment of the artifacts.

The Mariners' Museum has received positive online feedback as well as personal feedback from visitors who were drawn to the USS *Monitor* by these multiple forms of outreach. This public presence has been helpful in gaining and maintaining public interest and support for the *Monitor* Conservation Project.

Wallpaper Reproduction Goes Digital

Neil Brochu, Community Cultural Coordinator, Collections & Conservation, City of Toronto Session: Material Science and Digitization, May 27

In 2010 Toronto's Spadina Museum Historic House and Gardens underwent a wholesale re-restoration of its interiors. This extensive restoration project addressed the preservation of historic components such as plaster ornaments and wood flooring as well as the re-creation of interior finishes such as linoleum, carpeting and wallpaper. This project employed a blend of conservation, restoration and reproduction strategies for the re-creation of over 17 interior settings.

Spadina is rare among house museums in that it was transferred to the City of Toronto and the Province of Ontario along with its entire contents, including an extensive archive spanning three generations of the Austin family. This archive contained not only the typical insurance inventories and correspondence, but also unused rolls of wallpaper dating primarily to the early twentieth century. Conveniently, many of these papers suited the new 1920s time period that was to be reflected in the restoration.

The wall coverings that previously graced the walls of the house were silk-screened reproductions produced during the first restoration in the early 1980s. The majority of these papers no longer suited the new interpretive focus of the museum. In several cases, they were in poor condition and required replacement.

Reproduction wallpapers typically are made using either wood-block or silk-screen printing methods. Both methods are capable of producing museum quality results at a reasonable cost, provided the original motif lends itself to these technologies and colour scheme is not overly complex. Because several of the required reproduction wallpapers contained complex shading schemes and/or a high number of colour separations (one paper had 18 separate colours used in its original printing) another method for reproduction was sought.

This paper will investigate how digital technology was used at Spadina Museum as an approach for the reproduction of wallpapers in a museum setting. The discussion will focus on the requirements necessary for image capture, the importance of an integrated colour management strategy throughout the project and the appropriate selection of substrates and output devices as priorities in the reproduction process. Issues related to installation and pattern placement on the walls of an historic interior will round out the discussion.

Separation of Historically Important Dyes using Capillary Electrophoresis

Shokoufeh Ahmadi, Centre for Scientific and Curatorial Analysis of Painting Elements (C-SCAPE) Department of Chemistry, University of Winnipeg

Dr. Ghodratollah Absalan, Department of Chemistry, Shiraz University, Shiraz, IRAN *Dr. Douglas Craig,* Centre for Scientific and Curatorial Analysis of Painting Elements (C-SCAPE), Department of Chemistry, University of Winnipeg

Dr. Douglas Goltz, Centre for Scientific and Curatorial Analysis of Painting Elements (C-SCAPE), Department of Chemistry, University of Winnipeg

Session: Material Science and Digitization, May 27

Dyes have been used for centuries in painted objects. Most red dyes used in ancient textiles were derived from natural sources and they were prepared from plants and animals using traditional techniques. The red dye obtained from Madder is extracted from the roots of Rubia tinctorum plant and contains alizarin and purpurin, which are anthraquinone dyes. We are currently exploring the use of capillary electrophoresis as a separation technique for the purpose of identifying natural dyes in historical objects. The most important advantage of capillary electrophoresis is its small sample size, which minimizes damage to the object.

A solid state diode laser (407 nm) with a maximum output of 10 mW was used as a light source with a photo-multiplier tube to collect light as a result of the fluorescent property of the target molecules. In this arrangement the detection limits of alizarin, purpurin, morin and carmin were determined to be 22.6 pg for both alizarin and purpurin and 14.4 pg and 15.5 pg for morin and carmin respectively.

A number of instrumental properties can affect the fluorescence and separation of these historical dyes. For example, we have examined the effect of applied voltage on the separation of dyes as well as the wavelength of the light source (407 vs. 488 nm). In general, the shorter wavelengths provide a much higher signal as a result of greater fluorescence in the target molecules.

Chemical modifiers such as methanol or acetonitrile can improve peak shape; however, steps such as flushing the capillary with 100 mM NaOH can greatly reduce unwanted peaks in the chromatogram. Because of the acid-base properties of the dyes, the pH of the buffer has significant effects on their UV-visible absorption properties. For capillary electrophoresis (CE), the optimal pH for the separation of the dyes using a 20 mM borate buffer was found to be pH = 9. Of all the dyes studied, purpurin appeared to be the most sensitive to photochemical decomposition. This was observed with peak broadening in the CE. Therefore the UV-visible absorption and fluorescence properties of purpurin were examined under different pH (pH=8, 9, 10, and 11) and light conditions.

Compatibility of Traditional and Synthetic Consolidants for Treating a 16th century Polychrome Polyptich

Srebenka Zeskoski, Private Conservator, In Restauro Conservart Inc. Romana Jagić, Senior Conservator, Polychrome Sculpture and Altarpieces Croatian Institute for Restoration Session: Fine Art, May 27

Finding a suitable consolidant for a large deteriorated 16th century polyptich (728 x 424 x 110 cm) designated to return to its functional life was not only challenging, but carried certain ethical and aesthetic responsibilities. The success of the overall consolidation process depended upon appropriately strengthening the deteriorated and friable substrate without changing its original appearance (darkening being the most common problem) or adversely affecting the flaking ground-pictorial layers.

Since most of the chosen consolidants were amply tested and described in the literature, the emphasis of our experiment was on the choice of solvents rather than the resins. The degree of in-depth solvent penetration was also of significance, so the examination of cross-sections was used to establish whether a point of interface existed at which the introduced consolidant actually came into contact with the original pictorial layers, with the traditional materials used to address the lacunae (animal glue and gesso), or with the tenting and lifting ground/paint.

The tests were conducted on a wooden plank which formed part of a support for a sizable lunette. The lunette had to be replaced due to extreme fragility that compromised the structural endurance of the entire altarpiece. The age and the porosity of this plank made it an ideal testing material as it closely resembled the overall altar's condition. It was also, as a bonus, of the same date.

Until recently, traditional animal glues and resin-based adhesives have usually been used for such treatments. The question was whether modern synthetic resins in appropriate solvents could satisfy the required conditions, be easily applied (which was of some concern due to the large size of the altar), and be compatible with traditional materials deemed the best for a subsequent consolidation of ground/pictorial layers.

The wood samples were treated with the following consolidants: ethyl methacrylate co-polymer in toluene, acetone and ethanol, acrylic resin in white spirit, isobutyl methacrylate in synthetic isoparaffinic hydrocarbon solvent and hydroxypropyl cellulose in ethanol.

After several applications and proper curing, an examination of the cross-sections showed that the 2% and 5% ethyl methacrylate co-polymer in ethanol had sufficiently consolidated the friable wood without affecting its colour. The efficiency of the consolidant was further extended by injecting a low viscosity mixture of chalk in hydroxypropyl cellulose/ethanol suspension into the remaining voids. With those treatments, a sound foundation was prepared for addressing the ground/pictorial layers' severe tenting and lifting as well as the work's friable substrate.

Restoring Visual Harmony: Analysis and Treatment of Murals by Elihu Vedder

Meaghan Monaghan, Conservation Fellow, Yale University Art Gallery Session: Fine Art, May 27

This paper investigates the examination and treatment of a series of ten decorative mural paintings by the American artist Elihu Vedder (1836-1923). Vedder was a visionary and versatile artist who played a strong role in the stylistic development of the American Mural Movement during the late 19th and early 20th centuries, a period referred to as the American Renaissance. Though his artwork has often been overlooked, Vedder experienced some fame during his lifetime and is known for his highly personal style, symbolic creations, landscapes and illustrations.

Vedder was commissioned to paint murals for the dining room of the Collis P. Huntington mansion, which once stood at the corner of 5th Avenue and 57th Street in New York City. The mansion was torn down in 1926, at which time the majority of the interior decoration from the property was donated to Yale University by Collis' son, Archer Huntington. Along with other murals from the mansion, a ceiling painting and nine lunettes by Vedder have been stored and displayed, individually or in small groupings, at the Yale University Art Gallery and other University locations. As a result, their condition and surface appearances vary. Vedder was interested in surface finish and all ten paintings were meant to hang together in visual harmony. Thus, it will be important to regain this cohesiveness before the works are displayed in the newly-renovated galleries in 2012.

The Vedder murals present challenging surface cleaning issues since some areas of the paintings are varnished while others remain unvarnished. As these areas respond differently to cleaning solutions, it is the intention of this research to find a surface cleaning technique that will reduce dark discolorations, but not compromise visual harmony across all ten paintings. Guided by the cleaning systems developed by R. Wolbers and C. Stavroudis, a variety of solutions are being tested. In addition, a thorough technical study of the paintings' materials using cross-section microscopy, FT-IR, XRF and GC-MS, will explore Vedder's practices and determine treatment options for addressing the variations in surface finish of the porous paintings.

Saving the Mendel/Perehudoff Mural Room: A Unique Application of a Modified Strappo Technique for Acrylic Paint Layers on Plaster Walls.

Ian Hodkinson, Honorary Member, CAC, Emeritus Professor, Art Conservation Queen's University Session: Fine Art, May 27

Fred Mendel, of Mendel Art Gallery fame, was a successful entrepreneur, art enthusiast, promoter and philanthropist who commissioned artist William Perehudoff to execute murals on the walls of an anteroom to his private art gallery in the executive suite of his Inter-continental Packers plant in Saskatoon, Saskatchewan. The murals were originally painted in buon fresco in 1953, but deterioration of the fabric of the building had damaged the walls so badly that when Perehudoff was asked to "fix" them in 1977 he decided to repaint them in acrylic, which by that time had become his medium of choice. A further minor but significant intervention by an unknown hand took place in 1998. By 2009 a decision was made to demolish the building to make way for the extension of the Circle Route around the city, and the mural room was threatened with imminent destruction. This paper deals with the deployment of an emergency transfer strategy involving a modified strappo technique using fish glue and cotton muslin to strip the acrylic paint layers from the plaster wall. It continues with descriptions of the manufacture of rigid supports, experimental testing, and the development of a system for reattaching the paintings to the rigid supports using a vacuum bagging technique with hot melt adhesive. Controlled heating was achieved by employing a custom-designed, flexible heat sheet and thermocouples attached to a dual input digital thermometer. Ethical issues relating to the restoration of the final presentation surface and the status of the post-1977 intervention arose as a result of the discovery of Perehudoff's signature dated 1953-77 hidden under the 1998 baseboard. These issues were discussed with the various stakeholders and a consensus reached on how to deal with them. The re-mounted murals are now crated in storage awaiting the construction of the new Art Gallery of Saskatchewan in Saskatoon, projected to open in 2014, where they will be reconstructed in their original format and serve as an antechamber and orientation room leading to a Mendel wing.

Taking Charge of Your Batteries

Kendrie Richardson, Recent Collections Conservation and Management Graduate, Fleming College Session: Objects, May 27

Batteries are a common part of modern day society but are poorly understood as collections objects. When three battery cells were discovered at the New Brunswick Museum in 2004, speculation began about the treatment and long term care of these objects. However, definitive steps for conservation treatment and proper storage were not undertaken until 2010 when, in the context of a Fleming College Internship, research began to determine means of identification, treatment and preservation of historical batteries.

There are two main categories of batteries, primary cells and secondary cells. Within each of these two categories, there are numerous types of batteries ranging from large lead-acid car batteries to tiny mercury based button batteries. Even though the three batteries found in the New Brunswick Museum's collection were all primary zinc-carbon cells, further research was undertaken to compile information about some of the common batteries found in museum collections. As a result of this research, a reference guide for the identification of common types of battery cells was produced.

The hazards associated with batteries come from the interior components used for generating electricity. Some cells are known to contain dangerous heavy metals and strong acids. Cells containing these hazardous products require that extra precautions be taken to protect the handler, the surrounding collection items and the cell itself. Some cells require conservation treatment to stabilize or neutralize unstable or hazardous materials, while other batteries are stable, do not pose a high risk to collections, and require minimal conservation intervention. Batteries that pose the greatest challenge to conservators and other museum personnel have been identified and will be discussed.

With further developments in today's society, batteries are becoming more common and, consequently, more likely to be found within collections. The study of batteries requires further development and increased attention. A brief history of battery cells, care and handing recommendations, possible conservation procedures, and long-term care suggestions for batteries in museum collections will be presented. Hopefully, the information presented in this paper will bring awareness to battery cells and encourage further sharing of information so that you, too, can "take charge of your batteries".

The conservation of The Dymaxion House in Henry Ford Museum

Clara Deck, Senior Conservator, The Henry Ford Museum Session: Objects, May 27

This paper will address the challenges of conserving R. Buckminster Fuller's Dymaxion House, an aluminum "dwelling machine" originally manufactured in a World War II aircraft plant. The Henry Ford Museum exhibits the only surviving prototype of this radical experimental dwelling. The project to restore the structure spanned the allied disciplines of architecture, material science, metallurgy and the conservation of industrial collections.

The Dymaxion House is a unique and innovative structure. It uses tension as the main structural principle and is supported on a central "mast". The house was advanced for its time in that it used modern materials such as aircraft aluminum, plywood, Plexiglas, PVC fabric and nylon screening for a mass-produced dwelling.

Two prototypes were built in mid-1940s at Beech Aircraft in Wichita Kansas, but the project did not result in a marketable product. The trial structures were later re-configured and used for a personal residence on a lakeside property outside the city. Exposure to the elements for nearly 50 years left the structure in a state of deterioration, with many of the aluminum components suffering varying degrees of corrosion.

The Henry Ford Museum acquired the Dymaxion House in 1992 and made plans to exhibit it inside the climate-controlled museum. Public access to the house by 1 million visitors per year was an integral part of exhibition planning from the outset.

The conservation of the nearly 3,600 components and the reassembly of the house presented quite a challenge, and a multi-disciplinary team consisting of conservators, scientists, architects, engineers and technicians was assembled to complete the task. Scientific and structural analysis of the components was done during the three-year long conservation and restoration project.

Treatments included removal of asbestos-laden tar, extensive corrosion removal, and reinforcing or replacing badly damaged parts. Handling the very large and awkward shapes, some 14 feet long, required innovative adaptations of techniques and equipment. A disputable decision was made upon the recommendation of the consultant metallurgist to heat treat some components. It was important that the structure present a shiny appearance, and tests of coatings resulted in the choice to spray-apply air-dry nitrocellulose lacquer.

In this talk I will discuss the various treatment methods that were developed for the conservation of the Dymaxion House. I will also discuss the project design, which incorporates plans for a sustainable permanent exhibit through ongoing maintenance and monitoring.

Conservation Standards during Construction

Jasmina Jovanovic-Vlaovic, Head Museum Services, Winnipeg Art Gallery Session: Objects, May 27

Conservation is a field of applied science with standards, rules and regulations on how to handle, store and display artifacts to ensure their preservation for the future. Public collections require adequate spaces for storage and display, functional buildings, state-of-the-art HVAC systems, as well as other equipment that create the conditions which meet required standards.

Building and equipment upgrades are a must in order to maintain these standards. In addition, financial challenges are a continuous reality for most museums and galleries. It is not easy to secure funds for building upgrades, nor is it easy to operate museum buildings so that conservation standards are met. It becomes even more challenging when the museum is under renovation but remains open to the public, producing exhibitions, borrowing artwork from other institutions or collectors, hosting travelling exhibitions and providing programming to its visitors with as little interruption as possible.

It is crucial that conservators are engaged and involved in these projects from the outset. Regardless of how competent and reputable the general contractor or consulting engineers and architects are, without the perspective of a conservator on a project team, museums can face huge problems. Difficulties can arise both during renovations and once they are completed, at which point staff may have to cope with inadequate solutions or upgrades. During renovations, the museum faces daily situations where the expertise of a conservator is the most valuable bridge between the two potentially conflicting aims of conservation standards and construction.

This paper will look in more detail at the challenges museums face during renovations based on the experience at the Winnipeg Art Gallery.



It's the P.I.T.s: Evolution of a Booklet

Susanne Sutherland, Conservator, Parks Canada, Western and Northern Service Centre Session: Training, May 28

It's the P.I.T.s is about "Pulling It Together". This paper will profile the evolution and history of the booklet *Rust Never Sleeps: Recognizing Metals and Their Corrosion Products*. Six years in the making, the booklet was originally intended to serve as an educational tool and reference for Parks Canada staff and volunteers employed at our National Historic Sites and Parks throughout western Canada.

The key reasons for preparing this publication will be explained. While the booklet serves the needs of the intended audience, the actual publication is reaching a much wider readership than was anticipated. The importance of collaboration with colleagues and partnerships with assorted organizations will also be highlighted in the paper.

Have you ever said to yourself "someday I should I write a book"? However, once the book is FINALLY written, only part of the work is done. How to effectively market or hustle your product are necessary steps to learn when trying to actively promote any publication. As an introverted conservator who has avoided the limelight and making presentations until today, this was indeed a frightening experience.

Challenges associated with producing this booklet will be described and some tips will be offered for those considering similar projects. The presenter welcomes feedback on this booklet and also about obtaining a suitable publisher for future booklets. Additional booklets will ideally become part of a series of useful conservation publications focussing on different materials.

It's the P.I.T.s. Putting it together is fun, challenging and ultimately, a rewarding experience. I hope this presentation provides motivation for anyone who is thinking "someday I should I write a book" to move forward with their project.

The Politics of Conserving Totem Poles: Observations from the 2010 Caring for Totem Poles Workshop, Kitselas Canyon National Historic Site, October 4-7, 2010

Owen Thompson, Intern, Canadian Conservation Institute, Ottawa ON Session: Training, May 28

The *Indian Act* of 1876 and its subsequent amendments made the cultural practices of First Nations a punishable offence. Carving, dancing, singing, passing on stories, and everything associated with the living culture of the myriad Northwest Coast Indigenous Peoples were no longer legal in the eyes of the Canadian government. Thankfully, the restrictions outlined within the *Act* have since been remanded (though never repealed) and First Nations' cultural practices on the Canadian Northwest Coast are now celebrated. Current generations of Indigenous People experience the effect of the *Act* as a gap in cultural property and cultural memory. There are a number of old totem poles from the mid to late 19th century that would benefit greatly from conservation efforts; however, while some First Nations practices support preservation of their own art materials, others do not. What we think of as "art conservation" originated from Western European culture, and it was Western European beliefs that created the gap in First Nations cultural heritage – understandably, there is some resistance to the idea of incorporating Western European practice into the treatment of cultural icons like totem poles. But, things are changing. The Caring for Totem Poles workshop was created in order to open the lines of communication between First Nations and the heritage community with the hope that the monumental art form that is the totem pole can be preserved.

Workshop participants included carvers from six different First Nations; conservators from private practice, federal institutions, and provincial museums; art appraisal professionals; and students of both carving and conservation. What began as a workshop designed to inform carvers from British Columbia's Indigenous communities about conservation quickly turned into a mini-symposium on the issues surrounding the preservation of First Nations cultural material. Above and beyond the ample conservation knowledge demonstrated, permeating through every technical demonstration (and filling nearly all the free time) was an open sharing of ideas about harmonizing millennia-old traditions and culture with the reality that if nothing is done soon, the old poles will be lost as a reference for emerging artists, and a cultural icon for future generations. It was quickly realized that open discussion and the sharing of ideas was the greatest benefit to be drawn from this rare opportunity. Carvers expressed their perspectives, their traditions, and their misgivings about conservation, and conservators were there to explain the perspective of Canadian Heritage and the efforts that can be undertaken to preserve both the physical object of a totem pole, and the cultural memory that it represents. Emerging from the workshop, this presentation will address the potential for a new paradigm in the conservation of Indigenous Peoples' cultural objects, and attempt to contextualize the discussions held in Kitselas.

Adventures in Mentoring: Conservation Internships at a Smaller Lab

Dee Stubbs-Lee, Conservator, The New Brunswick Museum *Gayle McIntryre,* Coordinator, Collections Conservation and Management Program, Fleming College Session: Training, May 28

Conservation students are often first attracted to the largest and best-equipped conservation facilities when researching internship possibilities, and conservators working at these institutional conservation labs are used to working with students. Less well-known, smaller regional labs, however, can actually present uniquely valuable internship experiences, and should not be overlooked. Conservators working at these smaller facilities do not always pursue interns, perhaps believing that their facilities have less to offer. It has been our experience that some of the best internship situations can be found in these smaller facilities, where virtually anything can happen and pleasant surprises may occur! Being limited by lesser facilities and resources (and by lack of ready access to professional colleagues) tends to increase a conservator's creative problem-solving skills. These are real world aptitudes that are highly transferrable from one employment situation to another. Both conservation students and the conservators who mentor them at these smaller facilities can derive significant mutual benefit from well-organized internships.

This paper will celebrate how smaller institutions can host beneficial and rewarding internship opportunities for conservation students, and how in turn conservation students can be a tremendously useful resource for these institutions. We will examine the experience of the New Brunswick Museum (NBM) in Saint John, NB as a case study.

The New Brunswick Museum has a modestly equipped conservation laboratory to help care for its extremely diverse and historically significant collections of objects of all descriptions: fine and decorative arts, ethnology, zoology, botany, geology and archival materials. Located on the Atlantic coast, the museum feels far from the conservation mecca of central Canada with its training programs and large labs. The NBM conservation lab's small but dedicated staff currently consists of two conservators, as well as occasional project-based contract staff, community volunteers and student interns. Only a few other conservators work in the province. Within the last decade, the NBM lab has played host to no less than seven conservation summer students and conservation and Management Program at Fleming College. Every one of these students has since gone on to some form of paid museum employment after graduation. This has helped to establish, enhance and promote the reputation of the NBM as a desirable host institution among training programs, and enabled the NBM conservation team to tackle numerous research and collections care projects that may not have otherwise been feasible. In turn, conservation students gain a solid foundation in the practical application of theory combined with an honest dose of reality.

Reducing risks on a limited budget: Lessons learned from pilot risk assessments

Irene Karsten, Preservation Development Advisor; *Stefan Michalski,* Senior Conservation Scientist; *Maggie Case,* Preservation Services Intern; *Julie Stevenson,* Learning and Development Officer Canadian Conservation Institute

Session: Risk Assessment and Sustainability, May 28

The Canadian Conservation Institute has completed three pilot risk assessments for a service we will offer to Canadian museums and archives. The method used has been developed since 2003 in collaboration with ICCROM and ICN for the course Reducing Risks to Collections. A database and benefit-cost analysis component were introduced in 2009. We have applied this method to two historic house museums and a fine art gallery.

Each risk assessment begins with review of core documents, such as collections management procedures and standard facilities reports, and a questionnaire that elicits the history of damaging incidents and the relative value of parts of the collection. The institution and its collection care practices are next documented through a site visit. For a medium-sized institution, we have found that 4-5 days and at least 2 assessors are required to document the site thoroughly and dedicate sufficient time to introduce risk assessment to staff, discuss the value of their collection, and discuss their perceptions of risks at the museum.

Analysis begins by generating specific risk statements. The method analyses three components: frequency/rate, loss of value to each affected object, and fraction of collection affected. Using data from the site visit, staff interviews, regional statistics, and conservation science research, estimates for likely, low and high values of each component are entered as numbers or counts or selected from a step scale. The database converts these entries to a 5 point order of magnitude scale, where 5 is the highest score. A further calculation, using a triangular distribution on a logarithmic scale, estimates the expected magnitude of risk, a value that accounts for uncertainty in the 3 components as well as the likely values.

Up to five options are entered for mitigating each risk, with initial and annual costs. Options are assessed for remaining risk after implementation. Costs are distributed over the museum's selected time horizon (usually 30 years). The database calculates the risk reduction (benefit) to cost ratio over the course of the time horizon, i.e., the fraction of collection saved per year per dollar spent per year.

A report summarizes the results of the risk analyses and reduction options. We emphasize reduction of high to extreme risks, those risks whose expected magnitude scores 10 or higher. Analyses for all risks are described, however, with at least one option for reduction even if the risk is low. The higher priority risks are not necessarily those whose reduction is most cost-effective. For example, the installation of fire suppression in a historic house with a very high fire risk reduces this risk at a cost that makes it less cost-effective than the use of museum wax to secure ceramics likely to fall in the event of a small earthquake, a medium risk. Low cost can also be deceptive: some traditional low cost conservation advice can have poor cost-effectiveness if it addresses a small risk. Communicating risk assessment and management results to the museum thus requires a balance between addressing the biggest risks and using limited resources cost-effectively.

Conservation Assessment of the "Nonsuch" at The Manitoba Museum in 2010

Andrew Todd, Conservator, AT Conservators Ltd. Session: Risk Assessment and Sustainability, May 28

The conservation examination and assessment of the wooden replica ketch, *Nonsuch* was carried out in Winnipeg at The Manitoba Museum in 2010. The assessment of conditions included a thorough investigation of the traditional rigging, hull, deck and cabins, and the support structure for the ship. The environment of the gallery where the ship is housed was investigated and the results of recorded data and tests were combined to pronounce the ship to be generally safe and in good condition. Recommendations were made for some improvements. The steps of the examination, the methods of investigating conditions, and the way the assessment drew its conclusions will be described in this paper. A conservation crew of three specialists applied their knowledge and experience to the data collected at the museum to develop a final report for the museum.

Preserving Collections, Saving Energy

Charlie Costain, Director Research, Conservation and Scientific Services, Canadian Conservation Institute Session: Risk Assessment and Sustainability, May 28

Throughout the history of the modern conservation profession, there have been ongoing discussions about the museum environment – what is ideal, suitable, acceptable? While Canadian institutions have had to be somewhat more pragmatic in the operations of our facilities due to our challenging climate, there is still the issue of very exacting conditions that are imposed when borrowing objects or exhibitions, which has influenced the operation and construction of facilities, and has a significant impact on costs.

Over the past 10 years, CCI and some of its North American colleagues have been advocating different classes of environmental control within museums, as outlined in the American Society for Heating, Refrigeration and Air Conditioning Engineers (ASHRAE) handbook. While this approach is less simplistic and prescriptive, it is also more challenging to interpret and implement.

Recently, there has been renewed interest in the discussion of relative humidity and temperature requirements for museums in Europe, which has been initiated by the directors of major institutions. While the directors want to investigate broadening permissible relative humidity and temperature requirements for operating conditions and for loans, there is resistance by some museum workers to any movement away from very restrictive guidelines.

This presentation will review some of the recent discussions that have taken place in Europe and the United States. It will also summarize the results of a meeting of conservators and facility managers from federal institutions and programs that took place recently in Ottawa. Discussions included the operation of facilities, opportunities for savings in energy and costs, and environmental requirements on loan conditions.

Amber Artifact Consolidation Case Study: Impact of Organic Solvents on Amber Artifacts

Chul Hee Ham, Object Conservator, National Research Institute of Cultural Heritage, Korea *Bo Shin,* Object and Painting Conservator

Amber is a fossilized tree resin that is either transparent or velvety semi-transparent in appearance. Its colour can vary from yellow to reddish brown. The physical characteristics of amber are its Mohs hardness of 2.0 to 2.5; specific gravity of 1.05 to 1.096, reflective index of 1.54, and melting point of 287 C. Also, it has a distinctive smell when burnt.

In Korea, amber has always been considered a precious stone and one of the seven treasures. It was often made into crests and cylindrical-shaped beads. The popularity of amber for use in ornaments can be glimpsed from the Joseon Dynasty period records, which state that peasants were forbidden to use amber as gat1 string ornaments or gat ornaments. Amber was also a popular material for female norigas2 and twin rings. It has been continuously excavated, even in small quantities from many sites in Korea. Often, it is found together with other ornaments to create garment decoration. Most of the time, archeological amber is noticeably degraded. Many excavated artifacts have surface flaking, cupping and cracking. In most cases, they are very fragile and have lost their original shape, so require consolidation.

The most important characteristics of a consolidant are reversibility and stability. Current conservation methods are focused on minimal intervention, so the materials they require should also have minimal chemical and physical impact on artifacts. Conservation work should be easily reversed for additional treatments or future study. This research is focused on studying the impact and stability of solvents in Paraloid B_67 (isobutyl methacrylate polymer) as a consolidant for amber artifacts. The Paraloid series is known to be stable and reversible. Furthermore, considering the fragile nature of excavated amber artifacts, consolidation must be attempted with care, and polar solvents should be used; Paraloid B-67 was chosen because it is soluble in a wide range of solvents. Initially, mineral spirits was chosen as the solvent; however, through material testing, xylene proved to be more stable than mineral spirits, so for the case study, xylene was used as the solvent. This research also provides basic procedures for amber consolidation treatments.

¹ Korean traditional hat made of bamboo or horse hair

² Korean traditional ornaments worn by women

Conservation of a Birchbark Panelled Chair

Heather Dumka, Conservator, Objects, Glenbow Museum

One of the more unusual objects in the Indigenous Studies collection of the Glenbow Museum is a European-style chair with birchbark panels on the back and seat. The panels are decorated with dyed porcupine quills in a floral pattern. According to Ruth Holmes Whitehead3, quilled panels were made by Mi'kmaq women and sold to cabinetmakers who mounted them into chairs. The Glenbow chair was purchased from a dealer and its history is largely unknown. The chair frame has been obviously restored in the past as it appears to be an amalgam of older and newer components.

Both of the birchbark panels had many breaks and splits, and there was a small loss in the centre of the seat panel. Many of the quills were also broken and lifting, and were quite dirty. The problem of accessing the back of the panels for repair of the bark was one of the main challenges in determining a treatment plan for this artifact as repairs to the front of the bark panels would be very obvious and distracting. Accessing the panels from the back and bottom of the chair was explored, but was not possible without damaging the chair structure. Removal of the panels from the chair appeared to be the best option. The panels were slotted in place under the edges of the seat and back frames, and were also held in place by several small nails around the edges of the panels.

After the nails were removed, the bark was relaxed around the panel edges using ethanol-soaked blotters separated by Gortex fabric. The slightly pliable bark could be gently manipulated and the edges eased away from the frame. The many breaks and splits were then repaired with Japanese paper and wheat starch paste from the back of the panels. Since many of the broken edges were distorted and did not line up properly, ethanol vapours were used during the treatment to relax and reshape the bark. The vapours were either introduced locally in small areas using blotters and Gortex, or overall by using a tray of ethanol in a Mylar tent. The small loss was filled with a piece of matboard cut to shape and painted to match the surrounding bark.

Once all of the bark repairs were done, the panels were relaxed one last time in the tent and then slotted back into the chair frame. The panels were lightly weighted while the vapours evaporated, and once they stiffened they remained securely in place without the need of nails. The quillwork was repaired using Acryloid B72 adhesive after the panels were replaced in the chair. The quills were also cleaned by swabbing with distilled water.

³ Whitehead, Ruth Holmes 1982 Micmac Quillwork. The Nova Scotia Museum, Halifax.

Micro-fade Testing and Anoxic framing of Japanese Tiger Bamboo (torachiku) samples used in Sculpture: A new way to Preserve fugitive objects

*Bannerman; J**., Cunningham; Z., Underhill., M and A. Heath*.* Tate Britain, Anoxic Framing, Millbank, London.

In partnership with

Joanna Dyer, British Museum, London who is entrusted with the Tsunagari sculpture.

Micro-fading is a new technique which can be applied to various historical artifacts made of almost any material. Micro-fade testing in conjunction with anoxic framing, can determine the possible colour shift or fade rate of a material over time and the ideal environment in which to slow the degradation process down. A specific object was chosen for the current research: the Tsunagari Sculpture created by Tanabe Shochiku using Japanese Tiger Bamboo or torachiku, was to go on loan from the British Museum and the curators were concerned about colour shift during light exposure. In this case, samples were taken from a Japanese Tiger Bamboo Basket created by the artist who uses this specific material due to its orange or green tinged surface and the stripes and spots that make up its natural patterning.

The micro-fade tester is a machine that can perform accelerated light-aging tests rapidly, nondestructively and can be used directly on the artifact. The light intensities and colour spectrum of the reflected light between 400-700nm are then measured and compared to the Blue Wool standard scale #1, #2, #3 and #4. The data gathered is related to CIE L*a*b* and Delta E*76 in order to generate colour shift. In addition, micro-fade testers have the capability to test the fade rate of an object through glass, enabling an object to be placed into a specific anoxic or hypoxic environment and monitored for any degradation over time.

Once the level of colour shift for the bamboo material was determined, the data was applied to the Light Damage Calculator developed by the Canadian Conservation Institute to determine, under specific lighting conditions, what would happen to the various colours over time. The CCI Light Damage Calculator is based on the original slide rule light damage determination which is widely used in many fields.

The samples of bamboo basketry are then put into a specifically designed anoxic chamber developed at Tate Britain in order to observe how varying the oxygen and relative humidity levels within the chamber could slow the degradation process. The conditions used included approximately 0%, and 21% oxygen at 50% RH and 40% RH.

The results from the current study indicate that the bamboo will lose its distinctive colouring and become more uniform with the most fugitive results being between a Blue Wool #2 and a Blue Wool #3 equivalent. However, when placed under anoxic conditions the bamboo appeared to stabilize to a Blue Wool #3 equivalent, indicating that by not only cutting the light that is falling onto the bamboo sculpture but also reducing the amount of oxygen that it is exposed to, the life of the object on display can be extended.

Micro-fade testing, in conjunction with anoxic framing, is a new tool for conservators to use to accurately create display regimes, light level limits, dark storage rotation schedules and to preserve historical objects for the future. With further study, micro-fade testing and anoxic framing can contribute to our knowledge of how objects colour shift and how to preserve them for the future.



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