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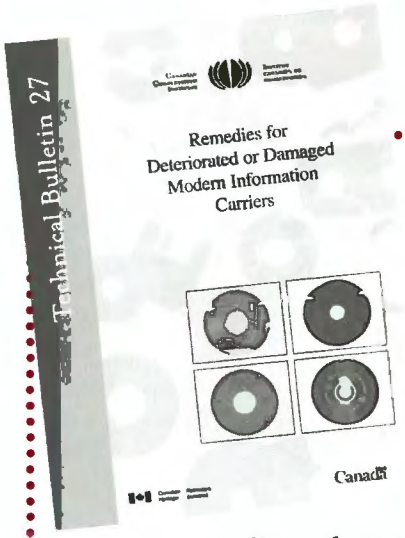

Remedies for Deteriorated or Damaged Modern Information Carriers

by Joe Iraci

Modern information carriers encompass optical discs (CDs and DVDs) and magnetic media such as tapes (audio, video, computer) and disks. These carriers differ from traditional materials in that the information they contain cannot be viewed directly, it can only be accessed by playing the carriers on a machine. And for the carriers to play properly, they must be in relatively good condition. This Technical Bulletin discusses the myriad types of damage that can occur to modern information carriers due to age deterioration, poor storage conditions, or poor handling practices, and presents various remedies to restore these carriers to a playable condition.

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Cover: CCI conservator Roberta Partridge tests an iron gall ink document for the presence of iron(II) ions using test paper developed by the Netherlands Institute for Cultural Heritage. Iron(II) ions, which can form as the ink deteriorates, are harmful to paper and threaten the permanence of many archival records.

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Protecting Canadian Archival Heritage from the Hazards of Iron Gall Ink

by Season Tse, Senior Conservation Scientist, CCI

Maria Trojan-Bedynski (left), from Library and Archives Canada (LAC), demonstrates paper simmering during The History and Treatment of Works on Paper Containing Iron Gall Ink, *an advanced professional development workshop held at LAC's Gatineau Preservation Centre in February 2005.*

Iron gall inks were used extensively from antiquity until the beginning of the 20th century. The corrosive nature of the iron and acid in these indelible black inks now threatens to destroy paper collections in museums, galleries, and archives all over the world. Although documents created with this writing medium comprise only a small component of Canada's archival collections, they represent a large proportion of our early and irreplaceable archival records. These documents are essential to the understanding of the history of Canada, and it is critical that measures be taken to preserve them.

While the problem is acknowledged and there is active research and treatment development in Europe, little is known about the condition of Canadian collections. There is presently no tool to document where iron gall ink collections are located in Canada and/or benchmark the condition of these collections. However, anecdotal evidence and recent surveys suggest that they show varying degrees of deterioration: the majority are in stable condition but some collections, such as letterpress copybooks, have already suffered loss from ink corrosion while other items have suffered significant fading. This situation has presented CCI with a unique opportunity to make a significant positive impact on the preservation of early Canadian archival heritage.

In 2004, a collaborative project[1] was developed to raise awareness in the archival community about the risks associated with iron gall ink collections; to determine the locations, extent, and condition

Harold Holland, Preservation Officer of the Council of Archives of New Brunswick, cites the following examples of documents created with iron gall ink that are important to the history of the Maritimes and, ultimately, to Canada. All of them belong to the Archives of the New Brunswick Museum.

- A collection of Benedict Arnold papers from the mid 18th century — These papers reveal the essence of the struggle between the American Colonies and loyalists to the British crown, a primary outcome of which was the fleeing of a large number of loyalists to Nova Scotia. This exodus subsequently quickened the development of Nova Scotia and the emergence of the Province of New Brunswick.

- A collection of manuscripts by George Otty (1820–1888) — These manuscripts record the sums of the sales, at Saint John, of prize vessels captured during the war of 1812.

- The minute book of the No. 2 Mechanics' Union Fire Association — This book includes a list of all fires in Saint John between 1840 and 1852.

Mr. Holland has long been an advocate of the importance of monitoring the deterioration of documents created with iron gall ink, and preserving them.

CCI's Sherry Guild (second from right) demonstrates an historic recipe for making iron gall ink during The History and Treatment of Works on Paper Containing Iron Gall Ink *in February 2005.*

of these collections in Canadian archives; and to provide guidelines and training to conservators and collection managers on how to preserve them. The project has four components: research, a training workshop, a risk assessment survey, and publications.

Research
Research is focused on two areas: the effect of paper simmering, and the comparative effectiveness of currently used and newly developed aqueous treatments.

Paper simmering has been used for treating corroded iron gall ink manuscripts in some European libraries for several decades, and it was the treatment of choice for the McKay Sketchbook belonging to Library and Archives Canada (LAC). The details of this treatment and results from research on its effect on paper have already been published (see "Publications" below).

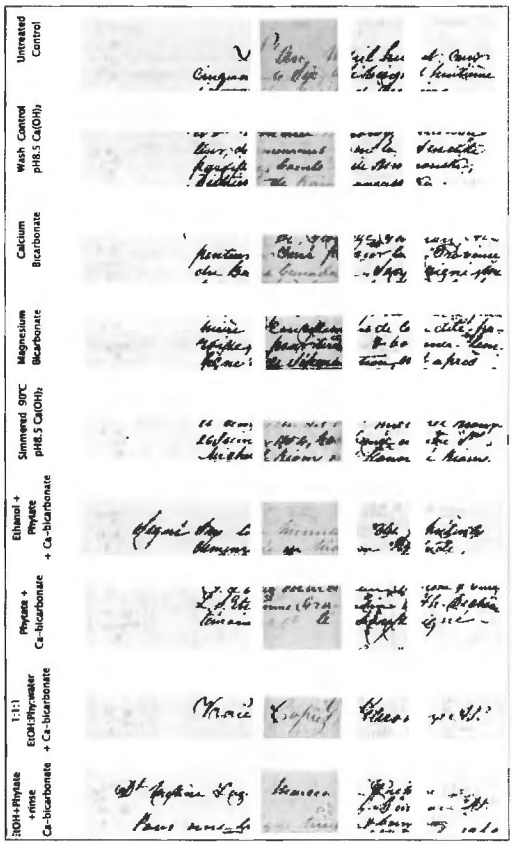
The effectiveness of aqueous treatments in preserving naturally aged iron gall ink documents was tested using nine original inked documents, dating from the mid to late 19th century (ca. 1841–1876), from a Canadian archive. Eighteen separate treatments were carried out, and selected treated samples were subjected to artificial aging. The results gave us new insights into how different treatments affect these relatively stable ink documents, and how the documents respond to heat, humidity, and light. These findings will be submitted to a scholarly publication and should be available in 2006.

Advanced Professional Development Workshop
A workshop was held February 21–23, 2005, at LAC's Gatineau Preservation Centre. For 3 days, 18 participants from across Canada and the United States enjoyed lectures and practical hands-on sessions, and received up-to-date information about iron gall ink history, chemistry, and research, as well as treatment options for iron gall ink documents and methods for risk assessment and collection survey. Following the workshop, participants could pass on this information to their institutions, colleagues, and students.

One significant outcome of the workshop and our research is that LAC and other conservation laboratories are now using calcium phytate as a routine treatment for iron gall ink documents.

Risk Assessment Model
Risk assessment is an effective means to identify and prioritize collections and/or individual items for appropriate attention before damage results in loss. Our collaborative project therefore includes the development of a survey form for archival collections based on a risk model for iron gall ink. When it is ready, it will be distributed to members of the archival community across the country. The data collected will provide valuable information about the type of iron gall ink documents in various archives, and their condition.

Publications
Some results of treatment and research have already been reported:



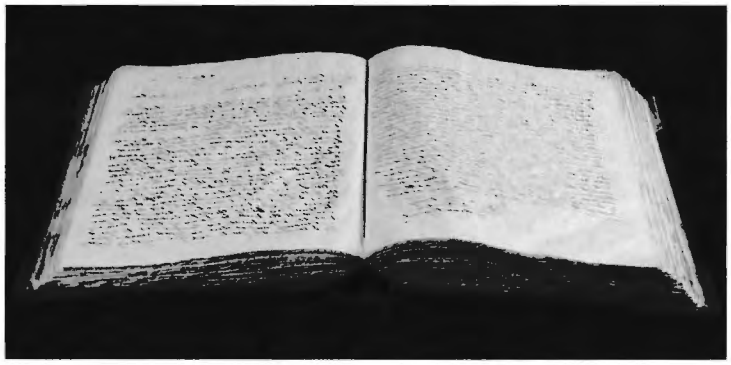
This 19th-century iron gall ink document was used to test the effectiveness of eight different aqueous treatments on artificial aging induced by exposure to heat, high humidity, or high-intensity fluorescent light.

- Trojan-Bedynski, M., F. Kalbfleisch, S. Tse, and P.J. Sirois. "The Use of Simmering Water in the Treatment of a Nineteenth Century Sketchbook of Iron Gall Ink Drawings by James G. Mackay." *Journal of the Canadian Association for Conservation* 28 (2003), pp. 3–15.

- Tse, S., H. Hendry, P. Bégin, P.J. Sirois, and M. Trojan-Bedynski. "The Effect of Simmering on the Chemical and Mechanical Properties of Paper." *Restaurator* 26 (2005), pp. 14–35.

In addition to these publications, a series of articles will soon be prepared to inform archivists, librarians, and collectors of the nature of iron gall inks and the risks associated with them, as well as to provide some methods to identify iron gall inks and some strategies to treat and preserve documents created with this medium.

When complete, this project will help to ensure that an important part of Canada's archival heritage remains available to future generations of Canadians.



Ink corrosion resulted in losses on a number of pages of this letterpress copybook, which belongs to Library and Archives Canada.

1. Partners and key contributors to this project currently include: Season Tse and Sherry Guild (both from CCI); Maria Trojan-Bedynski (from LAC); Harold Holland (from the Council of Archives of New Brunswick); Dr. Robert Waller (from the Canadian Museum of Nature); and Valeria Orlandini Dedecek (from the McKay Lodge Fine Arts Conservation Laboratory in Oberlin, Ohio). The participation of provincial archival associations or other interested parties would be welcomed. For more information, please contact the author by telephone (613-998-3721 ext. 187) or by e-mail (season_tse@pch.gc.ca).

From the Desk of the Director General...

by Jeanne Inch, Director General and Chief Operating Officer, CCI

Everyone at CCI had hoped that by late 2005 the construction of our building would be behind us. We had expected to be open for business, performing research in safe facilities, and accepting and treating artifacts in environmentally controlled laboratories. Our scientists and conservators were looking forward to being back in their labs, developing and refining treatment techniques, and analysing and studying the structures and materials of heritage objects.

Instead, we face another few months without the ventilation system that is critical to the safety of staff and artifacts in the labs. For many (including myself at times), it has been difficult to stay optimistic while our professional staff remain unable to do the work for which they are trained and to which they bring such passion.

But there has been a silver lining, albeit difficult to see through the dust and the noise and the workers in hard hats and work boots. For me, it is seeing the determination of staff to continue to deliver services to clients — the museum and archives community across Canada, as well as federal government departments, municipalities, and educational institutions.

There has also been the strengthening of partnerships with heritage institutions in the National Capital Region. Thanks to the generosity of Parks Canada, the National Gallery of Canada, and Library and Archives Canada (the Preservation Centre), several of our conservators and scientists have had access to laboratory facilities and equipment.

And our conservators and scientists have not been idle while their labs were under construction. In addition to the actual treatments

Jane Down (left) and Irene Karsten pack up their equipment and supplies before the start of renovation work in their laboratory.

and research that have been conducted, they have been busy working on a manual on preventive conservation management that CCI will publish in 2007. They have been reviewing all 108 CCI Notes, updating those that need it, identifying gaps in certain subject areas (i.e. archaeology and furniture), and putting plans in place to fill the gaps. And they have been continuing to prepare and deliver workshops and professional development courses.

Much of the construction noise has now abated. The laboratories and office spaces are, for the most part, complete. The lab benches are back in place, and conservators and scientists have begun to reassemble lab equipment and organize supplies so they will be ready to receive artifacts when the ventilation system is finally finished.

We expect to return to full operation in fall 2006, and are preparing for that day. A review of our services and selection criteria is underway to ensure our services complement and support our research and knowledge dissemination mandate. We are analysing our fee structure and developing a more transparent fee policy so that clients will better understand the rationale behind our revenue generation requirement. And we are developing an e-Services function for our Web site to make it easier for clients to request our services.

Over the past year, I have seen CCI staff show patience — and fortitude — in extremely difficult circumstances. Their determination to continue their research and to deliver services to clients is remarkable. They are to be congratulated.

I would also like to thank you, our clients and partners, for your patience over the past couple of years as our main facility has been renovated to create a safe and healthy workplace.

Preventive Conservation: Reducing Risks to Collections

by Stefan Michalski, Senior Conservation Scientist, Conservation Research, CCI

The second collaborative course *Preventive Conservation: Reducing Risks to Collections* was presented by the International Centre for the Study of the Preservation and Restoration of Cultural Property (ICCROM) and the Canadian Conservation Institute (CCI) in Rome in June 2005.[1] The planning and teaching team was led by Catherine Antomarchi (ICCROM) and Stefan Michalski (CCI), and included Paul Marcon (CCI), Robert Waller (Canadian Museum of Nature), Agnes Brokerhof (Netherlands Institute for Cultural Heritage), and Isabelle Verger (ICCROM). The focus of this second course was entirely on risk assessment and risk management of collections, which is having a major impact on conservation (see the discussion by Jeanne Inch, Director General and Chief Operating Officer of CCI, on p. 6). Images and accounts of the course can be found on the ICCROM Web site (www.iccrom.org), and an invited paper on the content and design of the course is included in the Fall 2005 issue of *Collections: A Journal for Museum and Archives Professionals*.

One hundred and twenty-two individuals from 53 countries applied to attend the course. Of these, 22 candidates representing 20 countries were offered places, and 19 accepted — including Canadians John O'Neill (Assistant Professor, Master of Art Conservation program, Queen's University, Kingston) and France Gagnon (Collections Manager, Naval Museum of Quebec, Quebec City). A third Canadian, Gayle McIntyre (Coordinator of the Collections Conservation Management and the Museum Management and Curatorship programs at Sir Sandford Fleming College, Peterborough), who had attended the first course in 2003 in Ottawa, was asked to participate as a course moderator and to coordinate course evaluation. These three have graciously agreed to summarize their experience for presentation here.

John O'Neill

All of the course participants were professionals involved in some way with conservation of cultural heritage collections: curators, museum administrators, educators, and conservators. I attended in the capacity of educator.

Insurance companies, other businesses, and governments have been using the idea of risk management for many years, but its application to the preservation of collections of cultural heritage is quite recent. The course therefore provided a general introduction to the risk management approach, as well as covering all the concepts and principles as they might be applied to collections of cultural or historical significance.

Until now, preventive conservation for collections has been codified in a series of rules or standards that were applied to all collections in a "one size fits all" manner. But risk management enables a systematic examination of the threats to a collection and allows for a customized action plan for each collection.

In essence, risk management is a tool that allows a collection curator or conservator to identify the risks that a collection or a museum is facing, and to quantify those risks in a systematic manner. Armed with this information, it is then possible to accurately prioritize the risks and ensure that scarce resources are spent on the most pressing and urgent problems.

This is a new approach in the field of preventive conservation, and an important development. It is essential that today's students of conservation be aware of risk management, and understand how it is carried out. It is a tool that they will definitely need in their future careers.

France Gagnon

I have been, for a long time, passionate about my work in museums. However, coming from education and collections management, I am relatively new to the field of conservation. It was therefore very gratifying to be chosen from among 123 applicants from around the world to attend this course. Even though I found myself intimidated by the experience and knowledge of the other participants when I met them on the first day, I soon realized I could learn a lot simply by talking with these conservators, teachers, scientists, and archivists.

Figure 1. (From the left) Allison Callender, France Gagnon, Elsje Janssen, Clarissa Avendano, and Abu Edet engage in an exercise to place damaged artifacts on a "loss in value" scale.

Every day in my work, I am faced with dilemmas. I do not always know where to begin the preventive conservation of the 25 collections across Canada for which I am responsible, and the best practices I learned in school are often out of reach. However, after this course I will be able to identify the degree of danger from each agent of deterioration in a particular situation, justify decisions, and prioritize interventions.

Although at first the task of identifying, assessing, and quantifying each agent of deterioration seems overwhelming, the way it was taught will allow me, with (a lot of) practice, to make more confident decisions. With the risk assessment approach only starting

ICCROM-CCI Summer School 2005
The 19 course participants and their institutional affiliations

- Clarissa Avendano — University of Santo Tomas, Philippines
- Tharron Bloomfield — National Library of New Zealand, New Zealand
- Allison Callender — Barbados Museum and Historical Society, Barbados
- Neela Dullabh — Local History Museums, Durban, South Africa
- Abu Edet — National Museum of Unity, Nigeria
- Nevra Ertürk — Yildiz Technical University, Turkey
- Farideh Fekrsanati — National Museum of Ethnology, The Netherlands
- France Gagnon — Naval Museum of Quebec, Canada
- Karin Hermerén — Museum of Helsingborg and Universities of Goteborg and Lund, Sweden
- Elsje Janssen — Municipal Museums of Antwerp, Belgium
- Nicola Ladkin — Museum of Texas Tech University, United States
- Cristina Menegazzi — International Council of Museums, France
- Veerle Meul — Ministry of Education, Culture and Sciences, The Netherlands
- John O'Neill — Queen's University, Canada
- Fernanda Prestileo — Regional Centre for Planning and Restoration of Cultural Heritage, Sicily, Italy
- Martha Tapia — National Institute of Anthropology and History, Mexico
- Alicia Tonello Rostro — National Archives, Uruguay
- Regina Ulozaite — National Museum of Lithuania, Lithuania
- Jedert Vodopivec-Tomazic — University of Ljubljana, Slovenia

to spread, it is exciting to be part of its development. After completing this course, I feel encouraged to pursue more knowledge in the field.

As for my Italian adventure, in spite of the heat and the busy course schedule, as a historian I feel I made contact with the deep roots of our way of life, democracy, city life, and culture. And that, I will never forget.

Gayle McIntyre
Simply stated, the course was a success! It demonstrated a strong, healthy, multilayered partnership between some of the world's leading conservation and heritage organizations.

The design, development, methodology, and delivery were brave and ambitious. The carefully crafted curriculum gently moved the participants toward a subtle paradigm shift. Risk management asks penetrating questions about the current and future condition of collections, and explores all aspects of an organization's efforts. It combines preventive conservation practices with advanced common sense, which then provides powerful and logical arguments for practical and systematic preservation strategies.

The program was delivered through a clever combination of teaching techniques: illustrated lectures; panel discussions; seminars; workshops; interactive exercises and role playing; large group work; small group work; self-directed learning and individual study; reflection and discussion; brainstorming sessions; site visits; and case study work. Learning activities were real rather than simulated. Participants had the opportunity to provide constant feedback through a multidimensional evaluation process, a tactic that contributed greatly to the overall success of the course.

The material presented concentrated on principles rather than a particular method or a recipe. It illustrated the different ways that organizations are implementing risk management concepts — an area that is developing and evolving in the cultural sector. The authentic application of the course theory will be realized when the participants implement what they have learned in their own context. As a result, the conservation and heritage profession will develop and refine a community of collective knowledge on risk assessment of cultural property.

1. The first course *Preventive Conservation: From Current Issues to Common Strategies* was held in Ottawa in June 2003. For more information, see *CCI Newsletter* 32 (November 2003), pp. 1–4.

Why is Risk Assessment / Risk Management Important to Conservation?

by Jeanne Inch, Director General and Chief Operating Officer, CCI

As the world becomes more and more complex, businesses and governments are increasingly turning to risk assessment and risk management (RM) as a decision-making tool, especially for managing risks to health and the environment. For industry, RM is needed to balance the absolute requirement for innovation with the need for a profitable bottom line, all the while considering the impact of innovations on the general public. For governments, RM is being used more and more to ensure that public funds are dispensed properly and to the benefit of taxpayers.

Why RM? Because the improved decision-making that results from identifying and addressing risks produces improved outcomes, thereby strengthening accountability and the public service capacity to safeguard people, property, and interests.

The museum community is also turning to RM as a means of preserving the heritage collections they hold in trust for their communities and their countries. Risk assessment of collections can provide results that help institutions set priorities and strategically invest in projects and infrastructure to protect their collections.

CCI has been working in this emerging area for several years. A 3-week summer school *Preventive Conservation: Reducing Risks to Collections* was presently jointly with ICCROM in the summer of 2005. In partnership with the Canadian Museum of Nature, work is progressing on a comprehensive risk assessment approach, with a foundation of conservation science, for museum collections. Also in development with partners is a risk assessment tool for heritage institutions that will be sophisticated enough to provide useful and reliable information for informed decision-making about collection management, yet simple enough that most heritage institutions, regardless of the size of their collections, can use it, understand it, and interpret the data.

To help Canadian institutions become more familiar with the RM approach to collections conservation, CCI will host *Preventive Conservation: Reducing Risks to Collections* in Canada in October 2006. For additional information see the course announcement on the facing page.

Canadian Conservation Institute

Institut canadien de conservation

ICCROM

PREVENTIVE CONSERVATION: REDUCING RISKS TO COLLECTIONS

This 2-week international course will focus on the discussion and application of risk management principles to the management of cultural property. Risk management can be understood as not only the management of rare catastrophes, but also the management of slow continual hazards and everything in between.

TARGET AUDIENCE: Collections managers; curators; registrars; conservators; directors of small to medium size museums, galleries, and archives; educators who teach collection management and preventive conservation

DATES: October 16–27, 2006

PLACE: Ottawa, Ontario, Canada

ORGANIZERS: Canadian Conservation Institute (CCI) and International Centre for the Study of the Preservation and Restoration of Cultural Property (ICCROM) in collaboration with Netherlands Institute for Cultural Heritage (ICN) and Canadian Museum of Nature (CMN)

LANGUAGE: English (course notes will be available in English and French)

FEE: CAN$1050 (approximately US$900) plus travel, accommodation, and living expenses

COURSE FORMAT: Workshops, case studies, seminars, discussions, presentations, independent project work, consultation with CCI's expert conservators and scientists

For more information about course details and application procedures, please visit the CCI Web site (www.cci-icc.gc.ca) or contact CCI's Learning and Development Officer Julie Murtagh by telephone (613-998-3721 ext. 114) or e-mail (julie_murtagh@pch.gc.ca).

APPLICATION:

Please complete the ICCROM "Course application form" at www.iccrom.org/eng/training/forms.htm and submit it to CCI at the address below (note: please use this address for all correspondence relative to the course):

Julie Murtagh, Learning and Development Officer
Canadian Conservation Institute
1030 Innes Road
Ottawa ON K1A 0M5
CANADA
Tel.: +1 613 998 3721 ext. 114 – Fax: +1 613 998 4721
E-mail: julie_murtagh@pch.gc.ca

All applications must be received by February 28, 2006

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The Ferryland Cross Revisited

by Judith A. Logan, Senior Conservator, Archaeology, CCI; Robert L. Barclay, Senior Conservator, Objects, CCI; Charlotte Newton, Senior Conservator, Archaeology, CCI; and Lyndsie Selwyn, Senior Conservation Scientist, Metals, CCI

Conservation treatment in its broadest sense often encompasses much more than intervention in the laboratory. It may also involve a high level of documentation of the artifact, production of copies in case it cannot be saved, and long-term attention to its well-being. This multi-level approach is evident in the treatment of an artifact known as the "Ferryland Cross."

It was in the fall of 1985, during a short season of excavation at the site of the 17th-century Colony of Avalon, located in Ferryland, Newfoundland, that the unusual iron object was found in the remains of a forge. It was shaped like a cross, but the details were completely obscured by a thick layer of corrosion that had incorporated the gravel and sand of the soil matrix. The director of the excavation, Dr. James A. Tuck of Memorial University of Newfoundland, kept the object wet and brought it to the Canadian Conservation Institute for evaluation.

The Colony of Avalon was founded at Ferryland in 1621 by Captain Edward Wynne on behalf of George Calvert, the first Lord Baltimore. Avalon was one of several English colonies established in Newfoundland by entrepreneurs hoping to glean profits from a thriving seasonal fishery. Calvert, a Catholic convert who purchased a portion of the Avalon Peninsula, had intended his colony to be not only a source of personal profit, but also a place where both Protestants and Catholics could practice their religious beliefs. As such, the colony was unique in the New World. Why the cross was in the remains of a forge may never be known.[4,5]

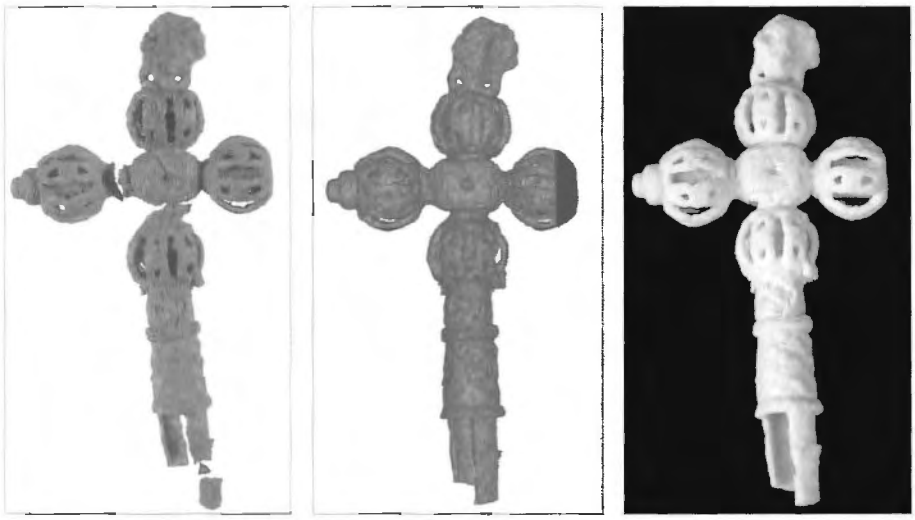


Figure 1. The Ferryland Cross in 2004 (left), the digitally reconstructed image (centre), and the plaster-based reproduction (right).

Preliminary examination revealed that it was indeed a cross, with a complex structure involving at least three different metals: iron; a yellow metal with a bright surface; and a yellow metal with a dull surface. These were analysed by energy dispersive X-ray spectrometry, which confirmed the presence of iron and identified the bright yellow metal on the surface as gold and the dull yellow metal as brass. X-radiography indicated the extent of corrosion.[1]

Treatment of such a complex object is typically extremely difficult and often never completely successful, which proved to be the case for this cross. Not only did it contain three metals, which could interact with each other, but it also contained chloride contamination from the saline soil in which it had been found, which would cause it to react with moisture and oxygen. Chloride ion extraction was attempted but was unsuccessful.[2] Indeed, following its excavation in 1985, the cross underwent repeated examinations and a consolidation treatment in an attempt to stabilize its condition. Monitoring changes in the areas of active corrosion proved to be particularly problematic. Photography and radiography were used to document change, but it was difficult to collect accurate, mathematical measurements in the awkward, three-dimensional (3D) angles and curves.

Despite the best efforts of conservation science and practice, the cross continued to deteriorate. In 2003, when new cracks and breaks were observed, it was decided that the only way to prevent complete loss would be to isolate the cross from water and oxygen. Prior to enclosing it in a dry, anoxic environment, it would be copied as accurately as possible so that its existing state and condition could be captured. An accurate reproduction could also be used to fashion a custom-made support for the original pieces that would hold them together without adhesives. Avoiding the use of adhesives on the breaks was important not only because the breaks were very fragile and could be easily damaged, but because they had exposed details of construction that would be of interest to future

researchers. Keeping the breaks as pristine as possible, both to monitor change and facilitate examination by scholars, was one of the goals of this phase of the conservation treatment.[3]

Copying the cross

The first step in making a copy of the cross was to create a high-resolution 3D colour digital record using laser scanning technology. This 3D imaging technology was developed by the National Research Council of Canada and licensed to Arius3D of Mississauga, Ontario, for commercial application. The scanning system consists of a laser with a motion control system to move it. The cross was scanned at the 3D Imaging Centre of the Canadian Museum of Nature in Gatineau, Quebec, using the Arius3D system. Each of the four pieces of the cross was scanned separately, and the scans combined digitally to produce a master version. The 3D scan captured the cross in great detail and stands as a permanent electronic record.

Three high-definition plaster-based reproductions (also called 3D prints) of the cross were subsequently made using 3D printing technology. This technology was developed at the Massachusetts Institute of Technology and licensed to several companies. The reproductions of the cross were made by the Computing and Network Services of the University of Alberta in Edmonton using a Z400 3D printer from Z Corporation. Working from the digital information on the cross, the 3D printer gradually built each model of the cross, one layer at a time, working from the bottom up. First, a thin layer of a plaster/resin powder was spread over the printing area, and then a water-based binder mixture was sprayed on, in the manner of an inkjet printer. Wherever the spray touched the plaster/resin mixture it hardened, creating a solid cross section of the cross. The printing area was then lowered 0.1 mm (0.004 in.) and a new layer of fresh powder was sprayed. This process was repeated until the 3D model was complete. The resulting plaster models of the cross were then strengthened by dripping a low-viscosity, clear epoxy resin onto them. One model was painted with acrylic colour to match the original. The replicas will remain as permanent records of the present condition of the cross.

Protecting the cross from water and oxygen

A form-fitting base of silicone rubber was made for the cross using one of the consolidated models as a mould. A surround and support for the rubber base was then built of Plexiglas and the visible parts of the support covered with grey sueded polyethylene with a self-adhesive acrylic backing. Finally a Plexiglas inner lid was made to fit over the support. The pieces of the cross were then mounted on the silicone rubber support. When this was complete, Escal vapour barrier film was stretched under the base and over the Plexiglas lid. Sachets of RP-A oxygen and water vapour absorber were then inserted and the bag sealed. As oxygen was absorbed the bag pulled inwards, losing 20% of its volume and providing verification that the seal was intact. A loose fitting outer cover of opaque grey Plexiglas, with a window slightly smaller than the inner lid, was placed over the bag assembly, thus concealing everything except the cross and mount. This type of enclosure not only produced the necessary dry anoxic environment, but could be created and maintained with a minimum of specialized tools and expertise — an important consideration in view of the facilities and resources at the display location in Ferryland.

Results

In addition to stabilizing the artifact, this recent phase of treatment of the Ferryland Cross has had several positive results:

- As anoxic cases are traditionally expensive and technically complex, the type of design developed during this project will be particularly beneficial for many smaller museums with limited budgets.
- Laser scanning technology coupled with a 3D printing technique was found to be very useful in the making of high-quality reproductions.
- Information from the scan and reproductions can be used to monitor future changes in the condition of the cross.

Suppliers

Escal and RP-A (made by Mitsubishi Gas Chemical Co.) are distributed by:
Keepsafe Systems
570 King Street West
Toronto ON M5V 1M3
Tel.: (416) 703-4696 or 1-800-683-4696
Web site: www.keepsafe.ca

1. Logan, J.A. "The Cross from Ferryland." *CCI Newsletter* No. 1 (December 1987), p. 11.

2. Removal of chloride ions from archaeological iron that is unevenly corroded and contains additional material other than iron is extremely difficult to accomplish without damaging the object. In the case of the cross, chloride ion extraction was attempted using a washing method that would not alter the corrosion products holding the cross together, nor affect the brass and gold. Unfortunately, as is typical with benign methods, this procedure was not effective at removing the chloride embedded deeply in the corroded matrix.

3. Logan, J.A., R.L. Barclay, P. Bloskie, C. Newton, and L. Selwyn. "Saving the Ferryland Cross." In *The Conservation of Archaeological Materials: Current Trends and Directions* (conference proceedings, November 13–17, 2005, Colonial Williamsburg, Virginia). Forthcoming.

4. Tuck, J.A., and D.T. Robbins. "A Glimpse at the Colony of Avalon." pp. 237–249 in *Archaeology in Newfoundland and Labrador 1985* (edited by C. Thomson and J. Sproull Thomson). St. John's, NL: Newfoundland Museum, 1986.

5. More information can be found on the Web site for Colony of Avalon, Ferryland, Newfoundland (www.heritage.nf.ca/avalon).

Restoration of the Daverne Journal Sheds New Light on its Author

by Clark and Bridget Theobald[1]

Editor's Note: The true value of conservation lies not only in the preservation of an artifact, but also in the increased understanding of history that can result from the artifact. This is well illustrated by the events that followed CCI's recent conservation treatment of the Perth Military Entry Book (a.k.a. the Daverne Journal), which was profiled in *CCI Newsletter* No. 35 (June 2005), p. 11.

Roberta Partridge (left) from CCI, Teresa Phillips, and Fred Ladly look over the newly restored Daverne Journal at a meeting of the Perth Historical Society in April 2005. Photo courtesy of Bridget Theobald.

The restoration of the Perth Military Entry Book (1815–1818) by CCI and its return to the Perth Museum in Perth, Ontario, in late 2004 prompted a serious and continuing re-evaluation of the settlement's controversial first secretary/storekeeper/postmaster/acting superintendent, Daniel Joseph Daverne.

The Entry Book consists mostly of official letters by Daverne to assorted correspondents — his superiors, managers and employees of the various departments that reported to him, and clients. The impressions we (the authors) were left with after completing the transcription of this Entry Book in early 2005 led us to question the nearly two centuries old characterization of Daverne as a scoundrel who was corrupt, sinister, universally despised, and unceremoniously "run-out-of-town"!

Based on this Entry Book, Daverne appeared unmercifully caught between two conflicting forces. On the one hand, he had to stay within his strictly defined middleman role, imposed by his distant, unbending, status-seeking political masters in York and Quebec. On the other hand, he faced the harsh realities of daily balancing the discordant demands of unruly discharged soldiers and discontented assisted Scottish immigrants (most of whom were quite unprepared and unsuited for survival in a Canadian wilderness), a snobbish local elite of half-pay officers (no doubt contemptuous of a lowly Irish Catholic public servant), and incompetent, indifferent, or lazy hired help (surveyors, teamsters, and settlement employees).

Daverne Farm, Adolphustown, Ontario, site of the original 1815 farm bought by Daniel Daverne. The farm is currently home to Gerry Daverne (a descendent of Daniel's brother Richard Daverne Jr.) and his wife Jutta. Photo courtesy of Bridget Theobald.

Daverne's letters consistently and passionately reveal an understanding of and sympathy for the plight of many of those first Perth settlers who, through no fault of their own, barely avoided mass starvation in 1817 and 1818. Daverne petitioned frequently for a relaxation of the rules, which were imposed from above, and for extra support and programs to assist those deemed "disadvantaged."

A little more than a year after this Entry Book was filled, Daverne was forced out of Perth and Canada. His career ended ignominiously following an internal investigation of his office finances, which supposedly revealed a large unauthorized deficit in settlement accounts. Long-time critics rejoiced in his disgrace; later accounts of alleged nefarious criminal and immoral activities by Daverne across the border further blackened his reputation. Accusations of corruption and extortion against Daverne were propagated and repeated for generations in official circles. From a scholarly perspective,

New findings about Daniel Joseph Daverne were enthusiastically received by members of the Perth Historical Society at a meeting in April 2005. Photo courtesy of Bridget Theobald.

these views went unchallenged for nearly 200 years[2] until the public release of this 1815–1818 Entry Book in 2005.

To resolve the contradictions raised by CCI's restoration efforts, we conducted independent research into primary documents at Library and Archives Canada, Queen's University Archives, the Archives of Ontario, and the Lennox and Addington County Museum and Archives. Our recent findings strongly suggest that, although Daniel Daverne was at times resentful of the often irreconcilable pressures of his office and frustrated by the lack of appreciation for his efforts, he was a victim of a conspiracy by certain of his superiors to remove an obviously controversial employee. Motives for such plotting, according to Daverne and other contemporaries, were based on racial discrimination, a petty desire for personal revenge, and a hasty cover-up of a much larger scheme of systematic abuse of Crown land distribution.

Daniel's actual life following his "escape" from Perth in 1819 bore little resemblance to the stories circulated by his detractors. Through an investigation of private papers held by his descendents today, it was apparent that Daniel and his brother Richard devoted much of the rest of their lives to fruitless campaigns to recover Daniel's extensive lands in and around Perth which had been confiscated as a result of the Duke of Richmond's (Commander of the Forces) orders in 1819. The brothers produced evidence that Daniel's accounts with the British Treasury had been resolved, and submitted numerous character references from highly placed individuals connected with the Perth Military Settlement. Over the decades, they were able to secure the support of such national luminaries as Robert Baldwin, Richard Cartwright, and John A. Macdonald. However, despite these numerous petitions, legal and political representations, the British authorities were unmoved.

These findings were enthusiastically received at the April meeting of the Perth Historical Society where two representatives from CCI, Roberta Partridge and Ed Kulka, outlined their restoration methods in relation to the 1815 Entry Book. Other speakers included Susan Code, author and historian; and Gerry Daverne, a direct descendent of the Daverne brothers who had been brought up with stories of the injustice perpetrated against Daniel Daverne in 1819.

This Daverne research was also shared at a July meeting of the Lanark County Genealogical Society in Perth, and at the time this article was completed (August 2005), it was scheduled to be presented at a second Perth Historical Society gathering in October at which Daniel was to be given the public trial that he never received in his lifetime, and at a November meeting of the Lennox and Addington Historical Society in Napanee, Ontario. Publication of the complete Daniel Daverne findings is anticipated in 2006.

All these developments arose from the restoration efforts of CCI, which followed a request for assistance from the Perth Museum. Everyone associated with the Perth Museum and the Perth Historical Society is grateful for CCI's impressive contribution.

1. Clark Theobald, Honours B.A. (History), is a retired teacher and Member of the Perth Museum Board. His daughter Bridget is a Research Assistant.

2. See Susan Code's *A Matter of Honour* (Burnstown, ON: General Store Publishing House, 1996) and Larry Turner's *Perth: Tradition and Style in Eastern Ontario* (Toronto, ON: Natural Heritage/Natural History Incorporated, 1992).

Preservation Wins the Case in the Supreme Court of Canada Building

by James Hay, Senior Conservator, Furniture, CCI

After years of successful lobbying by the architectural heritage community, maintaining the heritage character of historical buildings undergoing renovation is now an accepted responsibility. In a showpiece of built heritage like the Supreme Court of Canada building in Ottawa, renovations must be carried out with the least possible damage to the visible fabric of the building. To do otherwise would be nothing short of criminal. It was therefore not surprising that CCI's furniture/decorative arts conservators were asked for advice and support during the recent upgrades to the mechanical system of the Supreme Court building.

The Supreme Court of Canada building.

When the building was designed by famed Canadian architect Ernest Cormier in the 1930s, it was intended to be thoroughly modern — to incorporate the latest services — so that it would serve as a showpiece of the best design, the best materials, and the best methods of construction in Canada. The building shell was completed in 1939, but instead of becoming home to the Supreme Court of Canada, the edifice was put at the disposal of the military for the duration of World War II. It was only after the war that the interiors were completed and the Supreme Court at last moved in. Over the years the structure has seen many small and large changes. However, for better or worse, the building plant continues to function today with all the heating, ventilation, air-conditioning, electrical, and plumbing systems originally installed in 1939. But the workings of the Supreme Court of Canada are not the same today as they were then, and the original systems are no longer adequate.

One of the most obvious changes is the increased caseload that the Supreme Court faces today in response to the growing Canadian population. Handling this increase has required a tripling in the number of support staff, which has been accommodated by converting storage spaces into office spaces and housing four staff members in offices originally intended for one. Other important drivers of change have been the revolution in communication technologies, which seem to require new wiring every 5 years, as well as the requirements of operating in two official languages with the subsequent need for space for simultaneous translation booths. Modern improvements in health standards have also played a role as they necessitated a search for improvements in the air quality. And all the while the basic plant has been wearing down.

Plans are now being made to update the building: to replace the original support systems, such as the electrical and plumbing systems; to incorporate modern information technology systems; and to improve the air quality throughout to meet modern code standards. As Public Works and Government Services Canada (PWGSC) staff have carried out preliminary investigations of the building plant, as it now exists, they have discovered a confusing array of retrofitted water pipes and wiring inside passages originally designed to move only air. These incongruities contribute to the disrupted, inefficient, and inadequate air-handling capacities of the building. In fact, present airflow patterns are not even in accord with the standards current in 1939!

CCI was consulted on this project through our counterparts in the Heritage Conservation Program of PWGSC. Our task was to determine the condition of the building materials behind the 7.3-m-high (24-ft.) walnut-panelled walls in the Main Courtroom. We would have 14 days in the winter of 2005 to carry out this investigation and, of course, we could not cause any visible damage to the panelling.

The general supposition was that we would have to remove the panelling to see the condition of the building materials behind it. To do so, we would first have to determine if the panelling was installed in a way that allowed it to be removed without damage.

The investigation

We began by removing the TV monitors that hung on the walls in spaces that had originally held brass and glass Art Deco light fixtures. Looking through the wiring holes

behind the monitors we were able to see a wall of terra-cotta bricks behind the panelling. The air ducts that interested us were behind that terra-cotta wall. Using a borescope borrowed through contacts in the construction industry, we pushed a fibre-optic cable through the holes. Viewing through the borescope, we were able to determine that there was an airspace of about 3–4 cm between the panelling and the terra-cotta brick wall behind it. We could also see that the metal fasteners holding the panelling to the wall were imbedded in quantities of mortar bedded to the terra-cotta wall. In short, there was a strong and permanent installation holding the panelling. The only way to remove it would be to tear it out of its fasteners, and doing so would wreak such havoc that it might require many weeks to put right again. With only 10 more days to complete our investigation, we knew for certain that removing the panelling was not a viable option. But was there another way to gain the necessary information?

The resolution

We investigated the interior of the duct openings in the walls beneath the panelling, and discovered that the metal grillwork could all be removed — creating a space that was large enough for an individual to place his/her entire head in the duct. Doing so, it was possible to see all the electrical conduit and water lines installed in those spaces since the building was constructed. This discovery allowed the various architectural consultants to gain access to the building's fabric in the Main Courtroom, without damaging, in any way, the original panelling installed to Cormier's designs. When the consultants finished their investigation, we reassembled the metal grills, reinstalled the TV monitors on the walls, and ensured there was no trace of our investigation. And everything was right again for court sessions to resume on schedule. Case dismissed!

By carrying out this investigation with a preservation mindset, we managed to save thousands of dollars and avoid any damage or destruction to original heritage material — and we managed to do it all without disrupting the work of the Supreme Court of Canada.

Stefan Michalski Receives 2005 Harley J. McKee Award

by Natalie Bull, Executive Director, Heritage Canada Foundation

On behalf of the Association for Preservation Technology International (APT),[1] I am pleased to announce that the recipient of the 2005 Harley J. McKee Award[2] is Stefan Michalski. The award, the highest honour bestowed by APT, recognizes outstanding contributions to the field of preservation technology over time. In my role as outgoing president of APT, it was my honour to present the award to Stefan at our annual conference in Halifax, Nova Scotia, in September 2005.

Stefan, who joined CCI in 1979, has spent his career researching preventive conservation — particularly the areas of light, temperature, and relative humidity. Over the years he has developed and provided advice on these topics, particularly risk assessment, climate control, and building issues, to the Canadian museum, gallery, and archive community. A prolific writer, trainer, and speaker, he has also published, taught, and lectured in various capacities in Canada and around the world on subjects including environmental control, museums in historic buildings, lighting in museums, and systematic preventive conservation.

For building preservationists, Stefan's greatest contribution is the changed thinking he has brought to the issue of maintaining historic objects in the buildings in which they belong. He has utilized this approach to the benefit of such notable places as Robie House in Chicago, the Library of Parliament and the Portrait Gallery in Ottawa, the Osler Library in Montreal, and the Anne Frank House in Amsterdam.

Congratulations, Stefan.

1. APT is a cross-disciplinary organization dedicated to promoting the best technology for conserving historic structures and their settings.

2. The award is named for Harley J. McKee, Fellow of the American Institute of Architects (1905–1976), a preservationist, architect, author, and professor whose 30-year teaching career benefited several generations of students at five universities, including a 20-year tenure at Syracuse University. McKee was a participant in the second annual meeting of APT, held at Upper Canada Village in 1968.

Consultation Helps to Direct CCI Research and Training Activities

by Charles Costain, Director, Conservation and Scientific Services, CCI

Ensuring that CCI's activities continue to meet the needs and priorities of the Canadian heritage community requires regular consultation with conservation professionals across the country. Among the many initiatives carried out for this purpose[1] was a survey that CCI conducted at the 2005 annual conference of the Canadian Association for Conservation (CAC)[2] to solicit ideas for future CCI research projects and training programs. This was the fourth time that delegates at CAC meetings have been asked for their suggestions on CCI research,[3] but the first time that training topics have also been requested.

Table 1. Research ideas
The top five responses to the question "What is the most important conservation problem that CCI should be addressing through research?" as ranked by delegates at the 2005 annual conference of the CAC in Jasper, Alberta

Rank	Research idea
1	Plastics: treatment and identification, conservation methods, deteriorating storage materials
2	Fine art materials and techniques used by artists in Canada: collaboration between living artists/conservators/art historians to find solutions to conservation challenges resulting in an accessible database
3	Advocacy: people don't know what conservators are
4	Availability of conservation-quality supplies in Canada
5	The long-term storage of records outside of archival facilities (e.g. office storage, records centre storage)

Table 2. Training ideas
The top five responses to the question "What areas of professional development are of most importance to you?" as ranked by delegates at the 2005 annual conference of the CAC in Jasper, Alberta

Rank	Training idea
1	Mid-career hands-on training (3–5 days in length) on new ideas and techniques in conservation
2	Digital photography for conservation documentation
3	Conservation of acrylic paintings
4	Update on lighting: new technologies, energy efficiencies
5	Re-instatement of CCI internships for graduates of conservation programs in Canadian institutions

Methodology
CAC members were advised prior to the conference that CCI would be requesting their opinions about future research and training activities. This gave delegates some time to reflect on these questions, and also allowed members who were not attending the event to submit their proposals. Ideas were collected over the first two days of the conference, and ranked by delegates on the final day. After amalgamating similar ideas, we were left with 32 proposals for research projects and 44 for training.

Results
All of the suggestions we received were very interesting. Some of them were expected, some were a surprise, and a few were difficult to interpret.

The top-ranked idea for research concerned the **identification and treatment of plastics** in heritage collections. We know that identification of plastics is currently a challenge. With no simple and reliable low-tech methods available, it generally requires equipment and expertise for a technique such as infrared spectroscopy — which is often beyond the means of small institutions. To help with this issue, CCI provides free analytical services to Canadian heritage institutions and also conducts analyses on-site for a modest fee. With regard to treatment, we have previously looked at stabilization and storage of plastics, but have not focused on treatment. To address this need, we will review the fragmentary but growing body of knowledge in this area, and consult with conservators who have developed expertise in the handling and treatment of these objects. After synthesizing existing information and identifying areas that merit additional study, we will carry out the required work as resources become available.

The top-ranked training proposal was for **more mid-career opportunities for conservators**. We agree that there is a need for advanced training for conservators in Canada, and are exploring the possibility of establishing an ongoing program of mid-career development workshops. In the interim, we are working on plans to host a workshop "New Methods of Cleaning Paper Surfaces" in the summer of 2006.

Tables 1 and 2 list the top five ideas for research and training, respectively, as expressed and ranked by the delegates. A more complete listing of the suggestions that emerged from the meeting, along with brief responses from CCI, is available on the CCI Web site (www.cci-icc.gc.ca).

I would like to thank all the CAC members and delegates who participated in this survey, and especially Margot Brunn and the organizers of the 2005 CAC conference for fitting it into their busy schedule. Each and every suggestion we received is welcome and has merit. It is unfortunate that our limited resources make it impossible for us to respond immediately to all of them.

1. Other consultations with the heritage community include annual meetings with the Preservation Committee of the Canadian Council of Archives; discussions with colleagues and presentations at conferences of the Canadian Museums Association and the International Council of Museums - Committee for Conservation; and regular contact with clients across the country.

2. The 31st annual conference of the CAC was held in Jasper, Alberta, from May 16 to 21, 2005.

3. Previous surveys were held at CAC conferences in Winnipeg (May 1999), Ottawa (May 2000), and Kingston (May 2002).

Upcoming Workshops

CCI's educational initiatives are an essential means of communication. They allow us to share the results of our current research and conservation practices with you, the heritage community, while simultaneously learning about your emerging needs and concerns. We are pleased to provide the following workshops in collaboration with various Canadian heritage associations and organizations across Canada during 2005–2006. More dates and locations may be posted on our Web site at www.cci-icc.gc.ca [under Learning Opportunities] as they are confirmed

Winter 2006

Construction of Mannequins for Historic Costumes
Host(s): Yukon Museum Unit
Location: Yukon Beringia Interpretive Centre or Yukon Archives, Whitehorse, YK
Date: March 1–2, 2006
Contact: Valery Monahan
Tel.: (867) 667-3431
E-mail: valery.monahan@gov.yk.ca
Leader(s): Jan Vuori

Modern Information Carriers
Host(s): British Columbia Archives
Location: Victoria, BC
Date: March 2–3, 2006
Contact: Cheryl Linstead
Tel.: (250) 387-2959
E-mail: Cheryl.Linstead@gems7.gov.bc.ca
Leader(s): Joe Iraci and Tom Strang

Heritage Facility Planning
Host(s): Association of Manitoba Museums
Location: Dalnavert Museum, Winnipeg, MB
Date: March 2–3, 2006
Contact: Monique Brandt
Tel.: (204) 947-1782
E-mail: director@museumsmanitoba.com
Leader(s): Siegfried Rempel and Brian Laurie Beaumont

Spring 2006

Modern Information Carriers
Host(s): Council of Nova Scotia Archives
Location: Public Archives of Nova Scotia, Halifax, NS
Date: March 23–24, 2006
Contact: Rosemary Barbour
Tel.: (902) 424-6070
E-mail: barbourv@gov.ns.ca
Leader(s): Tom Strang and Joe Iraci

Preservation Housekeeping in Historic House Museums
Host(s): New Brunswick Museum
Location: Saint John, NB
Date: March 23–24, 2006
Contact: Wendy Martindale
Tel.: (506) 643-2338
E-mail: wmrdale@nb.aibn.com
Leader(s): Deborah Stewart and Janet Mason

Industrial Objects and Public Art
Host(s): British Columbia Museums Association
Location: Two Rivers Gallery, Prince George, BC
Date: March 25–26, 2006
Contact: Jim Harding
Tel.: (250) 356-5694
E-mail: JHarding@museumsassn.bc.ca
Leader(s): George Prytulak

Safety Concerns in Conservation — It's Not Only the Artifact at Risk!

by Nancy Binnie, Conservation Scientist, CCI; and Maureen MacDonald, Cultural Objects Technician, CCI

The importance of safety for conservation workers cannot be overemphasized. Today there are an increasing number of occupational safety and health (OSH) regulations with which conservators and conservation institutions must comply to meet safety standards and ensure a safe work environment. This article highlights some of the training and other activities that have been carried out at CCI to meet these regulations. Although OSH directives vary from one region to another, conservators working in other institutions or job sites will probably need to meet similar requirements.

Safety training requirements in Canada are carefully defined,[1] and employers must not only provide training to keep workers informed of changing standards and practices, but also maintain records to demonstrate that training has been provided and safety practices implemented. Ensuring that workers are provided with the training and programs needed to do their work safely is one of the key functions of a workplace OSH program. Over the past few years, CCI's OSH program has ensured that staff have received training to update their knowledge of first aid, laboratory safety, and on-site work practices.

Science laboratory or conservation workshop safety training follows standard practices and includes Workplace Materials Safety Information System (WHMIS), hazardous chemicals safety, safe handling of compressed gases, and workplace inspections. If needed, staff are also trained in the use of particulate or cartridge respirators, and powered air purifying respirator units. Use of a respirator requires annual fit testing to ensure the assigned equipment is suitable and that it fits correctly.

When carrying out site work, staff and contractors must also have any additional training required by provincial or federal safety regulations, e.g. training in fall arrest protection, scaffolding safety, and the operation of elevating work platforms (crane and scissor lifts). These specialized courses are informative and practical; participants are provided with basic information about the regulations, and have an opportunity to inspect and climb on pre-constructed scaffolding, or try hands-on operation of lifts. The use of hazardous materials on-site also requires special training and precautions. Although conservators generally try to avoid the use of chemicals during site projects, in some cases they will be essential. If hazardous materials such as solvents or paint strippers must be transported to a site, federal *Transport of Dangerous Goods* regulations may necessitate specialized training in this procedure for at least one team member. Transport vehicles must also be placarded with appropriate signage to identify hazards. Chemical spill kits and Materials Safety Data Sheets (MSDS) for all substances including proprietary (commercial) products must be brought to the site, and WHMIS labeling guidelines must be followed. Chemical waste generated on-site is subject to additional regulations, and can be removed only by a company licensed in waste disposal after a waste generator permit has been obtained. Arctic field work may even require training in firearm safety.

Adjusting the fit of a half-face respirator.

All conservation facilities in Canada are required to maintain records of OSH programs (such as annual respirator fit testing) and worker training. Contractors, interns, and volunteers are subject to the same regulations, policies, and legislation as employees, and must meet the same training requirements. Laboratories or workshops should be inspected monthly, and any mechanical systems such as fume hoods should have their extraction rates verified annually to ensure they meet code. Where scaffolding or lift platforms are used at sites that fall under construction regulations, a daily inspection must be carried out and appropriate action taken to deal with any deficiencies identified. These inspection records are to be retained on file. During on-site projects, it is also required that workers carry proof of their training in case a site inspection is carried out.

Even the best safety programs must still be adapted to the requirements of the job, and updated as regulations change. Although strict adherence to these standards may seem cumbersome, the prevention of even one accident will make all the effort worthwhile. Safety of conservation workers is always the prime concern.

1. The regulations and standards discussed in this article are specific to Canada, where safety training requirements are dictated by federal and provincial *Occupational Health and Safety Acts*. Conservation professionals in other countries should refer to their own national guidelines.

Preserving CCI Experience and Expertise through the Development of Competency Profiles

by Lise Perron-Croteau, Director, Business Planning and Administration, CCI; and David Grattan, Manager, Conservation Research, CCI

Like many heritage organizations established in the 1970s, CCI is facing an important demographic challenge over the next 5–10 years. With a workforce that has remained relatively stable over the last 30 years, CCI is becoming increasingly concerned that the experience, expertise, and knowledge developed during this time is at risk of being lost through imminent retirements. Indeed, 73% of CCI's current workforce is more than 45 years old; 12% could retire immediately; and 33% will be eligible for retirement within the next 5 years. It is imperative that the collective wisdom of these individuals be passed on to others.

As part of the Human Resources Strategy to address this issue, CCI has recently developed competency profiles for all positions. These are now a key component of CCI recruitment and staffing, learning and career development, performance management, and succession planning practices.

But what are competencies?

Competencies are a way of characterizing the knowledge, skill, ability, and behaviour that an employee applies in performing his/her work. As such, they can often be the key factors that allow an organization to carry out its mandate and business strategies. Competencies can be applied to numerous aspects of performance, and are increasingly used by many different organizations to define the most productive behaviours.

Competencies can be roughly divided into two types: functional competencies, which define the specific skills and knowledge that people need to do their jobs; and behavioural competencies, which describe *how* people do their jobs, i.e. how they think, feel, and act on the job. Behavioural competencies complement functional competencies in that they describe how people with the appropriate skills and knowledge should behave with respect to their jobs, their clients, and their colleagues. Because behaviour in the workplace is so critical in a values-based organization such as CCI, our behavioural competencies were designed specifically to integrate the Institute's values of excellence, expertise, honesty, integrity, respect, responsibility, and accountability.

It is often said — half jokingly — that employees are hired because of their ability and knowledge but fired because of their behaviour. Bad or ineffectual behaviour in the workplace is often difficult to address, and consequently it is important to recruit staff that have an understanding and commitment to the values of the organization. Because they describe how people behave on the job, behavioural competencies can be designed to capture an organization's values. However, not every aspect of behaviour can be addressed by the competencies. In practice, most organizations restrict usage to no more than 8–10 that are key to organizational success. By limiting the number of competencies, it is also easier to use them consistently in human resources management practices.

CCI has developed behavioural competency profiles for three job families (management, conservation professionals, and corporate and client services staff) as well as functional competencies for conservation professionals. In all cases the profiles were developed by teams that consisted of a representative group of staff led by a consultant who specialized in the process.[1] The competency profiles developed by these teams were then validated through staff focus groups before being finalized.

The development phase of the competency profiles spanned several years, and their actual use at CCI is still quite recent. Initial experience in their application when hiring new staff has shown their value in discriminating clearly between candidates in terms of behavioural traits. Generally speaking, they have also been welcomed by current staff because of the extra clarity they bring to discussions about performance. Members of staff now have a better idea of what is expected, and what competencies or skills they need to develop in order to reach more senior or management positions.

CCI is optimistic that the competency profiles developed in this project will help to ensure that the Institute continues to be an effective conservation organization.

For more information or copies of CCI's competency profiles, please contact CCI Client Services.

1. CCI benefited considerably from the experience of others — most notably the National Research Council of Canada, which made the details of their competencies available to us — during the development process. We owe them our gratitude.

The development of competencies for conservation professionals at CCI

Functional competencies

Functional competencies define the specific skills and knowledge that people need to do their jobs. For conservation professionals at CCI, these were defined as shown in the adjacent table:

Conservation Scientists	Conservators
• Technical leadership • Science knowledge • Research skills • Training skills • Writing ability	• Technical leadership • Technical knowledge • Training skills • Project management • Writing ability

Each of these individual competencies was then further defined, and indicators provided for entry, working, and senior levels. The table below illustrates the detailed definition of the "Technical knowledge" competency for conservators:

Technical knowledge: *Applying technical knowledge to the solution of conservation issues and transferring knowledge to the conservation community.*
Entry level • Understands the principles and techniques in a field of conservation • Develops knowledge of relevant disciplines in the heritage field • Understands the concepts and methods required to operate and maintain lab equipment • Demonstrates high level manual skills • Demonstrates observational skills • Seeks assistance with complex problems
Working level • Applies knowledge to design and conduct independent conservation projects • Uses knowledge from relevant disciplines to advance conservation projects and provide advice • Develops conservation knowledge, techniques, methodologies, and tools • Presents results through consultation, reports, and presentations to conferences and workshops • Develops broad or in-depth personal knowledge in a field of specialization
Senior level • Demonstrates broad and in-depth knowledge in a field of specialization • Uses knowledge to solve broad conservation problems • Reviews the work of other professionals

Behavioural competencies

Behavioural competencies describe how people do their jobs, and are often defined to capture an organization's values. At CCI, the following behavioural competencies were identified as being essential for every employee:

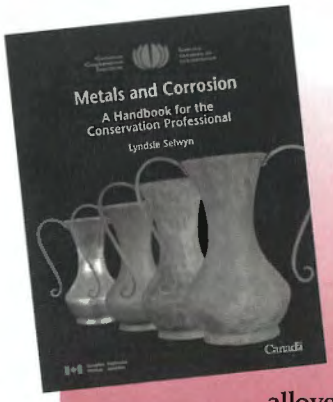
- Client focus
- Communication
- Initiative
- Results orientation
- Teamwork

Competencies that were considered specific to conservation professionals included:

- Critical and conceptual thinking
- Heritage community awareness
- Innovation
- Networking

As with the functional competencies, each of these was further defined and indicators provided for entry, working, and senior levels. The table below illustrates the detailed definition of the "Heritage community awareness" competency for conservation professionals:

Heritage community awareness: *Understanding and influencing the heritage community, its functions and roles, its basic issues and questions, and its place in the socio-cultural, economic, and political environment.*
Entry level (*Develops an understanding of a relevant portion of the heritage community*) • Develops an understanding and can provide a general description of a relevant portion of the heritage community • Develops an understanding of the relationships between the various organizations in a relevant portion of the heritage community • Develops an understanding of the nature and scope of conservation issues in a relevant portion of the heritage community
Working level (*Operates effectively within a relevant portion of the heritage community*) • Builds personal awareness by establishing and maintaining contacts with key stakeholders, influencers, etc., in a relevant portion of the heritage community • Uses knowledge of that portion of the heritage community to match services to needs based on feasibility, relevance, and value • Operates effectively in different organizational cultures and circumstances • Mentors other staff in understanding a portion of the heritage community, its organizations, structures, culture, and issues
Senior level (*Influences the role of CCI in the preservation of Canadian heritage*) • Uses contacts to develop and maintain an understanding of trends and other relevant issues that influence heritage preservation in Canada • Helps other staff to understand the impact of trends and other relevant issues on their work • Uses knowledge of trends and other relevant issues to influence the development and direction of CCI programs and projects
Exceptional level (*Provides leadership in preserving heritage*) • Uses professional influence to increase the understanding and commitment of senior decision-makers outside CCI to the need to conserve heritage • Organizes coalitions of stakeholders and experts to identify the best approach to dealing with strategic, heritage preservation issues



Metals and Corrosion: A Handbook for the Conservation Professional

by Lyndsie Selwyn

This book discusses the chemical and physical characteristics and the corrosion products of nine common metals: aluminum, copper, gold, iron, lead, nickel, silver, tin, and zinc. It answers questions about these metals and their corrosion problems indoors, outdoors, and in archaeological settings, and is intended as a reference for conservators and conservation scientists: a place to refresh their memory, get started reading the literature, or look up alloys, plating combinations, and particular corrosion problems encountered with metals in museums. It will be an ideal tool for all heritage professionals who survey, care for, or treat metals, or who come across metals during the course of their work.

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CCI Services: Lectures, Workshops, and Site Visits

In cooperation with provincial museum and art gallery associations, CCI responds to specific needs within the heritage community by offering workshops, lectures, and site visits related to the conservation and care of museum and art gallery collections. CCI staff also participate in and present lectures to meetings of professional groups and associations.

For the period May 1, 2005 to November 30, 2005, CCI staff were involved in the following activities:

Conferences/Meetings

American Association of Museums Annual Meeting, Indianapolis, IN, May 1–5, 2005
Mary-Lou Simac and Sherry Guild staffed the CCI booth.

Manitoba Library Association Conference, Winnipeg, MB, May 2–4, 2005
Joe Iraci presented "CDs, DVDs, and Magnetic Tapes: Can I Trust Them?"

Architectural Paint Research in Building Conservation, *a conference at the National Museum of Denmark, Copenhagen, Denmark, May 8–11, 2005*
James Bourdeau and Nancy Binnie co-presented "Changed Forever? — Documentation of Architectural Paint Finishes at the Canadian Conservation Institute."

Canadian Archaeological Association 38th Annual Conference, Nanaimo, BC, May 12–15, 2005
Tara Grant attended the conference and participated in the pre-conference workshop *Basketry Technology*.

American Institute for Conservation of Historic and Artistic Works (AIC) pre-course training session for instructors of the workshop Adhesives for Conservation, *Gerald Ford Conservation Center, Omaha, NB, May 16–20, 2005.*
Jane Down attended.

Canadian Association for Conservation of Cultural Property 31st Annual Conference, Jasper, AB, May 19–21, 2005
Prior to the conference, Janet Mason attended a Board Development workshop presented by the Government of Alberta (May 15–16). At the pre-conference workshop *Fur Trade Legacy. The State of Preservation of Organic Material* (May 17–18), Carole Dignard presented "A Review of Nd: YAG Laser Cleaning of Feathers" and Fiona Graham (private conservator) presented "A Review of Feather Cleaning Techniques" (co-authored with Janet Mason). At the conference, Bob Arnold presented "Logistical Considerations in the Handling during Conservation of an Oversize Painting on Wood Panel — *Circumcision* circa 1545, from the Collection of the Musée de l'Oratoire Saint-Joseph, Montreal"; Siegfried Rempel presented "Move of Collections" (co-authored with Wendy Baker); Jane Sirois presented "A Technical Study of David Milne's Oil Painting Materials and Techniques" (co-authored with Elizabeth Moffatt, Kate Helwig, Cathy Stewart from the McMichael Canadian Art Collection in Kleinberg, and Kris Legate from the Centre of Forensic Sciences in Toronto); and Lyndsie Selwyn presented "Overview of Archaeological Iron: The Corrosion Problem, Key Factors Affecting Treatment, and Gaps in Current Knowledge."

This Will Stick Forever: Attaching & Releasing, *a symposium presented by the International Association of Book and Paper Conservators and the Technical Association of Paper and Printing Industry, Budapest, Hungary, May 25–27, 2005*
Jane Down presented "Report on the CCI Tapes and Heat-set Tissues Project" (co-authored with Scott Williams, Season Tse, and Sherry Guild).

European Materials Research Society 2005 Spring Meeting, Strasbourg, France, May 31 – June 3, 2005
Marie-Claude Corbeil was a co-organizer of the symposium *Materials Science and Cultural Heritage.*

Canadian Museums Association 58th Annual Conference, Saskatoon, SK, June 8–11, 2005
Shanna Ramsay and Lucie Paquette staffed the CCI booth.

American Institute for Conservation of Historic and Artistic Works (AIC) 33rd Annual Meeting, Minneapolis, MN, June 8–13, 2005
Jane Down presented "Degradation of Cyanoacrylate Adhesives in the Presence and Absence of Fossil Material" (co-authored with Elzbieta Kaminska) and "Report on the CCI Tapes and Heat-set Tissues Project" (co-authored with Scott Williams, Season Tse, and Sherry Guild); Jan Vuori presented "A Preliminary Study of a Micro Extraction Method for Measuring the pH of Textiles" (co-authored with Season Tse) and attended a business meeting of the AIC Textile Specialty Group; Scott Williams presented "What is a Good Plastic Product?" and "IR Spectroscopic Analysis of Adhesive Tapes and Heat-set Tissues"; and Lyndsie Selwyn and Christine Bradley staffed the CCI booth.

Association of Canadian Archivists Annual Conference, Saskatoon, SK, June 10, 2005
Shanna Ramsay staffed the CCI booth.

Archives and You!, *a conference presented by the Canadian Council of Archives, Ottawa, ON, June 27–28, 2005*
Joe Iraci presented "Preserving CDs, DVDs, Audiotapes, and Videotapes."

Association for Preservation Technology International (APT) meeting of the Ottawa chapter, Ottawa, ON, July 6, 2005
As part of the APT tour of recent architectural conservation treatments in the Supreme Court of Canada building, James Hay and Alastair Fox made a presentation about the treatment direction and details of CCI's work on the building's interior over the last few years.

The Future of the 20th Century: Collecting, Interpreting and Conserving Modern Materials, *the second annual conference of the Arts & Humanities Research Council Research Centre for Textile Conservation and Textile Studies, University of Southampton, Winchester, UK, July 26–28, 2005*
Janet Wagner attended.

Teamwork for Integrated Emergency Management, *an international workshop co-presented by the International Council of Museums (ICOM), the Getty Conservation Institute, and the International Centre for the Study of the Preservation and Restoration of Cultural Property within the broad framework of ICOM's Museums Emergency Programme, Bangkok, Thailand, August 15–26, 2005*
David Tremain participated.

The Preservation of Religious Textiles, *a symposium presented by Textielcommissie Nederland (The Dutch Textile Committee), The Hague, The Netherlands, September 10, 2005*
Jan Vuori attended.

International Council of Museums - Committee for Conservation (ICOM-CC) 14th Triennial Meeting, The Hague, The Netherlands, September 12–16, 2005
Jan Vuori presented "A Preliminary Study of the Use of Bathophenanthroline Iron Test Strips on Textiles" (co-authored with Season Tse), chaired a session of the ICOM-CC Textile Working Group, attended a meeting to plan the next interim meeting of the ICOM-CC Textile Working Group, and travelled to Mechelen, Belgium to visit the De Witt tapestry conservation facility; Lise Perron-Croteau presented "The Development of Competencies at the Canadian Conservation Institute"; Marie-Claude Corbeil was elected to the Directory Board of ICOM-CC as Vice-Chair for the 2005–2008 triennium; Carole Dignard was elected Chair of the Working Group on Ethnographic Collections; David Grattan, Stefan Michalski, and Jeanne Inch also attended; and everyone assisted in staffing the CCI booth.

Cultural Spaces Canada Semi-annual Meeting of the Advisory Body from the Regional Offices, Toronto, ON, September 29, 2005
Brian Laurie-Beaumont attended to discuss the developmental planning needs of the heritage community.

Studies of the Sculptural Arts of Asia using Scientific Methods, *the third Forbes symposium, Freer Gallery of Art, Washington, DC, September 29 – October 1, 2005*
Elizabeth Moffatt presented "Examination and Analysis of the Chinese Polychrome Sculptures in the Collection of the Royal Ontario Museum" (co-authored with Marianne Webb from the Royal Ontario Museum, Marie-Claude Corbeil, and Nicolas Duxin).

Ontario Museum Association Annual Conference, Niagara Falls, ON, October 14, 2005
Brian Laurie-Beaumont was a panellist in the session "Our Museum Collections and Collecting Policies: Straitjacket or Untapped Opportunity to Tell Relevant Community Stories?"

Conservation of Archaeological Materials: Current Trends and Future Directions, *a conference presented by the Archaeological Discussion Group of AIC and the Department of Conservation at the Colonial Williamsburg Foundation, Williamsburg, VA, November 13–17, 2005*
Judy Logan presented "Saving the Ferryland Cross: 3D Scanning, Replication, and Anoxic Storage."

Eastern Analytical Symposium and Exposition, Somerset, New Jersey, November 14–17, 2005
Lyndsie Selwyn and Paul Bloskie (of the Canadian Museum of Nature and Arius3D) co-presented "Laser Scanned 3D Documentation and Reconstruction for Art and Archaeology" (co-authored with Judy Logan).

CCI Symposium 2007

Preserving Aboriginal Heritage: Technical and Traditional Approaches
Ottawa, September 23–27, 2007

Planning for CCI's next symposium is underway. The Advisory Committee, comprising 10 Aboriginal professionals from different parts of Canada as well as a selection of CCI staff, held their first meeting at CCI on September 28 and 29, 2005.

Lectures

"Metals and Corrosion" was presented by Lyndsie Selwyn on November 7, 2005, at Sir Sandford Fleming College in Peterborough, ON, to students in the Collections Conservation and Management program.

Workshops

Heritage Facility Planning was presented by Brian Laurie-Beaumont on May 31, 2005 (Part 1) and Siegfried Rempel on October 20–21, 2005 (Part 2) for the Department of Canadian Heritage in Summerside, PE.

Transportation of Works of Art, a joint workshop with the Centre de conservation du Québec (CCQ), was co-presented by Paul Marcon (CCI), Patrick Albert (CCQ), and

Michele Lepage (CCQ) on May 26–27, 2005 for the Société des musées québécois in Montreal, QC.

Preservation Management for Seasonal Museums was presented by Deborah Stewart on August 25, 2005 for the Mecklenburgh District Heritage Cooperative at Fairfield Homestead in Amherstville, ON, and Fairfield Gutzeit House in Bath, ON; and on September 13–14, 2005 for the Yukon First Nations Heritage Group/Teslin Tlingit Council at the Teslin Tlingit Heritage Centre in Teslin, YT.

Industrial Objects and Public Art was co-presented by Debra Daly Hartin and George Prytulak on September 14–15, 2005 for the Prince of Wales Northern Heritage Centre in Yellowknife, NT.

Musical Instruments was presented by Bob Barclay on September 17–18, 2005 for the Museum Association of Newfoundland and Labrador at the Provincial Museum Conservation Laboratory in St. John's, NL.

Adhesives for Conservation, an AIC workshop, was co-presented by Jane Down and Julia Fenn (from the Royal Ontario Museum) on September 19–23, 2005 at the National Conservation Training Center in Shepherdstown, WV.

Aboriginal and Archaeological Collections Management was co-presented by Janet Mason and Judy Logan on September 22–23, 2005 for the Kitikmeot Heritage Society in Cambridge Bay, NU.

Care of Textiles was presented by Jan Vuori on September 28, 2005 for the Eastern Ontario Museums Group in Brockville, ON.

Mount-making was co-presented by Carole Dignard and Bob Barclay on November 3–4, 2005 for the Ontario Museum Association at the Elgin Military Museum in St. Thomas, ON.

Permanence of Artists' Materials: Paintings and Works of Art on Paper was co-presented by Sherry Guild and Debra Daly Hartin on November 12–13, 2005 for the Canadian Artists' Representation Ontario in Ottawa, ON.

Site visits for facilities development or upgrading

Site visits conducted by Siegfried Rempel, Brian Laurie-Beaumont, and/or Cliff Cook include the following:

British Columbia — Nanaimo District Museum, Nanaimo; Art Gallery of Greater Victoria and CFB Esquimalt Naval & Military Museum, Victoria; Alberni Valley Museum, Port Alberni; Whistler Museum & Archives, Whistler; Quesnel District Museum and Heritage Commission, Quesnel.

Alberta — Museum of the Regiments, Calgary; University of Alberta, The Art Gallery of Alberta, and Royal Alberta Museum, Edmonton; South Peace Centennial Museum, Beaverlodge.

Saskatchewan — Saskatchewan Indian Cultural Centre, Saskatoon.

Manitoba — Canadian Fossil Discovery Centre, Morden; Métis Interpretation Centre, Saint Laurent; Northern Plains Museum, Brandon; National Residential School Museum, Portage la Prairie; Boissevain & Morton Regional Library/Moncur Gallery, Boissevain; Plum Coulee Heritage and Recreation Development Corporation, Plum Coulee; Honekwe (House of Stories), Thompson; Manitoba Agricultural Museum, Austin; Métis Culture & Heritage Resource Centre Inc., Transportation Heritage and Technology Centre, Western Canada Aviation Museum, and Centro Caboto Centre, Winnipeg.

Ontario — Georgina Arts Centre & Gallery, Sutton; Cornwall Community Museum in the Wood House, Cornwall; The Ottawa Art Gallery, Ottawa (with Maureen MacDonald); Art Galley of Sudbury, Sudbury.

Quebec — Leonard & Bina Ellen Gallery at Concordia University, Montreal (with Helen McKay); Église Notre-Dame de la Présentation, Schawinigan (with James Bourdeau).

New Brunswick — Kings Landing Historical Settlement, Kings Landing.

Yukon — Campbell Region Interpretive Centre, Faro; White Pass and Yukon Route Roundhouse and Copperbelt Mining Railway Centre, Whitehorse.

Other site visits

Supreme Court of Canada, Ottawa, ON — On May 4 and 24, 2005, James Hay accompanied private furniture conservators as they examined various judges' offices and associated rooms within the court, and discussed the scope of treatment work envisaged for the walnut-panelled walls during the summer recess of 2005.

Redpath Hall, McGill University, Montreal, PQ — On May 5, 2005, Bob Barclay inspected the storage and display facilities for housing the Kenneth Gilbert Collection of historic keyboard instruments, and initiated a program of environmental monitoring.

Brockville Museum, Brockville, ON — On May 9, 2005, Edward Kulka, Roberta Partridge, and Sherry Guild examined a very large Barnum circus board and provided advice on lighting, mounting, and treatment options.

Invitation: the Quilt of Belonging Project Office, Williamstown, ON — On May 9, 2005, Renée Dancause, Tom Stone, and Janet Wagner examined this unique national textile and provided advice regarding its care.

National Gallery of Canada (NGC), Ottawa, ON — From May 31 to June 2 and from June 14 to 17, 2005, Jane Sirois and Lyndsie Selwyn, in collaboration with Doris Couture-Rigert of NGC, performed research into alloys, patinas, and corrosion products on indoor bronze sculptures.

West Memorial Building, Parliamentary Precinct, Ottawa, ON — On June 7, 2005, Bob Barclay and Nancy Binnie inspected lacquered brass plates on elevators and provided advice on care and preservation.

Monastère des Ursulines de Québec and Monastère des Augustines de l'Hôtel-Dieu de Québec, Québec, QC — On June 27 and 28, 2005, Marie-Claude Corbeil and Elizabeth Forest (from the Centre de conservation du Québec) examined and sampled paintings by or attributed to Jean-Antoine Aide-Créquy as part of a research project on the materials and techniques of this 18th-century artist.

Senate of Canada, Ottawa, ON / Gatineau, QC — On June 27, July 18, and July 29, 2005, David Tremain and Siegfried Rempel carried out a threat risk assessment of Senate archives stored in the Government Printing Bureau in Gatineau and in vaults on Parliament Hill for France Belisle, the Senate Archivist. Over the period July 26 – September 14, 2005, Wendy Baker and Robert Arnold examined eight portraits of British royalty in the Senate Foyer to determine their condition and conservation needs for Public Works and Government Services Canada, Parliamentary Precinct.

Centre de conservation du Québec, Québec, QC — On June 29, 2005, Marie-Claude Corbeil took samples for various analytical projects and discussed some active projects with colleagues.

Parliament Hill, Ottawa, ON — On July 1, 2005, Jan Vuori, Janet Wagner, and Charlie Costain met with David Monaghan, Curator, House of Commons, to examine the first maple leaf flag ever flown from the Peace Tower (15 February 1965). The flag was formerly in the possession of Mme Hoffman-Lamoureux, widow of Lucien Lamoureux, Deputy Speaker of the House of Commons at the time the flag was first flown. Mme Hoffman-Lamoureux was returning the flag to Canada and it was received by Prime Minister Paul Martin in a ceremony on Parliament Hill later that same day.

Royal British Columbia Museum, Victoria, BC — From July 5 to 7, 2005, Jane Sirois undertook a pesticide survey using a hand-held X-ray fluorescence spectrometer to determine the presence of inorganic pesticide residues in the education collection.

Red Bay National Historic Site, Labrador — From July 11 to 28, 2005, Nancy Binnie worked with underwater archaeologists from Parks Canada's Ontario Service Centre on the survey, excavation, and reburial of a 16th-century Basque whaling ship located in Red Bay harbour.

Kitigan Zibi Cultural and Education Centre, Maniwaki, Quebec — On July 19, 2005, Tom Stone and Maureen MacDonald provided advice on lighting, humidity, and general environmental issues in the building and display cases, and inspected a cross section of artifacts that will e ventually be put on display. They also provided suggestions for handling and display of the artifacts, and freezing of artifacts made of fur skins.

Canadian Museum of Nature, Ottawa, ON — On July 27 and September 14, 2005, Jane Sirois provided on-site X-ray fluorescence analysis of natural history specimens to determine whether or not inorganic pesticide residues such as arsenic, mercury, and lead, were present in the dioramas.

Prince of Wales Northern Heritage Centre (PWNHC), Yellowknife, NT — From August 3 to 31, 2005, Tara Grant worked with Rosalie Scott, the conservator at the PWNHC, to prepare a Web-based version of the *Conservation Manual for Northern Archaeologists*. She also assisted in treating artifacts from an archaeological site in the Mackenzie Delta.

Canadian Museum of Civilization, Gatineau, QC — From August 16 to 18, 2005, Wendy Baker and Robert Arnold examined three painted canvas altar fronts from the historic church l'Église Saint-Pierre de l'île d'Orléans to determine the condition of the paintings and suggest a suitable conservation treatment.

National Arts Centre (NAC), Ottawa, ON — On August 25, 2005, Jan Vuori met with NAC staff to discuss on-site cleaning tests of the decorative stage curtain (originally made by Micheline Beauchemin) in Southam Hall. On October 13 and 14, she and Janet Wagner conducted the cleaning tests.

Trent-Severn Waterway National Historic Site, ON — From August 29 to September 9, 2005, Nancy Binnie worked with underwater archaeologists from Parks Canada's Ontario Service Centre on a search for historic and prehistoric submerged cultural resource sites (fish weirs, shipwrecks, artifacts, etc.) at locations including Lovesick Lake and Sturgeon Lake.

Bank of Montreal building, Sparks Street, Ottawa, ON — On September 15, 2005, James Hay dismantled a small section of the woodwork

installed behind the stone tellers' counters to reveal how the stonework was assembled and determine if it could be dismantled with minimal damage and reassembled in a different location in the room.

Awards/Recognition

CCI is proud of the talent, commitment, and dedication of its staff, and is pleased to provide a program of awards to recognize their contributions to the Institute.

The **Technical Achievement Award** is presented for exceptional technical achievements that increase the effectiveness of CCI's organization or business practices in the delivery of conservation services, or advance knowledge in conservation science, conservation treatment, or preventive conservation. Recent winners include Joe Iraci (spring 2005) for his work on preservation of modern information carriers, and Jean Bisson (fall 2005) for ongoing contributions to CCI's information technology needs.

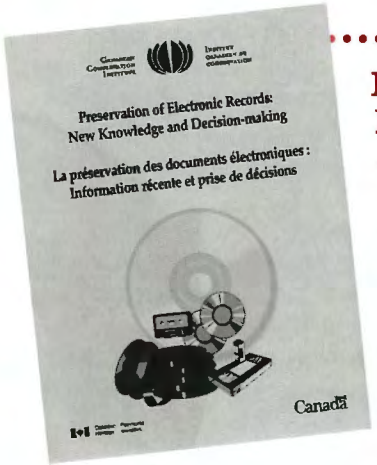
The **Team Work Award** is presented to honour a team that exemplifies the effectiveness of working together and makes a significant contribution to the achievement of CCI's mission, goals, and objectives. Season Tse and Sherry Guild received a Team Work Award in spring 2005 for their collaborative efforts on the preservation of documents containing iron gall ink, which included an international workshop *The History and Treatment of Works on Paper Containing Iron Gall Ink* that was delivered in partnership with Library and Archives Canada, the Council of Archives of New Brunswick, and the Canadian Museum of Nature. Season and Sherry were also honoured with a **Deputy Minister's Award** during Public Service week in June 2005 for their work on this project.

The **Bon Appétit Award** is presented in recognition of exceptional contributions to the achievement of CCI's mission, goals, and objectives. Recent recipients include Nicole Guenette-Allen (winter 2005) and Bob McRae (summer 2005).

In addition to CCI awards, a number of staff were honoured with Government of Canada **Long-Service Awards** in the spring of 2005 in recognition of their many years of commitment to public service:
15 years service — Sumi Grover, Jean Tétreault, Rick Bedard
20 years service — Maureen MacDonald, Helen McKay, Jane Sirois, Season Tse, Lyndsie Selwyn, Deborah Stewart, Lucie Paquette, Vicki Davis, Patricia Legault
25 years service — Leslie Carlyle, David Tremain, Debra Daly Hartin, Jane Down
30 years service — Robert Arnold, Tom Stone, Brian Laurie-Beaumont, Cliff McCawley, Lise Perron-Croteau

More information on CCI and its activities can be found on CCI's World Wide Web pages:

www.cci-icc.gc.ca



Preservation of Electronic Records: New Knowledge and Decision-making — Postprints

"Symposium 2003 - Preservation of Electronic Records: New Knowledge and Decision-making" was held in Ottawa, Canada, from September 15 to 18, 2003. Hosted by the Canadian Conservation Institute, Library and Archives Canada, and the Canadian Heritage Information Network, the symposium aimed to increase awareness of the issues surrounding the preservation of electronic records by bringing expert and leading-edge opinions to a large audience including small and medium-sized archives, libraries, and museums. The program was based on the chronological decisions that need to be made as electronic records come into a heritage institution, and covered broad subject areas such as value criteria, authenticity criteria, factors to be considered in developing a preservation strategy, preservation strategies for information content, and media knowledge (deterioration, storage, longevity, disaster recovery, etc.). This book of postprints contains the complete text of all papers presented at the symposium (in the language of presentation) along with abstracts in both English and French for each one. It will be useful for anyone with electronic records in their collections.

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