

PROGRAM AND ABSTRACTS



CANADIAN ASSOCIATION FOR CONSERVATION
OF CULTURAL PROPERTY

36TH ANNUAL CONFERENCE

LIBRARY AND ARCHIVES CANADA
OTTAWA, ON • JUNE 10-12 2010

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A special thank you to all those who donated items for the Silent Auction.

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We acknowledge the financial support of the Government of Canada through the Department of Heritage Assistance for Interpretation and Translation Program (AITP).

Canada 

2010 CAC Conference Program

WEDNESDAY JUNE 9 - Evening

Reception: 6:00 pm to 8:00 pm: Exhibit Room A, Library and Archives (395 Wellington Street)

6:20 pm to 6:40 pm: The Honourable Mayor Larry O'Brien will welcome the delegates and read the proclamation of "Heritage Preservation Week"

7:30 pm: Marie-Catherine Cyr, "Accepting the Unexpected: A Mosaic Project at Nek Chand's Rock Garden, Chandigarh, India"

Tradeshow opens

THURSDAY JUNE 10 - Morning

8:30 am: Registration opens
Tradeshow opens

9:00 am to 10:00 am: Introductions- President of the CAC, Wendy Baker

Per Guldbeck Lecture- Gilbert Gignac, "Creating a New History"

10:00 am to 10:30 am: BREAK (Tradeshow open)

10:30 am to 12:30 pm: SESSION 1- Sustainability of Conservation
(Session Chair Amanda Salmon)

"Vertically Challenged: Two Private Conservators Reconsider the Definition of Cultural Heritage"
Julia Landry, Michelle Gallinger (Private Conservators)

"Risk-based Thinking about Sustainability of Collections and of Conservation"
RR Waller (Protect Heritage Corp.)

"Conservation Viability in Community Museums"
Pilar Hernandez-Romero, Michelle MacCormack, Andrea Miller (Ottawa Museum Network)

"Preserving the History of Conservation in Canada"
Kathy Nanowin (The Manitoba Museum)

"LAC's National Role in Preservation"
John Grace (Library and Archives Canada)

"12:30 pm to 1:30 pm: LUNCH (tradeshow open)

A discussion surrounding the topic of Library and Archives' national role in preservation will continue through the lunch hour in Room 156.

Lunch will be provided to all conference delegates on a first-come, first-serve basis.

THURSDAY JUNE 10 - Afternoon

1:30 pm to 3:00 pm: **SESSION 2- Paintings and Installations**

(Session Chair: Marie-Catherine Cyr)

“Back to Black: Borduas Revisited”

Michael O'Malley (Centre de conservation du Québec)

“Bernini's Corpus: The Innovative Installation of a Large Bronze Baroque Masterpiece at the AGO”

Lisa Ellis, John Williams, Jim Bourke (Art Gallery of Ontario)

“Cranberry Lake: The Cleaning and Flattening of 4 Painted Sketches on Panel”

Jennifer Cheney (Private Conservator)

3:00 pm to 3:30 pm: **BREAK (Tradeshow open)**

3:30 pm to 5:00 pm: **SESSION 3: Methodology and Analytical Advancements**

(Session Chair: Eric Hagan)

“New Methodologies for in situ Non-Invasive Spectroscopic Analyses of 20th Century Synthetic Painting Materials”

Kenza Kahrim (Canadian Government Laboratory Visiting Fellow, CCI)

“Ethanol-modified Calcium Phytate Treatments for Iron Gall Ink Documents”

Season Tse, Sherry Guild, Amanda Gould (CCI, Canadian Museum of Civilization)

“Inexpensive Recording of Surface Weathering Using Reflective Transformation Imaging: The Case of the Guild of All Arts, Scarborough”

Alexander Gabov, George Bevan

FRIDAY JUNE 11 - Morning

8:30 am: Registration opens

9:00 am to 12:00 pm: Tours

Renovations of the Canadian Museum of Nature Victoria Memorial Building

Tour departs at 9:30 am

The Canadian Conservation Institute

Tour departs at 9:30 am

Renovations of the Library of Parliament

English Tour departs at 8:45 am (tour begins at 9 am)

French tour departs at 10:15 am (tour begins at 10:30 am)

Walking Tours and buses depart from 395 Wellington Street

FRIDAY JUNE 11 - Afternoon

Tradeshow open

12:00 pm to 1:30 pm: CAC Regional Representatives Lunch (Room 154)

12:00 pm to 1:30 pm: CAPC (Room 156)

1:30 pm to 5 pm: Special Session and Panel Discussion-
“Should Joe Care? Continuity, Viability and Advocacy for Conservation”

Speakers:

Dr. Miriam Clavir- Conservator Emerita and Research Fellow, UBC Museum of Anthropology, Vancouver; Adjunct Lecturer, Graduate Program in Museology, UW, Seattle

Dr. Marie-Claude Corbeil-Chair ICOM-CC; Manager, Analytical Research Laboratory Division, Canadian Conservation Institute

Charlie Costain- Associate Director General and Director, Research Services and Training Directorate, Canadian Conservation Institute

Gayle McIntyre – Coordinator, Collections Conservation and Museum Management and Curatorship Programs, Fleming College

Debra Hess Norris- Chair, Department of Art Conservation, Henry Francis DuPont Chair of Fine Arts; Vice Provost for Graduate and Professional Education, University of Delaware

Jerry Podany (*Moderator*)- President, International Institute for Conservation, Senior Conservator of Antiquities, the Getty Villa

3:00 pm to 3:30 pm: BREAK (Tradeshow open)

FRIDAY JUNE 11 - Evening

Conference Banquet: Fairmont Chateau Laurier Hotel, the Drawing Room (1 Rideau Street)

7:00 pm: Cocktails

8:00 pm: Dinner

**The silent auction will conclude during the cocktail hour.
Winners will be announced during the evening.**

SATURDAY JUNE 12 - Morning

8:30 am: Registration opens

11:00 am to 3:00 pm: arti-FACTS (Exhibition Room A)

(Running concurrently with sessions)

This special event of the CAC conference will be held in the lobby of the Library and Archives Building and is open to the public. Arti-FACTS is an event designed to give the public an opportunity to obtain expert advice on preserving their treasures. Through individual consultations, attendees will learn how the store, handle, and care for artefacts as well as what conservation and restoration treatments are available and recommended.

8:45 am to 10:15 am: SESSION 4- Furniture and Historic Finishes

(Session Chair: Jessica Lafrance)

“White Paint on the Greenhouse: A Historic Paint Investigation for a Lord & Burnham Co. Greenhouse on the Central Experimental Farm, Ottawa”

Nancy Binnie, Alastair Fox, Kate Helwig, Maureen MacDonald, Jennifer Poulin (CCI)

“Burning Questions: Treatment Considerations for a Fire-damaged Sewing Table”

Amanda Salmon, Alastair Fox (Canadian Conservation Institute)

“Wax on Wax off: Preserving the Integrity of Historic Furniture”

Greg Kelley

10:15 am to 10:30 am: BREAK

10:30 am to 11:30 am: SESSION 5- Archival Treatments and Projects

(Session Chair: Christine McNair)

“A Stitch in Time: Treatment of a Sewn Paper Manuscript”

Doris St-Jacques (Library and Archives Canada)

“Treating Oversized Works at LAC”

Susannah Kendall, Anne Maheux (Library and Archives Canada)

“Identification of Ivory Book Covers and Comparison to Ivory Portrait Miniatures”

Josie Wornoff (Library and Archives Canada)

SATURDAY JUNE 12- Afternoon

11:30 am to 12:00 pm: LUNCH and AGM Registration

12:00 pm: Annual General Meeting

1:30 pm to 2 pm: Lunch continues

Lunch will be provided at the cost of \$5.00 on a first-come, first-serve basis

2:00 pm to 3:15 pm: SESSION 6: Project Planning, Treatment and Assessment
(Session Chair: Crystal Maitland)

“The Multiple Facets of an Archival Conservation Project”
Lynn Curry (Library and Archives Canada)

“Conservation of a Series of Mural Cartoons: High Hopes on a Low Budget”
Claire Titus (New Brunswick Museum and Visiting Professional, CCI)

“Behind Locked Doors: Collections Care at the University of Lethbridge Art Gallery”
Juliet Graham, Miranda Grol (University of Lethbridge Art Gallery)

3:15 am to 3:35 am: BREAK

3:35 pm to 5:15 pm: SESSION 7- Project Planning, Treatment and Assessment
(Session Chair: Emily Lin)

“Migrating Audio & Video Recordings for Long-Term Preservation”
John Grace (Library and Archives Canada)

“The Auto-fluorescence of Asian Lacquer”
Marianne Webb (Royal Ontario Museum)

“Separation Anxiety: Kiss your Acetate Goodbye”
Nicole Christie, Cindy Colford (Peterborough Museum and Archives)

POSTERS- On display in the sunken lobby for duration of conference

“Adhesive-Free Spacer How-To Handout”

Lynn Curry, Tania Passafiume

Library and Archives Canada

“Collections Risk Assessment at the Denver Museum of Nature and Science”

JA Southward, HH Thorwald, G Muething, RR Waller

Protect Heritage Corp.

“The Conservation of Two Chinese Kingfisher Feather Cloisonné Artefacts”

Jill Plitnikas, Lydia Messerschmidt

Nat. Museums Coll. Centre, Edinburgh

“Examining Conservation Techniques Using Microscopy: A Comparison of Wheat Starch Paste Preparation Methods”

Crystal Maitland

Johns Hopkins U. Sheridan Libraries

“Inexpensive Recording of Surface Weathering Using Reflectance Transformation Imaging: The Case of the Guild of All Arts, Scarborough”

Alexander Gabov, George Bevan

Microfade Testing: A New Onsite Service for Predicting the Fading of Objects

Season Tse, Nancy Binnie

Canadian Conservation Institute

“Modified Accelerated Corrosion Test of Cellu-Cushion Polyethylene Foam”

Kristen Stockstill

Intern, Canadian Conservation Institute

“Public Art: Who Cares?”

David Turnbull, Sarah Patterson

Edmonton Arts Council

“3D Scanning, Computer Aided Design and Rapid Prototype Technologies Used for Production of Artefact Losses”

Bo Kyung Brandy Shin, Alexander Gabov, Queen’s

“Studies Performed on Metal Artifacts Found at Vechnavah in Iran”

Azadeh Samii (France), Maryam Boroomand (Austria)

“Treatment Options for Iron Gall Ink on Paper “

S. Guild, S. Tse (CCI) and M. Trojan-Bedynski (LAC)

“Use of Dyed New Feathers for Loss Compensation in Damaged Feathers”

Clare Lewarne, Emily Lin

Interns, Canadian Conservation Institute

Conference Workshops

The Conservation of Feathers: An Introductory Workshop

(In partnership with the Canadian Conservation Institute)

Monday June 7th to Wednesday June 9th, 2010,
Canadian Conservation Institute, 1030 Innes Rd., Ottawa*

Instructor:

The workshop will be led by **Allyson Rae**, who has extensive experience in the conservation of artefacts incorporating feathers over the last 30 years. She led similar workshops in the UK in 2007 and 2008. Now a freelance conservator, Allyson was formerly Head of Organic Artefacts Conservation at the British Museum, where an aspect of her role was training staff and interns in feather conservation.

Speakers:

Ellen Pearlstein, Assistant Professor in the UCLA/Getty Program in the Conservation of Ethnographic and Archaeological Materials

Gretchen Anderson, Carnegie Museum of Natural History

Carole Dignard, Jan Vuori, Emily Lin, and Clare Lewarne, Canadian Conservation Institute

Description:

Feathers are found in all sorts of places – natural history collections, ethnographic artefacts, costume and accessories, contemporary art, even decorative interiors. The richness of their textures and colours make them a joy to work with – and contributes to their delicacy and susceptibility to damage. This three day workshop will explore the structure and nature of feathers and feathered objects and the causes of their deterioration. Through a combination of theoretical and practical sessions, principles and practice for non-interventive and basic interventive options will be introduced with a focus on soil removal, treatment of distortions and repair techniques. Invited speakers will address the fading of feather colours, laser cleaning, dying techniques and care of feathers in natural history collections.

*A bus will be available to transport participants between the conference hotel (Delta Ottawa Hotel and Suites) and the Canadian Conservation Institute.

Conference Workshops

Identification and Care of Plastics in Museum Collections

(In partnership with the Canada Science and Technology Museum
and the Canadian Conservation Institute)

Tuesday June 8th and Wednesday June 9th, 2010

Canada Science and Technology Museum, 1867 St. Laurent Blvd., Ottawa*

Instructor:

Sue Warren is Manager of the Conservation Division of the Canada Science and Technology Museum and has worked with the collection as a Conservator for over 21 years. She has extensive experience with the treatment of historic plastics, and with the long term preservation of these materials. She has lectured and given workshops, and regularly instructs interns as part of her responsibilities.

Scott Williams, Senior Conservation Scientist at the Canadian Conservation Institute has been analyzing and studying the causes and prevention of degradation of plastics in museums for 30 years. On more than fifty occasions he has conducted workshops and seminars, lectured at conferences and published papers on the degradation and preservation of plastic museum objects or the selection of suitable plastic products for conservation applications.

Description:

This workshop is intended for conservators who need to preserve plastics in their care. Through lectures, lab work, and guided study tours of the museum collection, participants will learn the basics of composition, identification, and degradation of plastics, with an emphasis on plastics most commonly encountered in museum collections and those which are most likely to degrade or to damage other objects in the collection (malignant plastics). Using a selection of objects subjected to previous treatments, passive and active conservation strategies including appropriate storage conditions, monitoring, cleaning and repairing will be discussed. At the end of the workshop, participants should have the best available tools and knowledge to enable them to provide care for their plastics.

*A bus will be available to transport participants between the conference hotel (Delta Ottawa Hotel and Suites) and the Canada Science and Technology Museum.

Special Session

Should Joe Care? Continuity, Viability and Advocacy for Conservation

Friday June 11, 2010 1:20 pm to 5 pm*

Library and Archives Canada, 395 Wellington Street, Ottawa

Speakers:

Dr. Miriam Clavir

Conservator Emerita and Research Fellow
UBC Museum of Anthropology, Vancouver; Adjunct
Lecturer, Graduate Program in Museology, UW, Seattle

Dr. Marie-Claude Corbeil

Chair ICOM-CC; Manager, Analytical Research
Laboratory Division, Canadian Conservation Institute

Charlie Costain

Associate Director General and Director,
Research Services and Training Directorate
Canadian Conservation Institute

Jerry Podany (Moderator), President

International Institute for Conservation
Senior Conservator of Antiquities, The Getty Villa

Gayle McIntyre

Coordinator, Collections Conservation
and Management & Museum Management
and Curatorship Programs
Fleming College

Debra Hess Norris

Chair, Department of Art Conservation,
Henry Francis DuPont Chair of Fine Arts,
Vice Provost for Graduate and Professional Education
University of Delaware

In the midst of a dismal economic climate, Joe Public is likely thinking more about being conservative than about conservation, and the heritage community is suffering from his/her indifference. Recent cutbacks to the heritage sector, while abysmal, nevertheless reflect current attitudes towards priorities. At this critical juncture it is clear that it is necessary for our community to examine its own condition, take action to promote our existence and convince the public that what we do, matters. Not only will marketing, advocacy and public education be requisite for the future, but the profession must strive to strengthen itself from within by executing strategies for continuity and finding ways to make the community increasingly viable.

Please join us in Ottawa for the 2010 CAC Conference for a very special session that promises to inspire both introspection and action. Through a series of featured talks and panel discussions, we will evaluate our profession's current situation, address the challenges we now face and look forward to what lies ahead for the next decade. Recent situations, nationally and internationally, including the critical mass of conservators nearing retirement, the closing of conservation centres such as the Textile Conservation Centre University of Southampton and large scale institutional restructuring resulting in significant job losses in conservation, force us to take stock of the profession. Is conservation an essential service?

The CAC Ottawa conference in 2010 is the perfect time and place to host a session on the subject of continuity in the field and take full advantage of our central location and the wealth of knowledge available through national institutions, scholars and smaller organizations. How can we ensure knowledge transfer and a vibrant future for conservation in Canada? Conservation professionals must strive to harness the effects of changing priorities and technologies and use them to their advantage to remain current and further the advancement of the field. We suggest setting foot in the next decade with an honest look at our profession, the challenges we face, and our present and future position within the Canadian cultural heritage landscape.

***Panel discussion including a total of 1.5 hours of presentation, 1 hour of discussion and 20 minutes wrap-up. Open to all. Invitation will be extended to other cultural heritage professionals as well. The discussion may extend to a regular session if the topic generates interest.**

Public Outreach Event

arti-FACTS **Antique & Heritage Preservation Day**

Saturday June 12, 2010 11 am to 3 pm

Library and Archives Canada, 395 Wellington Street, Ottawa, Exhibit Room A

Sponsored by the CAC and developed by the CAC 2010 Conference Planning Committee's Public Outreach Committee, Arti-FACTS is an event designed to provide the public with an opportunity to obtain expert advice on preserving their treasures, thereby disseminating and promoting the preservation of cultural heritage. For a nominal fee, people can bring a few of their artefacts to the Library and Archives Canada building at 395 Wellington Street on June 12th, the final day of the conference, where they will meet individually with a volunteer conservator specializing in their artefact type. Attendees will learn how to store, handle, and care for artefacts as well as what conservation and restoration treatments are available and recommended. This is a fantastic opportunity to promote the preservation of cultural material and the CAC to the public. The CAC 2010 Conference Planning Committee's Public Outreach Committee is composed of students and emerging conservators and led by an established conservator. As such, it is an excellent opportunity for the CAC to foster the interest and the skills required among new Canadian heritage professionals to publicly advocate for conservation. The committee will be compiling a manual based on their experience in order to aid in the launching this type of event in the future. For more information e-mail **cac.artifacts@gmail.com** or the committee chair **kyla.ubbink@sympatico.ca**.

Speaker Abstracts

Accepting the Unexpected: A Mosaic Project at Nek Chand's Rock Garden, Chandigarh, India

Marie-Catherine Cyr
Paintings Conservator, Quebec

The Rock Garden was the subject of a presentation at the 35th Annual CAC Conference in Vancouver, where this extraordinary sculpture garden was introduced and a call to volunteers was made to aid in its preservation.¹ This unique Northern Indian man-made gem is the vision and life's work of one man, Nek Chand, a road inspector who in 1958 started giving a second life to waste material from roadwork in Chandigarh, the joint capital of Punjab and Haryana, a city designed by French architect Le Corbusier. Originally a completely clandestine and illegal operation taking over government land, it was saved from destruction in 1973 and opened to visitors in 1976. Today, the Garden spans over twenty five acres of deep rock gorges and mosaic courtyards filled with sculpted creatures of all sorts, and welcomes five thousand visitors daily.

This paper is a follow-up to the 2009 talk, recounting the experience of a Canadian volunteer conservator expecting to treat damaged ceramic sculptures, but who ended up doing anything but that, while still learning much more than anticipated. In addition to being the sole foreigner on site, to needing to work with various workers who were neither craftspeople nor English-speaking, and being the only young white female amidst older local men in a society where women very rarely assume an authoritative role in the workplace, I was asked by the Garden's Creator and Director, Mr. Nek Chand, not to be a conservator but to instead create a large mosaic mural.

"You will finish my wall" he said.

"Pardon me sir, finish your wall? Do you have any design or plans I could look at?"

"You will provide them. Create what your heart desires. You start in the morning."

This talk is in essence a personal account of a unique situation where the unexpected was accepted, and of the learnings that issued from it. After introducing Nek Chand's Rock Garden, the mural project will be presented and the concept of preservation versus conservation in this formidable world of its own will be discussed.

1 Tony Rajer and John Maizels. "Visionary Art Environments and their Preservation: A Case Study of Nek Chand's Rock Garden in Chandigarh, India." 35th Annual CAC Conference, Vancouver, May 27 to June 2, 2009.

Vertically Challenged: Two Private Conservators Reconsider the Definition of Cultural Heritage

Julia Landry

Leaf by Leaf Book and Paper Conservation Services, Halifax, NS

Michelle Gallinger

Art Restoration and Conservation Services, Halifax NS

Recently, while viewing a familiar task from an unfamiliar angle, we found the work becoming something of a metaphor for the future of the conservation profession and the role of the private conservator within it. **(Note to self: Remember to replace cap on solvent dispenser.)**

Government House, the residence of the Lieutenant Governor of Nova Scotia, has recently had a very expensive refit which included the cleaning and stabilization of the hand-painted Oriental wallpaper in the Morning Room. During the course of our work, it became apparent that, regardless of one's training and experience, moving from horizontal to vertical required a major adjustment in viewpoint.

Shortly after this, we were approached by an insurance agent who needed to have some rather more modern wallpaper repaired, so that the owner would no longer be disturbed by the handiwork of a couple of careless movers.

Stuffing paper fibres into tiny holes gives one ample time for contemplation. Many years ago, during his Per Guldbeck lecture, the CCI's Bob Barclay cautioned conservators against becoming too rigid in our definition of ourselves and what we do. Have we ignored the warning? Have we allowed ourselves to become so far removed from the main stream that our contribution is no longer viewed as relevant? Have we made ourselves dispensable because nobody knows what we do anyway? This paper will document some of our ideas to demystify conservation and the work of conservators. Until "Joe" understands and appreciates it, it is unrealistic to expect him to care.

Risk-based Thinking About Sustainability of Collections and of Conservation

***R. Robert Waller, President and Senior Risk Analyst
Protect Heritage Corp., Ottawa, ON***

The sustainability of the conservation profession is best pictured not as a goal but as a consequence of success. This paper considers the risk to the conservation profession, focusing on preventive conservation, and the application of more risk-based decision making approaches to preventive conservation.

It is critical that the conservation field focuses effort clearly on our goal of preserving cultural property, while making that cultural property more accessible, and not become overly distracted in striving to reach a broad public. This is due to two fundamental issues: scale and uncertainty. Regarding scale, the conservation profession is small, actually tiny, in comparison with other professions. There are many benefits to being sensitive to, and striving to achieve, public education regarding the importance and value of conservation. Still, it is not at all reasonable to expect that we will be able to garner enough public awareness to make any significant difference in the viability of the conservation profession. Even if our profession were 1,000 to 10,000 times larger than it now is, relying on the direct education of the public as a primary means of improving the viability of the profession would be ill-advised. The greater the degree of separation of our supporters from our direct clients and employers, the more diluted their support is in its effectiveness. Not only is support diluted, but it is also uncertain whether it would have the intended effect in supporting the conservation profession as we know it.

These are both simple and unavoidable consequences of the scale and complexity of networks. While it is emotionally appealing to think that massive public support could lead to a greater influence for us in our daily work, it is most assuredly wishful thinking. At best it would distract us from what is most important, working effectively both with allied professionals and for our clients, be they private collectors, curators, managers, or whoever. Ultimately, it is our ability to work with those closest to us that will determine how sustainable the field of conservation will become. They need to see conservation as a unique and indispensable part of the mix in achieving their own professional goals.

In the area of preventive conservation, the skills and abilities that ought to be most highly valued and are most uniquely associated with conservation are those that enable the effective management of resources for managing risk to collections. These capabilities are greatly enhanced by adoption of a properly-structured cultural property risk analysis model.

Conservation Viability in Community Museums

***Pilar Hernandez-Romero, Michelle MacCormack, & Andrea Miller
Ottawa Museum Network, Ottawa ON***

Many museums struggle to maintain appropriate conservation conditions, the lack of which can put the sustainability of the collection and site at risk. The Ottawa Museum Network (OMN) identified a need to strengthen the conservation standards within its eleven member museums. Overall, the museums lack the specialized conservation knowledge, time and resources to conduct required conservation work. To address these challenges the OMN hired a professional Conservator to become a shared resource during a one-year conservation project. The Conservator spent approximately four weeks working with each museum producing site conservation assessments detailing the current conservation conditions, and short and long term recommendations.

Although each museum was at a different stage of development, this project used economies of scale to enable conservation of specific artifacts. The diversity of the collections presented a challenge to focusing treatments on a specific artifact type. However, paper and photography were identified as common artifact types which could be manageably conserved within the scope of this project.

The resulting conservation assessments provided the foundation for site-specific long-range conservation strategies and planning. As the assessments were completed, the sustainability and conservation viability of the sites became an underlying theme. The OMN is exploring the potential of a second phase of this project to assist its member museums with implementation of the recommendations presented in the assessments.

Ideas on how the conservation profession contributes to heritage sustainability are part of the project conclusions. Specifically, the OMN recognizes the value of a professional Conservator as a shared resource. The Conservator's knowledge was particularly valuable when shared with volunteers and board members to increase their awareness of the factors contributing to the sustainability of the museums and their collections.

Preserving the History of Conservation in Canada

***Kathy Nanowin, Manager, Collections and Conservation
The Manitoba Museum, Winnipeg MB***

Conservation as a recognized profession has not documented its history very consistently. In some areas, a lot of work has been done; for example, an initiative begun in 1975 by members of the American Institute for Conservation (AIC) to conduct oral histories of senior conservators is still ongoing. The Theory and History of Conservation Committee of ICOM-CC (International Council of Museums-Conservation Committee) has become a partner in this, and IIC (International Institute for Conservation) also has a similar project. The various conservation organizations all have internal documentation of their histories, and a check of AATA reveals many articles describing the history of conservation in different countries around the world. However, although some Canadian conservators have been interviewed for the AIC project, there is little other written history of conservation in Canada. Mervyn Ruggles wrote a paper on the topic that stopped in the 1970's, and no one has taken up where he left off.

This paper will briefly cover the history of professional conservation and conservators in Manitoba, focusing on the large institutions: the Winnipeg Art Gallery, The Manitoba Museum, Archives of Manitoba and Parks Canada Regional Conservation Lab. There have also been, and still are, several private conservators active in the province.

Every other province and territory should likewise have its conservation history documented. Perhaps there is a role for CAC, CAPC or CAEC to organize this initiative and move it forward. With more and more senior Canadian conservators retiring, we need to collect and preserve our own stories.

Library and Archives Canada's National Role in Preservation

*John Grace, Conservation and Preservation Copying Division
Library and Archives Canada, Ottawa ON*

In the summer of 2009, Library and Archives Canada (LAC) launched a new and comprehensive initiative to modernize its core business activities to better respond to the many challenges facing knowledge institutions in the 21st century. The objective of this initiative is to re-orient acquisition, preservation and resource discovery approaches in response to an increasingly digital, unfamiliar, and rapidly changing environment.

Recognizing that such a complex environment calls for new approaches to preserve collections, and that similar institutions are struggling with the same challenges, LAC's modernization initiative includes an emphasis on networking and collaboration to achieve common goals. Whether as a leader, collaborator, or supporter, LAC seeks to help develop a broad and sustainable national capacity for preserving documentary heritage collections.

It is in this context that, in February of 2010, LAC issued a consultation document which outlined some of its existing preservation activities at the national level and some areas where national roles could be developed or coordinated. The document invited stakeholders to comment and provide feedback.

The presentation will focus on the comments and advice that LAC has received to date on this National Role initiative, and it will discuss areas for potential collaboration and development in preservation.

Back to Black: Borduas Revisited

Michael O'Malley,

Centre de conservation du Québec, Quebec City QC

Paul-Émile Borduas, (1905-1960), was a seminal figure in the development of abstract art in Quebec in the 1940's. During his time in Paris, which spanned the years 1955-1960, he painted a series of bold, iconic compositions featuring thick patches of black paint starkly juxtaposed against a white ground.

In some of these paintings, the thicker applications of black paint have aged very poorly, exhibiting wide drying cracks and severe cleavage. While the causes of these changes are not fully understood, they clearly stem from factors relating to the painter's technique and materials. The amount of cracking varies from one painting to another, and may also vary within the various black shapes of a given painting. The cracks often reveal underlying white paint layers, which are pulled away from the ground with the black paint as it lifts and curls.

The ongoing curing and cracking of the black paint complicates conservation treatments, and paintings in poor condition have required repeated interventions. For example, in 1998, several important works were treated for a travelling retrospective organized by the *Musée d'art contemporain de Montréal*. At that time, conservators at the Centre de conservation du Québec first collected and assessed the documentation from previous treatments and consulted analytical results from several paintings. Mock-ups were also made to simulate various scenarios of incorrect painting techniques, in an attempt to replicate the severe cracking and cleavage observed in some of Borduas' blacks. Adhesive tests were conducted on mock-ups to evaluate treatment options, and Mylar tracings were made to document the problematic areas of several paintings.

Consolidation treatments were again undertaken in 2008 on some of the paintings that had been treated as recently as 1998. This occasion provided conservators at the CCQ with an opportunity to assess the treatments from 1998, and to observe the evolution of the alterations in these paintings. These observations will be presented, including the evolution of the mock-up paintings and the impact of two experimental structural treatments undertaken on two paintings in 1998, namely a stiff lining and a marouflage.

Bernini's *Corpus*: the Innovative Installation of a Large, Bronze Baroque Masterpiece at the AGO

Lisa Ellis*, John Williams & Jim Bourke
Art Gallery of Ontario, Toronto ON

Gian Lorenzo Bernini's large bronze *Corpus*, dated approximately to 1655, was installed in the permanent galleries during *Transformation*, the 2008 reopening of the renovated Art Gallery of Ontario (AGO) by architect Frank Gehry.

One of the great works of the collection, Bernini's sculpture depicting the crucifixion of Christ was donated to the AGO in 2006 by the Murray Frum family of Toronto. It is one of three casts of the same subject by the sculptor whose oeuvre defined sculpture and architecture of the Italian Baroque. The other extant *Corpus* was cast for King Philip IV of Spain and can still be viewed in the Chapel of the Kings of Spain at the Escorial. Another cast was made for Cardinal Barberini, but does not survive. The AGO version is believed to have been cast for the sculptor himself.

While most religious and art institutions would attach such a sculpture to a cross, which would in turn be attached to a wall, very different requirements for a successful installation of this artwork began to develop even before the sculpture came to Toronto. While on view before its purchase in New York City and then again in a temporary exhibition at the AGO, the Bernini *Corpus* was exhibited resting on its feet and suspended by cables through the stigmata on the figure's hands, allowing the work to be viewed in the round. The figure's back so impressed viewers that its visibility was established as an essential element of the future installation. The curator also determined that the overall height of the work should be 3.6 metres or 12 feet so that the foreshortened lower limbs would be seen as intended by the sculptor. In addition, it was felt that it was crucial to show the sculpture outside of its religious context or rather on a mount that did not replicate a Christian cross. Specific concerns were also raised about increased load on the gallery's floor as well as the caveat not to mar the historic floorboards.

Conservation concerns, sharpened by the installation goals to show the work in the round and with its upper reaches at 3.6 meters, and by the bronze's age and size, were made more acute by what appeared to be opening seams at the sculpture's shoulders. Open source gamma radiation was used for the first time at the AGO to determine the stability of these joins, as well as the condition of the bronze throughout.

Given the objectives stated above, a core team assembled to complete the project, including a project manager, designer, curator and conservator who were joined at times by the manager of exhibition services, the installation coordinator, as well as the fabricator. An essential member of the team was a specialist large objects mountmaker who was contracted to advise from the beginning on such issues as mounting options and the stability of the mount, and to integrate necessary elements into the mount that would allow for an easy and safe installation. Aesthetic concerns saw the steel mount reduced in some sections to a single inch in thickness, necessitating the input of a structural engineer at the end of the design process.

The outcome of the process is a spectacular installation which met all of the cited requirements, incurred no harm to the artwork, staff or gallery, and displays Bernini's masterpiece safely and to its best advantage for AGO visitors.

***Presenting Author**

Cranberry Lake and other Wilds of Northern Ontario: The Cleaning and Flattening of Four Painted Sketches on Panel

Jennifer E. Cheney

Private Conservator, Paintings & Frames, Toronto ON

In mid-January 2002, four oil sketches on panel by Franklin Carmichael, Arthur Lismer and Group of Seven affiliate L.E.C. Panton experienced damage when a steam pipe ruptured in one of Toronto's public school buildings. The incident occurred at the start of a weekend and was discovered the following Monday morning, therefore the rooms and their contents including paintings were effectively steamed for about 48 hours. The frames for the pieces could not be saved, but the paintings were carefully removed from them and laid flat and face up to dry in a controlled environment.

All of the paintings were warped to different extents and in different directions. The support for each piece being of a different material presented the conservator with the challenge of considering how to flatten, or at least reduce the deformation, of an oil on birch veneer, an oil on masonite and two oils on cardboard, one a four-layered laminate, the other a single, thin sheet.

In addition, the fronts of the works were covered by a distinct and well-adhered white accretion which was presumed to be re-deposited paint from the walls and ceiling tiles in the room; it was not analyzed to determine its exact nature. The accretion was thickest on the two paintings by Panton, where the images were barely discernable. The coating on these works even exhibited its own cracking pattern, visible under low magnification. The other works were less heavily coated. The accretion appeared as a light haze over Carmichael's sketch of "Cranberry Lake", and a slightly heavier disfiguring haze over Lismer's untitled landscape.

This paper focuses on the conservation treatment of the four panels, including their surface cleaning to remove the white deposit, followed by controlled humidification and flattening of the supports.

Different water/solvent emulsion formulations, some with detergents, were found effective and safe in the removal of this white accretion. Formulations had to be modified depending on the colour region. Sometimes there were different paint sensitivities within the same colour region, requiring adjustment of the cleaning solution. Based on the conservator's qualitative observations, the deposit likely consisted of latex paint binder as well as pigment from the construction materials in the room. In one case, considerable soil build-up on the painting prior to the steam incident was removed along with the white deposit; in another case, local overpaints were removed concurrently with the white deposit. In yet a third case, a coating of yellowed, sticky, aged adhesive imbibed with felt fibres, (from adhesive-backed felt applied to the frame rebate), was removed from around the painting perimeter.

The paintings were independently humidified in controlled chambers and slowly flattened with the aid of small sand bags and other types of weights.

A detailed account of these cleaning procedures and the subsequent flattening of each panel will be presented. Treatment on all four panels was not done at the same time, but took place over a period of seven years.

New Methodologies for *In Situ* Non-Invasive Spectroscopic Analyses of 20th Century Synthetic Painting Materials

**Kenza Kahrim, Canadian Government Laboratory Visiting Fellow
Canadian Conservation Institute, Ottawa ON**

Rapid and prolific advances in technology during the 20th century resulted in the manufacture of synthetic organic materials, primarily destined for industrial use. Artists were keen to employ many of these new materials for the working properties that they offered. Today, museums and private collectors try to safeguard these artistic works constituted of infinite different materials for which there is limited knowledge of their properties of aging, response to environmental conditions, or reaction to conservation treatments. Such issues have led to an international surge in research and resources dedicated to the conservation of modern and contemporary art, resulting in a number of conferences and the formation of specialized working groups over the past twenty years.

This presentation is based upon PhD research carried out at the University of Perugia (2006-2009) within the framework of EPISCON¹, responding to “a specific need that is likely to become greater; the development of techniques to assess the condition of works of art *in situ*.”²

The scientific study of works of art is most often carried out by micro-sampling, allowing scientists to characterize the nature of inorganic and organic materials using analytical laboratory techniques. The development of non-invasive techniques that do not require sample preparation nor impart any change to the analyzed material, could eliminate the practice of micro-sampling 20th century works. This approach would enable the analysis of materials *in situ*, and the development of portable instrumentation that could lead to the analysis of works on-site. Thus the movement of fragile or highly compromised works to a laboratory would be prevented.

Testing the capabilities and limitations of non-invasive techniques will ensure the success of such an approach. A thorough evaluation of their potential for the characterization of complex and chemically similar materials that constitute the synthetic organic products employed by artists in the past century is also required to provide a strong foundation.

This presentation will explore certain aspects of the PhD research in which techniques such as micro-Raman, mid-FTIR, near-FTIR and UV-vis absorption/fluorescence spectroscopies have been optimized for analysis of a carefully selected range of materials commonly encountered in painted works of modern and contemporary art. Repeat data acquisition, detailed spectral interpretation and the application of powerful tools such as multivariate analysis, where appropriate, has led to the successful passage from laboratory to on-site analysis, despite the challenges that the latter condition may impose.

¹ Project funded by the European Community's Marie Curie 6th Framework Program. www.episcon.scienze.unibo.it/episcon/

² T. Learner, *Modern and Contemporary Art: New Conservation Challenges, Conflicts and Considerations. Conservation Perspectives*, The GCI Newsletter, 24.2, (Fall 2009) 4-10.

Ethanol Modified Calcium Phytate Treatments for Iron Gall Ink Documents

*Season Tse, Senior Conservation Scientist
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Canadian Conservation Institute, Ottawa ON*

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Canadian Museum of Civilization, Ottawa ON*

Aqueous calcium phytate has been tested and proven effective in delaying the corrosion of paper caused by iron gall ink. However, some components of iron gall ink inscribed documents are water soluble, making their treatment in aqueous calcium phytate impossible. While calcium phytate is not soluble in 100% ethanol, it remains soluble in ethanol-water mixtures, which are sometimes safe for the treatment of documents inscribed with slightly water soluble iron gall ink.

In 2008, the CCI paper lab sought to choose a suitable treatment method for the Thomas Wright field book, a manuscript partly written with iron gall ink. As a result, a research project was initiated to verify the effectiveness of ethanol modified calcium phytate and to evaluate the efficacy of multiple applications of ethanol modified phytate as compared to a single application of an unmodified calcium phytate solution. Lab-prepared iron gall ink was applied to naturally aged ledger paper samples. These were subjected to six variations of calcium phytate treatment, with and without ethanol modification. The samples were then subjected to accelerated heat/humid aging using sealed tubes (ASTM D 6819-02). Paper testing was carried out before and after aging to determine the efficacy of the treatments.

This paper will describe the physical characteristics of the Thomas Wright field book as factors in the consideration of its subsequent treatment, the research project test results, some treatment guidelines for the use of ethanol modified calcium phytate, and the process used to choose the most suitable treatment for an iron gall ink inscribed artifact. The information provided will be useful to paper conservators considering the use of calcium phytate for the treatment of water sensitive iron gall ink documents. The paper will conclude with a summary of the treatment options currently available for iron gall ink on paper, clearly illustrating when the use of ethanol modified calcium phytate is a viable treatment option.

Inexpensive Recording of Surface Weathering Using Reflectance Transformation Imaging: The Case of the Guild of All Arts, Scarborough, Ontario

Alexander Gabov*

Conservation of Sculptures Monuments and Objects, Kingston ON

George Bevan

Queen's University, Kingston ON

The Guild of All Arts, established in 1932 by Rosa and Spencer Clark, overlooks the Scarborough bluffs in a quiet enclave of Toronto. These thirty-six hectares became a nature sanctuary and creative venue for artists and artisans. However, as downtown Toronto developed and expanded, numerous architectural elements were salvaged and some were re-erected on the Guild's grounds. Keystones, gargoyles, facades, reliefs, columns, capitals and fragments from 50 buildings were saved. Many of the elements were used to create free-standing outdoor structures. Most notably, fragments from the Bank of Toronto building, demolished in 1966, were used to construct a Greek theater.

The ambitious dream of an artists' Mecca was never ultimately realized. After the Guild was put in public hands in 1978, it suffered neglect throughout the late 80s and 90s. After the chaos of amalgamation at the turn of this century, the City of Toronto has carefully maintained the remaining elements of the Sculpture Garden despite the lack of funding. The City is currently in negotiations with Centennial College, which hopes to use the grounds as their new Institute for Culture and Heritage Management.

The ravages of time combined with the re-use of materials not intended for outdoor park installations has led to the rapid deterioration of surfaces and structural failures among the pieces on display. In 2009, the authors set out to record some of the rapidly deteriorating surfaces using the affordable imaging technique of Reflective Transformation Imaging (RTI). In this technique, a camera is focused at an object and a series of photographs are taken, each with a different light position. A free software package originally developed at Hewlett-Packard Labs and refined at the University of Minho, Portugal, was then used to combine the information from forty or so images to produce a single three-dimensional rendering of the surface.

The technique was clearly successful in recording the current condition and surface of the architectural elements in a way that regular photography cannot. The presentation will introduce RTI as a new technological standard for documentation of cultural heritage. The technique is currently being used by a UNESCO project in Portugal to document rock art, and in the United States by the Federal Bureau of Land Management to create a permanent record of endangered native petroglyphs. RTI also has the advantage of being cheaper than all other forms of 3D documentation, especially laser scanning and structured light. We also propose a poster in which we hope to share examples and offer the technical knowledge and software to interested conservators and other heritage professionals so that RTI can help them in the better recording, understanding and dissemination of the cultural heritage in their care.

****Presenting Author***

Burning Questions: Treatment Considerations for a Fire-damaged Sewing Table

*Amanda Salmon, Conservator, Intern
Canadian Institute for Conservation, Ottawa ON*

*Alastair Fox, Conservator, Furniture and Decorative Arts
Canadian Institute for Conservation, Ottawa ON*

In 2008-2009, the Furniture laboratory at the Canadian Conservation Institute undertook the treatment of a Victorian sewing table that had been damaged in a fire. Approximately 85% of the inlaid veneer on the lid and the front of the apron was destroyed, there was localized, superficial charring of the case substrate, and scorching on the front of the work basket and the base. The structure of the table was considered quite stable; however, much of the remaining veneer was heavily soiled, blistered, brittle and/or lifting.

The treatment of the object posed a variety of issues and challenges. While the condition of the lid was poor, valuable details including tool marks and the 'ghosts' of all missing marquetry decoration were retained in the char. Similarly, the marquetry on the front of the scorched bonnet, blackened and brittle through its entire thickness, was still relatively complete. The overall condition of the base was good in comparison, as damage was limited to the front and almost entirely to the finish. Issues of structural integrity were relatively uncomplicated, but the aesthetic and interpretive integrity of the object was compromised by the sewing table's incongruent appearance. Through consultation with the curator, and considering the potential for new research in the area of consolidation of charred wood, the decision was made to stabilize charred areas, fill losses and return the object to a more complete appearance.

With very little information available regarding the treatment of charred wood, extensive testing was required to find a suitable resin to consolidate the fragile surface. Charred areas of the substrate required consolidation with a resin with the strength and flexibility which could accommodate the inevitable movement of sound adjacent wood in the future, and also, where necessary, bond with in-painting media, adhesive, fill materials and veneer components. A resin was chosen and a method for the impregnation of localized areas on the oversized object was developed to ensure adequate penetration of the consolidant.

To replace the missing marquetry, photographic analysis was used to reveal original details. A marquetry chevalet was constructed and the decorative elements revealed through the photography were reproduced using traditional techniques. Scaled photographs of the lid before treatment were also used to accurately register the new veneer fills adjacent to the original marquetry.

This presentation will discuss both the ethical and technical challenges faced throughout the treatment and will highlight new methodologies and the use of existing technologies for unconventional means.

Wax on Wax off: Preserving the Integrity of Historic Furniture

Greg Kelley, Furniture Conservator
Greg Kelly, Antiques & Art, Toronto ON

This presentation will focus on consolidating furniture veneers with minimal change to the surface and character of an object. The preservation of an object's character and atmosphere is central to conservation concerns.

Retaining the integrity of a dry or polished surface during a conservation treatment can prove challenging, especially when re-gluing veneers. Perhaps this is why furniture conservators often use barrier coats, such as wax, to alienate surfaces.

Applying wax as a barrier coat is suitable when an object has a history of being waxed; however, this practice is not recommended for unwaxed objects. In fact, waxing artefacts can seriously compromise a surface and alter the appearance of an object. This is especially true for artefacts with surfaces that are to have a dry appearance. Fortunately, experimentation and experience prove that most surfaces are robust enough to be subjected to treatments using hide or fish glues and do not require a barrier coat. Hide and fish glues are preferred consolidants for furniture. The advantage of hide glue is that it draws down veneer slightly as it cures, while fish glue does not.

Historic spirit- or oil-based finishes can withstand some exposure to a small amount of moisture from glue, but not for long. There are a number of techniques a conservator can use to protect a finish while consolidating veneers. For example, dust can be used to soak up the moisture from glue, or working small areas and clamping with newspaper can also facilitate the process.

These methods will be illustrated through the treatments of the following examples: the Royal Ontario Museum's satinwood marquetry Fuhrloh/Beck piano, circa 1777, aspects of a remarkable seventeenth-century marquetry Wunderkammer, and parts of a nineteenth-century parquet bookcase. As the case studies will demonstrate, applying wax barrier coats during the conservation process is unnecessary, and in fact compromises the integrity of historic furniture surfaces.

Wax on wax off, the choice is clear.

The Auto-fluorescence of Asian Lacquer

***Marianne Webb, Senior Conservator, Decorative Arts
Royal Ontario Museum, Toronto ON***

For several years conservators have noticed that Asian lacquer sometimes appears to fluoresce under ultraviolet light. This study was undertaken to determine the circumstances of auto-fluorescence of Asian lacquer. To begin, dozens of lacquer objects from the Royal Ontario Museum and the author's collection were examined. They all appeared to fluoresce. New sample boards were made and also examined, which also fluoresced. It was determined that Asian lacquer always fluoresces, ranging in colour from orange to muddy yellow, although due to the weak fluorescence of many objects it is not always readily apparent. Several factors play an important role in observing the fluorescence, such as quenching, ultraviolet lamp quality and the room environment.

Conservators studying lacquer observed that Asian lacquer fluorescence appears to increase in intensity when the surface of the object has been previously damaged by exposure to light. Experiments conducted on both fresh and aged samples of different types of lacquer demonstrate this to be true. Asian lacquer exhibits a marked increase in fluorescence as well as a shift in colour from orange toward yellow when exposed to UV and visible light for an extended period of time.

How is this knowledge useful to conservators? Experience has shown us that the degradation products formed during light exposure are soluble in polar solvents. In fact this is why it is difficult to safely clean lacquer without removing the top water soluble layer and possibly the decoration along with it. It has been suggested that the increase in fluorescence could be a guide to cleaning, as the fluorescence should return to its original state if the degradation products were removed. Experiments were conducted on 12 objects with severe light damage. After cleaning with water, some objects increased in fluorescence, some decreased and some remained the same. This indicates it is not a good guide to surface changes during cleaning.

Although our knowledge of the chemistry of Asian lacquer auto-fluorescence is limited at the moment, the phenomena can still be of some use in treatment. Because fluorescence increases with light degradation, the colour and intensity observed can be used as a tool to determine the state of the surface. When identifying Asian lacquer, it can be used to eliminate some look-alike materials and to distinguish pigments. It is also useful to determine the treatment history of the object since objects recoated with urushi or western varnishes are readily apparent.

A Stitch in Time – Treatment of a Sewn Paper Manuscript

***Doris St-Jacques, Conservator, Books, Maps and Manuscripts
Library and Archives Canada, Ottawa ON***

An extraordinary collection recently acquired by the Portrait Gallery Program of Library and Archives Canada, includes materials documenting 18th century life in Labrador. The significant collection originates from brothers George and John Cartwright, who provide us with a detailed look at early Canadian life on the east coast.

George Cartwright spent sixteen years in Labrador as a naturalist and trader, establishing business partnerships and trading posts along the Labrador's coast, with varying degrees of success. During this time he developed a deep appreciation and understanding of the land and the peoples, struggling to protect them both. Unfortunately, as the trading posts were continuously plundered, George's financial situation forced his eventual return to England where he continued to document his Labrador experiences.

This recently acquired collection includes, among many other items, a manuscript of 4 sheets. The document was created as a record of outgoing letters written by George Cartwright, between June and September of 1771.

The manuscript had suffered tears along its folds, which in time resulted in the detachment of some sections of the paper. At some point in the document's history, those sections had been re-attached with thread. The tear edges were worn and folded and in combination with the hand sewing, obscured some areas of the text. In addition, many of the detached sections had been misaligned during their re-attachment, which further obscured areas of the handwritten text.

This paper will discuss the conservation challenges presented by both the materials and its previous repairs, in the development of a treatment methodology for this manuscript.

Treating Oversized Works at Library and Archives Canada

Susannah Kendall, Conservator, Works on Paper
Library and Archives Canada, Ottawa ON

Anne Maheux, Head Conservator, Works on Paper
Library and Archives Canada, Ottawa ON

Library and Archives Canada (LAC) houses a vast collection of works on paper, ranging from scrapbooks chronicling the lives of early explorers, and watercolours documenting the Canadian West during the construction of the railway, to huge mid-20th century billboard posters and contemporary portraits executed in multiple media. Oversize works have always presented a challenge to institutions with the issues of handling, storage, treatment and framing. Although LAC boasts one of the most spacious and well-equipped facilities on the continent, working with these monumental objects still requires careful planning and organization to execute treatments and to negotiate for precious real estate in storage. This presentation will detail recent projects, the treatment of a broadside poster and the mounting of large contemporary portraits, which provided the opportunity to compare several lining and mounting methods.

The Boys Are Coming Back is a large 2.0 m x 1.5 m chromolithograph broadside. It is composed of 4 sections joined together and was lined with a thin linen. The poster came to the lab in very poor condition, with tears, losses and creases throughout. Treating each section independently provided a good opportunity to compare different methods of lining and drying. The four methods will be discussed, as well as the advantages and disadvantages of each.

To offer the best protection, oversize paper objects are mounted on rigid supports that can be framed or attached to handling travelling storage (HTS) frames. This is particularly desirable when friable media are present and preclude the possibility of long-term roll storage, as in the case of two recently acquired portraits (*Charles Hill* and *Dennis Reid*) by Allan Harding McKay. Tycore paper honeycomb panels were joined to construct rigid supports; two different joining methods were employed. Another system employing a rigid panel made up of a pine rack faced with coroplast and covered with primed fabric was chosen to mount an oversize Norval Morrisseau print entitled *Some of My Best Friends*. The advantages and disadvantages of the construction options, and different mounting supports will be discussed.

Separation Anxiety: Kiss Your Acetate Goodbye

*Nicole Christie, Conservator
Peterborough Museum & Archives*

*Cindy Colford, Conservator
Peterborough Museum & Archives*

More than 100 years and 350,000 images of detailed visual history of the community of Peterborough, its people, places and events are held in two of the Peterborough Museum & Archives' (PMA) photographic collections: the Balsillie Collection of Roy Studio Images and the Parks Studio fonds.

Nearly four years after the 2004 city-wide Peterborough flood, an assessment of the film-based collections indicated that many of the acetate negatives were in an advanced stage of deterioration as marked by the pitting, blistering and pronounced channelling that completely obscured the images. In order to preserve these rare images, techniques were developed and tested for separating the emulsion layer (image) from the acetate base. After several trials a successful method was established.

The issue of dealing with deteriorated acetate negatives plagues many institutions. This presentation explores the trials and tribulations along the path to stable emulsions as a small-town community museum saves its big-time collections!

The Multiple Facets of an Archival Conservation Project

Lynn Curry, Head Conservator of Books
Library and Archives Canada, Ottawa ON

Managing multi-item, multi-year, multi-discipline, multi-conservator conservation projects can be both challenging and rewarding. At Library and Archives Canada, the recent completion of such a project, *Conservation of Photographic Albums: Geological Survey of Canada Collection*, has resulted in the development of new practices, including: the standardization of minor treatments for photograph albums, the standardized construction of custom non-adhesive spacers, and an ingenious method of incorporating the original covers and album while preventing re-contamination due to red-rot.

The conservation/preservation project began in earnest in 2004. The seventy albums were grouped according to binding style and divided into lots. Each album was to undergo examination, documentation, minor conservation treatment and re-housing. The project was carried out over the next five years under the coordination of the Head Conservator of Books, in consultation with the Head Conservator of Photographic Materials.

This project also provided opportunities for the professional development of staff, as well as valuable hands-on experience for interns in multi-media archival conservation, thus supporting national and international conservation education programs. Four assistant conservators and one contractor from Library and Archives Canada worked on the project, often in the capacity of professional development, learning new procedures or working on new media. Eleven conservation interns, both from Canada and abroad, took part in the project, also developing new skills and having the opportunity to work on archival material under the guidance of a senior conservator. It was from this group of conservators and interns that the ideas for improvement of practices emerged that led to the successful completion of this project.

Conservation of a Series of Mural Cartoons: High Hopes on a Low Budget

***Claire Titus, Conservator
New Brunswick Museum, St. John NB***

This paper outlines the challenges faced by a regional Canadian museum to undertake the conservation and display of a significant set of works in its collection.

Resources for museum projects that exceed the limits of the budget and exhibition schedule are never easy to find. Such is the case for the conservation treatment of the New Brunswick Museum (NBM) Saint John Tuberculosis Hospital mural cartoons (1941-42), by Saint John New Brunswick artist, Miller Gore Brittain (1912-1968).

Miller Brittain is amongst Canada's most important twentieth century artists; the cartoons are the crowning achievement of his pre-war career.

Depicting the causes, effects, treatment and cure of tuberculosis, Brittain's compositions are developed to varying degrees using layers of fabricated chalk and fixative. Each of the eleven cartoons measures approximately nine feet square and is made-up of three nine-foot lengths of Kraft paper, joined with gummed brown-paper tape. Where the tape has failed or the paper is torn, the drawings have been previously and extensively "repaired" with masking tape. These are not uncommon condition problems in the field of paper conservation. However, the scale of a conservation project to address this damage is daunting. Not until 2006, when the cartoons were examined and their condition was assessed for the first time in over twenty years, has a treatment plan been possible.

After a brief introduction to the NBM and to Miller Brittain and his work, the author will describe the multi-phase conservation treatment plan for the Brittain cartoons. The first phase, the development of a treatment protocol, was completed in 2009 in the context of the Canadian Conservation Institute (CCI) Visiting Professionals Programme. This paper will describe the research and development of the treatment protocol. The future phases of the project will also be discussed.

Identification of Ivory Book Covers and Comparison to Ivory Portrait Miniatures

Josie Wornoff, Intern

Library and Archives Canada, Ottawa ON

Ivory has been used in the creation of objects since the beginning of civilization. The durability of the material explains the many items remaining from thousands of years ago. Early use included weaponry, musical instruments, religious pieces, personal artifacts, decorative items, artistic pieces, parts for games and, occasionally, book covers. Three small books from the Library and Archives Canada study collection were thought to have ivory covers. Various identification tests were administered, and Fourier Transform Infrared Spectroscopy analysis confirmed their composition of elephant ivory.

However, related literature and other existing examples of ivory-covered books are rare. In contrast, the use of ivory in portrait miniatures has been extensively researched. Library and Archives Canada has over 130 portrait miniatures, and has successfully treated many of these.

Comparisons between the history, source, processing, material characteristics, and risks of deterioration of these two applications of ivory revealed many similarities. From this, similar conservation and preservation techniques of portrait miniatures are proposed for use on ivory book covers. Indeed, the growing knowledge of portrait miniatures in Canada is beginning to have its impact on other areas of conservation, as seen in the case of these ivory book covers.

Behind Locked Doors: Collections Care at the University of Lethbridge Art Gallery

***Juliet Graham* & Miranda Grol
Lethbridge, AB***

The University of Lethbridge Art Gallery has one of the largest and most significant art collections in Canada. There are more than 13,000 objects from 19th and 20th century Canadian, American and European artists, including drawings, prints, paintings, photography, sculpture and installation. A strong focus in the past on collecting and research has been broadened over the last ten years to include a concentration on collections care, thanks to having a conservator working at the management level.

This paper is about preventive conservation in action: a conservation assessment begun in October 2008, of 436 works on paper in the University of Lethbridge Art Gallery. The project subsequently grew into an inventory and storage upgrade for the more than 9,000 works on paper in the collection. A plan was formulated for future storage that will allow room for growth.

The conservation assessment project recorded a cache of information to be added later to a new conservation field in the existing collection database. The information is presently being used to create a plan for conservation treatment.

A related benefit of this ongoing project is that University of Lethbridge Museum Studies students are involved; a Museum Studies intern has become a paid employee of the gallery as a collection assistant. In addition, current students are able to observe on-going conservation activities and have had conservation lectures incorporated into their curriculum. Also, as this is a high-use study collection, it is important that the university community becomes aware of the benefits of the preventive conservation that is taking place. The University of Lethbridge Art Gallery is providing a new venue for continuity, viability, advocacy, education and visibility for the conservation field in Canada.

****Presenting Author***

Migrating Audio and Video Recordings for Long-Term Preservation

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Library and Archives Canada (LAC) has adopted a strategy for the long-term preservation of audio and video recordings which involves migrating their information content from current physical formats to standard digital files.

LAC has over 530,000 hours of audio and video recordings on more than 30 different physical and logical formats. Audio formats include cylinders, analogue discs, magnetic tapes, optical discs and file formats, to name a few. Video recordings are predominately found on magnetic tape of various sizes, with contemporary material released on optical and file-based media.

The rapid pace of technological change has left the majority of these audiovisual technologies and formats behind and many are now considered obsolete. Playback equipment, spare parts and operator expertise for obsolete formats are disappearing. Migration of audiovisual recordings from an obsolete format to a current format is not a new approach to preserving this material, but with today's format of choice being a digital file, there are new and challenging issues to contend with.

The presentation will describe LAC's Audiovisual Migration Strategy, the plan to implement the strategy, and the developing institutional environment for the long-term preservation of digital collection material in a Trusted Digital Repository.

White Paint on the Greenhouse?

A Historic Paint Investigation for a Lord & Burnham Co. Greenhouse on the Central Experimental Farm, Ottawa, Ontario

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In 1928, a new curvilinear “palm house” style greenhouse was erected in Major’s Hill Park in Ottawa as part of an existing conservatory and garden complex. The octagonal freestanding greenhouse was designed and manufactured by the Lord & Burnham Company, and was constructed with a masonry foundation, cast iron girder frames, and cypress wood glazing bars, rafter caps and sashes. Ten years later, municipal planning reshaped the face of central Ottawa and the palm house was dismantled and relocated to the Central Experimental Farm a few kilometers south of its original location. Over the years, this building has been in constant use and has been repaired and repainted following normal maintenance cycles. It is in use today as part of the Eastern Cereal and Oilseed Research Centre. The greenhouse is painted white with the exception of the interior iron surfaces which are finished with aluminum flake paint.

In 2008, the Canadian Conservation Institute was asked by Agriculture and Agri-Food Canada to carry out paint sampling on the interior and exterior surfaces of this historic greenhouse to determine if there were traces of original paint still present, and to characterize these original finishes. This information was required as part of a building documentation and condition assessment to be carried out prior to the refurbishment of deteriorated structural members and finishes.

Paint sampling carried out in July 2008 determined that the original finishes did not simply consist of white paint on interior and exterior wood and iron surfaces. Paint cross sections were prepared for examination using visible and fluorescence microscopy, and further analysis was carried out using SEM/EDS, FTIR and GC-MS to determine paint composition. While much of the greenhouse had likely undergone scraping and repainting as part of regular maintenance, nearly a third of the samples collected had paint layers that were characteristic of those described in the trade literature from the Lord & Burnham Company as factory or post-assembly finishes. The earliest paint layers contained red or white lead in linseed oil, and were followed by two more layers of the white lead paint. Later paint applications are more unusual in that all surfaces including iron, wood, and even caulking were coated with a system consisting of multiple layers of aluminum flake paint followed by red iron oxide paint. This was followed by applications of titanium white-based paint or a few layers of aluminum flake paint (on interior girders). Full details on the paint characteristics and composition will be presented and discussed in the context of greenhouse maintenance and manufacturing trade literature which describes commercial products similar to those found.

Regular maintenance is crucial for the economic and functional sustainability of this working greenhouse. The interior operating conditions of high humidity, strong full-spectrum light levels, as well as the weathering of exterior surfaces will inevitably result in further paint and structural deterioration. While the heritage character of the building will be preserved in structural details and function, complete removal of the early lead paint and other paint materials that followed may facilitate easier (and less costly) future repainting.

****Presenting Author***

Poster Abstracts

Use of Dyed New Feathers for Loss Compensation in Damaged Feathers

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Losses from feathers on ethnographic objects and pieces of Western costume may be visually improved by filling the losses with new matching feathers. This project will investigate three aspects of feather in-filling techniques:

- Dyeing techniques for feathers,
- Degree of colour stability in conservation dyed feathers,
- Techniques for infilling losses in feathers with new matching feathers.

Lanaset and Irgalan dyes will be tested for use dyeing contour and plumose feathers. Both hand-painting and submersion dyeing will be assessed as dye application techniques. To verify the long-term stability of conservation dyes on feathers, a micro-fading test will be used to characterize the lightfastness of dyed feathers. Finally, several different techniques for affixing parts of feathers as infill will be explored.

Examining Conservation Techniques Using Microscopy: A Comparison of Wheat Starch Paste Preparation Methods

Crystal Maitland, Paper Conservator

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Paper conservators are very particular about their paste-making methods, each arguing that their method of preparation is the most effective. There are a myriad of variables in preparation. Some choose to pre-soak their starch, others debate the methods of sieving, working and kneading the paste after it is cooked. Perhaps the most controversial question is about the merits of cooking paste with a cook and stir, a double boiler, or using a microwave oven. Storage methods for paste, whether in the refrigerator, in a syringe, or under water, are equally contested.

This project proposes to compare paste prepared by numerous recipes and cast each separate batch as a thin film. Using the Zeiss Axio-imager M1m microscope, it will be possible to use reflected bright field, dark field and differential interference contrast imaging, and fluorescence microscopy to view the starch film and granule properties as a function of preparation method. This microscopic analysis will provide a comparative means of qualitative, or perhaps even a semi-quantitative assessment of paste preparation and storage methods. An image gallery presented on the web as a part of the Andrew W. Mellon Heritage Science for Conservation Project at the Sheridan Libraries, Johns Hopkins University will allow this information to be accessible to the conservation profession. Adding to the body of literature, this research can help guide paper conservators in their choice of paste preparation methods.

Adhesive-Free Spacer How-To Handout

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Over the years, Library and Archives Canada (LAC) conservation labs have hosted many interns from a variety of programs. These experiences are rewarding not only for the students, but for the conservation staff as well. In the summer of 2005, a student from the Ryerson and George Eastman House Master's Program in Photographic Preservation and Collections Management, introduced us to making spacers without adhesives. Since then, five other students from different institutions, (Ryerson and George Eastman House, Sir Sanford Fleming College and Algonquin College), have contributed to this How-To Handout. Two summers ago, a bilingual version was created and workshops were given to all staff involved in specialized housing for objects at LAC.

The Adhesive-Free Spacer How-To Handout incorporates images, diagrams and simple instructions which enable the user to quickly construct a simple spacer. This spacer can be utilized in custom boxes for albums, paper documents and a variety of objects which require a structure to provide further support.

This poster will include the development of the process, a step-by-step overview and copies of the Adhesive-Free Spacer How-To Handout.

The Conservation of Two Chinese Kingfisher Feather Cloisonné Artefacts

Jill Plitnikas & Lydia Messerschmidt

National Museums Collection Centre, Edinburgh Scotland

As part of the conservation programme for the 2011 re-opening of the refurbished Royal Museum, two Chinese kingfisher feather cloisonné objects were treated by the Artefacts Conservation section of the Conservation and Analytical Research Department at National Museums Scotland. Both of the artefacts, a headdress and hair ornament, were donated to the museum in the 1960s. Although little is known about their provenance, they were likely worn by higher class women on special occasions such as weddings.

The headdress and hair ornament arrived at the conservation laboratory in poor condition. Their elaborate design and symbolism were obscured by the crushed and broken state of the metal wire and paper-based structures and decorations. Not only was the brilliant blue shade of the kingfisher feathers masked overall by dirt, but it was also lost in spots because of physical damage such as cracked barbs. Pieces of feather, decorative paper, and silver leaf were lifting from paper and metal substrates and many of the paper supports were delaminating and cracked or broken. Several decorations on the headdress were detached or lost, while some had been previously re-attached in the wrong location.

During the examination and treatment of these objects, a range of analytical methods was used to characterise their structures and materials. Techniques such as light microscopy, X-ray fluorescence, and Fourier transform infrared spectroscopy provided details on paper and textile fibres, metals, colorants, glass, and adhesives and coatings. This information builds on the general body of knowledge available on kingfisher feather cloisonné artefacts and is intended for inclusion in a paper for publication.

Treatment of the headdress began with removing decorations re-attached in the wrong location and surface cleaning the wire and paper understructure with pieces of smoke sponge. The first priority for the hair ornament was re-forming its crushed wire structure by careful physical manipulation. The feathers of both artefacts were then cleaned with a solution of deionised water and IMS, which dramatically reduced the surface dirt. It also helped to re-integrate separated barbs and often to mend the physical structure of damaged barbs enough so that they appeared blue again. Lifting feather pieces, decorative paper, and silver leaf were usually secured to their supports with methylcellulose but occasionally the existing protein glue could be sufficiently re-activated for this purpose. Broken and delaminating paper supports were stabilised with wheat starch paste while cracks were consolidated with methylcellulose. Further work on the headdress included re-shaping crushed ornaments and securing loose and detached ones.

With the headdress and hair ornament now stabilised and more closely resembling their original resplendent appearances, they are ready for display in the new galleries of the Royal Museum. As a rotating exhibition schedule is planned, other kingfisher feather cloisonné objects will also be prepared to replace them. Thus, most of the pieces held in the collections will be conserved and a more complete understanding of their structures and materials attained over the coming years.

3D Scanning, Computer Aided Design and Rapid Prototype Technologies Used for Production of Artefact Losses

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It is more than a common occurrence for an excavated artefact to have missing parts. The practice of reconstruction and in-filling using digital technology has not been fully explored by conservators, thus this research is attempting to explore a new way of approaching the old question: "How should we fill the gap?" We propose employing three-dimensional scanning and rapid prototype (RP) technologies to successfully replicate whole or parts of an object.

There would be several benefits. This method will shorten the time it takes to treat an artefact. Also, because most of this process can be done without being in direct contact with the object, it will be protected from unnecessary handling and stresses, minimizing the potential for damage. Another possibility with this process is to use it to fabricate a detachable in-fill, which is completely reversible and has the least adverse effect on the artefact. This will bring about new possibilities in in-filling materials ranging from paper to metal. A number of possible RP methods and synthetic materials were evaluated and tested for their versatility, accuracy and the staircase effect of the end products.

A bronze artefact from the Diniacopoulos Collection, jointly owned by the Queen's University Department of Classics and the Art Conservation Program, is being imaged in this pilot study; the loss will be recreated in CAD (Computer Aided Design) and the in-fill prototyped using Stereolithography.

Microfade Testing- A New Onsite Service for Predicting the Fading of Objects

Season Tse & Nancy Binnie

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Fading or colour shift on an object as a result of light exposure often leads to loss of aesthetic and historic value. Thus it is important to determine the light sensitivity of an artifact in order to plan exhibition requirements. To identify light sensitive components, traditional methods require sampling and identification of the colourant and assessment of its light sensitivity. This can be accomplished either by using data from the literature or by interpolation of test results of lab-prepared samples. Not only is this process laborious and difficult because of sampling limitations, the assessments are often not accurate because of differences in matrix compositions and the history of light exposure of the object/collection.

To address the need for a non-destructive technique, Paul Whitmore, (Art Conservation Research Center at Carnegie Mellon University), developed the microfade testing technique. It involves shining a high intensity UV-free light spot directly on a test object and recording any colour changes that occur during the exposure. The fading rates of test materials are compared to fading rates of standard ISO blue wools (BW1-4), and the lightfastness properties are expressed in bluewool lightfastness categories. The technique is most useful for identifying colourants that have high light sensitivities (ISO blue wool 1-3).

Fifteen years since its introduction to conservation, the technique is still considered novel. Several conservation laboratories in North America, Europe and Australia have recently acquired microfade testers for measuring the lightfastness of their collections. At CCI, the benchtop microfade system has been in use for lightfastness screening of objects and artist and treatment materials since February 2008.

It has been a long term goal of CCI to make this service available for all Canadian heritage institutions. To be fully and easily transportable, the benchtop system needs to be further adapted. In March 2009, at a meeting of experts hosted by the Instituut Collectie Nederland (ICN), the criteria for a portable microfade tester were discussed. Those discussions and subsequent correspondence with Jim Druzik, (Getty Conservation Institute), enabled CCI to assemble a portable microfade tester. The system has undergone extensive laboratory and field testing, and the service is now available for testing within Canadian heritage institutions.

In addition to this unique test method, the CCI Light Damage Calculator, (soon to be available on CCI's website), is invaluable in interpreting the results. Based on the lightfastness categories, the user can select different lighting scenarios, and the Calculator produces a visual report of the percentage of fading. This allows conservators, collection managers and decision-makers to visualize the impact of their choices and in so doing will hopefully establish consensus as they decide on the appropriate exhibition protocol.

Modified Accelerated Corrosion Test of Cellu-Cushion Polyethylene Foam

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Dow Chemical's polyethylene foam Ethafoam has become a staple for storage and display materials used by museums and conservation institutions. Recently, Sealed Air converted their manufacturing process to that used by Dow Chemical and then replaced their plank-form, polyethylene, foam CelluPlank with the plank-form Ethafoam. However, Sealed Air has not yet changed the manufacturing process of Cellu-Cushion, their thinner polyethylene foam, to the Dow Chemical process.¹ Assurance that Cellu-Cushion and Sealed Air's Ethafoam is safe for use with artifacts is of prime concern to museum and conservation staff and is the focus of this poster.

The standard accelerated corrosion test known as the Oddy test is often used by museums and other cultural heritage institutions to test storage and display materials for harmful off-gassing products. The test is easy to carry out. It involves filling a jar with a sample of the material along with silver, copper, and lead coupons, and enough water to generate 100% relative humidity. The jar is then sealed and placed in an oven at 60°C for 28 days.² In this environment, vapours from the material may be released. If these vapours are harmful to metals, corrosion products will form and be visible after the 28 day test.

This standard accelerated corrosion test was used by Artech Services in 2006 to test Dow Chemical's Ethafoam and Sealed Air's CelluPlank and Cellu-Cushion.³ Their results showed that these three products do not produce harmful off-gassing. However, no reported test has determined whether these products are safe when in direct contact with artifacts, which is how they are most often used by heritage staff.

In this poster, results will be reported from a modified Oddy test to incorporate direct contact between the metal coupons and Sealed Air brand Cellu-Cushion and Sealed Air's version of Ethafoam. This involves creating a sandwich between the foam and the different metal coupons (silver, lead, and copper) and then exposing them to the standard environmental conditions as outlined in the Oddy test. This poster will also include the set-up method and materials that were used and information on suppliers to help make the Oddy test accessible and easy to re-create for institutions that would like to test their own material.

¹ Masterpak, "Ethafoam and Cellu-Cusion", http://www.masterpak-usa.com/cat_203_ethafoam.htm, (accessed December 16, 2009)

² D. Thickett and L.R Lee. "The 'Oddy' Test- an accelerated corrosion test for effects on metals." *The Selection of Materials for the Storage or Display of Museum Objects*, revised edition. British Museum Occasional Paper Number 111. London, UK: British Museum, 2004, pp.3-16.

³ Masterpak, "Results of Off-gassing Test (Oddy Test)" <http://www.masterpak-usa.com/oddy-test.pdf>, (accessed December 16, 2009)

Public Art: Who Cares?

David Turnbull & Sarah Patterson
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The Edmonton Public Art Master Plan was created in 2008 through the Edmonton Arts Council (EAC) to outline a new direction in public art, to address current needs of the collection and to create a dynamic urban gallery environment of public art for the public to engage with. Within this plan, Percent for Art Projects of the City are identified. The core of the program is 1% of eligible funds for qualifying civic construction projects contribute to the commissioning of new and original public artworks.

One of the guiding principles of the program is to care for the artworks, “To plan and act in such a way as to take care of our investments in creativity and increase our legacy of public art through conservation and maintenance, education, and outreach.” From each commission amount, a percentage goes towards a conservation endowment fund for maintenance, upkeep and conservation of Civic Collection artworks.

In addressing the critical needs of the current collection, the EAC recommended that the City of Edmonton fund a two year conservation position to assess and document all artworks in the Civic Collection, and to make conservation/ maintenance recommendations. A second position was recommended to assist the public art conservator and maintain an archive and database.

The conservation program began in June 2009 and has developed the infrastructure for cataloguing, assessing and documenting public artworks. The program has become an integral part of the Public Art Department of the EAC; core activities include assessment, documentation, the drafting of maintenance instructions and schedules, and performing conservation treatments. The conservation program is also involved in new projects by reviewing proposed materials and fabrication, overseeing installations, and collecting information for long-term care. Other initiatives include an artist interview program for archives and outreach, and acting as a resource for other City funded projects.

Collections Risk Assessment at the Denver Museum of Nature & Science

J.A. Southward, H. H. Thorwald, G. Muething, and R.R. Waller

The Denver Museum of Nature & Science (DMNS) received funds from the Institute of Museum and Library Services - Museums for America program to complete a risk assessment of their collections in storage. The goal of the project was to develop a preservation strategy based on a systematic and quantitative evaluation of risks. This involved identifying both the loss in the value and the risk parameters for the collections.

The DMNS collections contain more than one million objects in the areas of anthropology, earth and space sciences, zoology, and library and archives. They are scattered in 49 locations, only one of which has conditions that meet optimal museum standards. The other 48 locations are crowded and lack one or more important feature such as fire detection and suppression systems, centralized security, or temperature and relative humidity controls. These conditions jeopardize long-term stewardship, restrict public access, and place human safety at risk.

Risk to the collections had been identified in previous conservation assessments. Still, the DMNS lacked a comprehensive and balanced understanding of all risks affecting collections in storage. A more holistic understanding was required for operational preservation funding. It is critical for the inevitable trade-off decisions that will occur in the value engineering phases of facility concept and design, that are scheduled to begin in 2010 as the Museum prepares to build a new collections storage facility. For example, when cost savings must be found and the Museum is given the choice of reducing investment in security, climate control, or fire protection, which choice will have the least impact on any expected long term loss of collection values?

The poster discusses the process and outcomes of the risk assessment as it occurred at the DMNS. Participating staff came from Research and Collections, Security, Facility Operations, and the Board Champion for Collections. They identified 31 collection units to evaluate. A comprehensive list of risks was developed based on the Cultural Property Risk Analysis Model (CPRAM) developed at the Canadian Museum of Nature. In this model, the magnitude of risk is measured as the product of a fraction susceptible, loss in value, probability and extent ($MR = FS \times LV \times P \times E$). As part of their own risk assessment, the DMNS identified an average of 91 risks specific to the collection units. These risks were grouped into categories of rare, sporadic, and continual. As an example, a rare event in the Denver area would be an earthquake, while some objects on permanent exhibit receive continual light damage. Staff also identified three kinds of value within each loss of value (LV) estimate. These were discipline, historic, and public access values.

The technical result of the risk assessment exercise is a comprehensive accounting of all identifiable risks to the collections. This will serve as a basis for rational preservation resource allocation both in on-going collection care and in new facility design. The less tangible but equally important result is a vastly improved mutual understanding of collection preservation issues among all parts of the Museum.

Inexpensive Recording of Surface Weathering Using Reflectance Transformation Imaging: The Case of the Guild of All Arts, Scarborough, Ontario

Alexander Gabov*

Conservation of Sculptures Monuments and Objects, Kingston ON

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The Guild of All Arts, established in 1932 by Rosa and Spencer Clark, overlooks the Scarborough bluffs in a quiet enclave of Toronto. These thirty-six hectares became a nature sanctuary and creative venue for artists and artisans. However, as downtown Toronto developed and expanded, numerous architectural elements were salvaged and some were re-erected on the Guild's grounds. Keystones, gargoyles, facades, reliefs, columns, capitals and fragments from 50 buildings were saved. Many of the elements were used to create free-standing outdoor structures. Most notably, fragments from the Bank of Toronto building, demolished in 1966, were used to construct a Greek theater.

The ambitious dream of an artists' Mecca was never ultimately realized. After the Guild was put in public hands in 1978, it suffered neglect throughout the late 80s and 90s. After the chaos of amalgamation at the turn of this century, the City of Toronto has carefully maintained the remaining elements of the Sculpture Garden despite the lack of funding. The City is currently in negotiations with Centennial College, which hopes to use the grounds as their new Institute for Culture and Heritage Management.

The ravages of time combined with the re-use of materials not intended for outdoor park installations has led to the rapid deterioration of surfaces and structural failures among the pieces on display. In 2009, the authors set out to record some of the rapidly deteriorating surfaces using the affordable imaging technique of Reflective Transformation Imaging (RTI). In this technique, a camera is focused at an object and a series of photographs are taken, each with a different light position. A free software package originally developed at Hewlett-Packard Labs and refined at the University of Minho, Portugal, was then used to combine the information from forty or so images to produce a single three-dimensional rendering of the surface.

The technique was clearly successful in recording the current condition and surface of the architectural elements in a way that regular photography cannot. The presentation will introduce RTI as a new technological standard for documentation of cultural heritage. The technique is currently being used by a UNESCO project in Portugal to document rock art, and in the United States by the Federal Bureau of Land Management to create a permanent record of endangered native petroglyphs. RTI also has the advantage of being cheaper than all other forms of 3D documentation, especially laser scanning and structured light. We also propose a poster in which we hope to share examples and offer the technical knowledge and software to interested conservators and other heritage professionals so that RTI can help them in the better recording, understanding and dissemination of the cultural heritage in their care.

Treatment Options for Iron Gall Ink on Paper

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*Maria Trojan-Bedynski
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The treatment of works on paper with iron gall ink is undertaken after a thorough examination of the artifact and an evaluation of the benefits of any treatment compared to the risks. Diagnostic tools and factors used to determine the condition of the artifact and need for treatment include the ICN condition rating, fluorescence of ink under UV illumination, bathophenanthroline Fe(II) and pH tests, inkline thickness and colour, and paper thickness, sizing and absorbency. Following evaluation and consideration of this information the conservator may or may not decide to treat the work. The aim of this poster is to aid the conservator through this decision-making process, present a summary of treatments currently available, highlight key treatment steps, and offer some practical tips.

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