



An Inside Look at Parliament Hill: Interior Conservation Guidelines for the Centre Block

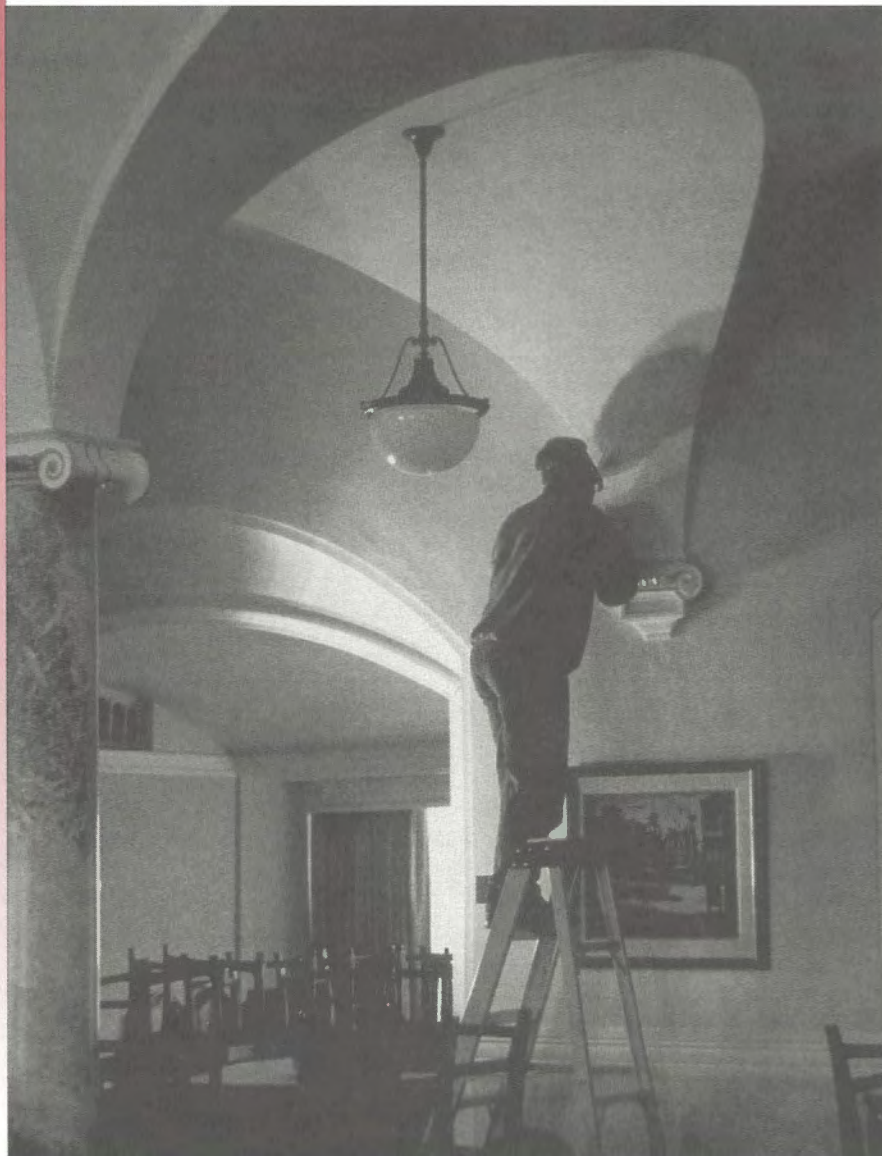
by Michael Harrington, Acting Manager, Treatment and Development Division

The knowledge and expertise developed by conservation professionals is not limited to the treatment of works of art and historic objects; it also extends to the built environment. In May 1997, the Heritage Conservation Program of Public Works and Government Services Canada (PWGSC) asked the experts at CCI for help in the preparation of one component of a multi-

year refurbishment and restoration program for Parliament Hill.

CCI's role was to assist in the development of conservation design guidelines for the interior of the Centre Block. A core team of four conservators and conservation scientists, assisted by recent Sir Sandford Fleming College graduate Bill O'Neill and Queen's

University intern Molly McNamara, undertook a room-by-room assessment of 70 historic rooms and all of the public spaces in the building. Materials, construction, and finishes were visually identified, environmental conditions were assessed, and conservation issues relating to the planned renovation and long-term conservation of the heritage fabric, features, and finishes were considered and documented; the team relied upon the resources of the Institute for specialized analysis, environmental assessments, and support.



CCI Conservator Paul Heinrichs opening windows through paint layers to reveal the original historic colour scheme in the Member's Dining Room of the Centre Block.

Contents

An Inside Look at Parliament Hill: Interior Conservation Guidelines for the Centre Block <i>by Michael Harrington</i>	1
Parliament Hill Bronzes: Analysis of Surface Material <i>by Lyndsie Selwyn</i>	3
Pigment Research at CCI: From Titanium Whites to Iron Oxides <i>by Kate Helwig</i>	5
Blades' <i>The Enemies of Books</i> <i>by David Tremain</i>	6
A Colourful Examination of John Lennon's Rolls-Royce <i>by Kate Helwig and Michael Harrington</i>	6
Wrapping It Up: The Cape <i>by Janet Mason</i>	7
Start Your Engines: A Search for Meaningful Conservation Advice on the Internet <i>by George Prytulak</i>	8
Getting It Together: Spotlight on CCI's Workshop on Adhesives <i>by Mary-Lou Simac and Jane Down</i>	9
Françoise Flieder: Senior Member of the Conservation Profession Retires... <i>by Cliff McCawley</i>	9
CCI Puts Forward a New Face <i>by Susanne Richter</i>	10
PROTEUS Takes Shape: CCI's New Project Tracking System <i>by Ian Wainwright</i>	11
Arctic Journeys <i>by Judy Logan and David Grattan</i>	12
SLOWPOKE-Toronto: Analysis for Archaeology <i>by Ian Wainwright</i>	12
Twenty-five Years Young: Celebration of the Past and Anticipation of the Future	13
Wrapping a Career with the "Fabric of an Exhibition"	14
Report on Textile Symposium 97 "Fabric of an Exhibition: An Interdisciplinary Approach" <i>by Diana Komejan</i>	14
"Ageing and Degradation of Textiles" <i>by David Howell</i>	16
Turning A Page: Helen Burgess Retires <i>by Cliff McCawley and Season Tse</i>	17
Internships	17
CCI Services: Seminars, Lectures, Workshops, and Visits	18
Upcoming Seminars and Workshops	21

The investigations were very detailed; the team crawled through small access spaces to document ceiling finishes, moved built-in cabinetry to recover fragments of original wall coverings, and in one instance found an unsafe electrical installation that if undetected could have put the entire building at risk; this was pointed out and has since been rectified. An interesting pattern of maintenance emerged: the work done from the years shortly after construction until the early 1960s was of consistently high quality, but during the 1960s, 1970s, and 1980s the quality of work declined drastically, as did the quality of the materials and the level of documentation. A comprehensive record of interventions is present from the era of manual record-keeping, but the record trail from the information age is fragmented and incomprehensible.

CCI's condition report and advice were transmitted electronically to the Heritage Conservation Program of PWGSC, for incorporation in their report. These newly created conservation guidelines will serve as a common point of reference for the heritage character values and significance of the Centre Block's heritage interiors, fittings, fixtures, and finishes. They include clear recommendations for conservation, and will be used by all parties involved in the management, design, and execution of the refurbishment and restoration program.

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

<http://www.pch.gc.ca/cc-icc>

CCI's involvement has already had a positive effect on building preservation initiatives on Parliament Hill. In a number of areas where maintenance workers or construction crews have traditionally been brought in to make changes, those responsible for the building are contracting conservators to attend to building maintenance and upgrading. The conservation community is becoming a valuable and trusted resource that offers cost-effective alternatives to the removal and replacement of building elements.

CCI intends to maintain a strong presence in projects such as these. It will influence other government levels and the custodians of heritage buildings to include conservation professionals in the planning, development, and maintenance of the properties in their trust. By increasing the awareness of the benefits of investing in conservation activities, CCI will be playing an important advocacy role that should benefit the conservation community and our heritage resources. •

Newsletter Committee

Kate Helwig
Linda Leclerc
Barbara Patterson
George Prytulak
Susanne Richter
Deborah Robichaud
Mary-Lou Simac
David Tremain

English Editor: Barbara Patterson
French Editor: Linda Leclerc
Design: Sophie Georgiev

The *CCI Newsletter* is published two times per year by the Canadian Conservation Institute. It is available free upon request. To change your subscription address, please send your former and current addresses to Client Services, Canadian Conservation Institute, 1030 Innes Road, Ottawa ON K1A 0M5 Canada (E-mail address: cci-icc_publications@pch.gc.ca)
WWW Site: <http://www.pch.gc.ca/cc-icc>

Back issues of the *CCI Newsletter* can be obtained by writing to the above address. Please specify the issues and number(s) required.

Printed in Canada

Parliament Hill Bronzes: Analysis of Surface Material (or what is that green stuff anyway?)

by Lyndsie Selwyn, Senior Conservation Scientist, Conservation Processes and Materials Research

Have you ever wondered why bronze statues turn green?

Before I came to CCI, someone told me that copper carbonates were responsible and I saw no reason to doubt it. After all, Ottawa is not an industrial town and is not close to an ocean, so the green compounds were unlikely to contain sulphur or chlorine. And, as I later learned, archaeological bronzes are typically covered with the copper carbonates malachite (green) and azurite (blue). But within days of starting work at CCI in 1987, I became involved in a project to study the material on outdoor bronze statues on Parliament Hill, and to my amazement I soon discovered that the green was indeed caused by those unlikely copper sulphates and chlorides.

Sixteen outdoor monuments containing more than 50 individual cast bronze statues surround the Parliament Buildings in Ottawa. Some of these monuments have been outside for more than 100 years. The oldest monument, that of Sir Georges-Étienne Cartier, was unveiled in 1885 and the most recent one as of 1987 was John Diefenbaker, unveiled in 1986. By 1987, many of these had disfiguring black areas and uneven streaking, and the older ones had turned green.

Public Works and Government Services Canada (PWGSC), a department of the federal government, is responsible for the care of these statues. In 1987, PWGSC decided to have these statues treated by a conservator to enhance their appearance and retard their deterioration. PWGSC collected a panel of experts from various fields and formed a Curatorial

Committee to advise on the development of a program for the conservation and maintenance of these bronzes. PWGSC asked CCI to help set up and participate on this Committee; members included staff from PWGSC, the National Gallery of Canada, the House of Commons, CCI, the Canadian War Museum, and veterans' groups. From 1988 to 1993, the statues were conserved by Craig Johnson Restorations of Ottawa.

As part of this conservation program, a project was initiated between PWGSC and CCI to collect and analyse representative surface samples from the statues before their conservation.

Samples were collected from the outer surface of the bronze statues and 168 were analysed by powder X-ray diffraction to determine the crystalline components. Twenty-four of these samples were further analysed using Fourier transform infrared spectroscopy to characterize any organic materials present.

We identified 94 crystalline compounds and 9 organic materials. Table 1 lists a few of these by name and chemical formula, together with the number of occurrences of a particular compound in the 168 surface samples. The table has been divided into 'surface corrosion' (corrosion products most likely produced when the bronze alloy reacted with the local environment) and 'surface contamination' (extraneous materials most likely produced from wind-blown debris, casting residues, or applied coatings).

Changes to the surface of bronze depend on the local environment—

temperature and humidity fluctuations, wind-blown material, and even bird droppings (Figure 1)—but the main corrosion products forming after prolonged outdoor exposure are copper compounds because bronze contains mostly copper with small amounts of tin, zinc, and lead. When copper first corrodes it becomes covered with a layer of copper (I) compounds and we detected cuprite, a common copper (I) compound, in many of the samples. After a while, this layer becomes covered with another layer containing copper (II) compounds. We detected many copper (II) compounds, mainly green copper sulphate hydroxides (brochantite and antlerite) and green copper chloride hydroxides (atacamite and paratacamite). These are the compounds that give weathered bronzes their green appearance. But why did these compounds contain the unexpected sulphur and chlorine, and not the expected carbonate?

It is high levels of sulphur and chlorine around the statues that encourage the formation of copper sulphates and chlorides rather than copper carbonates. In Ottawa, the sulphur comes from acid precipitation caused by pollutant gases (such as sulphur dioxide and nitrous oxides) that react with water to form sulphuric acid and nitric acid. The sulphur dioxide originates from industries in the Ohio River Valley in the United States and Sudbury in Canada, and from 1979 to 1994 the average annual pH in Ottawa was between 4.2 and 4.4. Although chloride-containing compounds are usually associated with marine environments, in Ottawa they originate from the salt used to melt road ice. More than half of the surface samples we tested contained some chloride. Only one sample, however, contained nantokite, the copper (I) chloride CuCl often associated with 'bronze

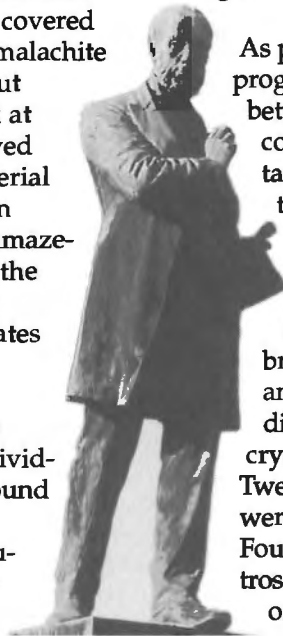


Figure 1. Statue of George Brown, beset with bird droppings.

Table 1.
The chemical and mineral names, chemical formulae, and occurrences of a few of the 94 crystalline compounds identified in the 168 surface samples analysed.

Chemical Name	Mineral Name	Formula	Occurrences
Surface corrosion			
Copper (I) oxide	cuprite	Cu ₂ O	76
Copper (I) chloride	nantokite	CuCl	1
Copper (II) sulphate hydroxide	brochantite	Cu ₄ (SO ₄)(OH) ₆	83
Copper (II) sulphate hydroxide	antlerite	Cu ₃ (SO ₄)(OH) ₄	16
Copper (II) chloride hydroxide	atacamite	Cu ₂ (OH) ₃ Cl	62
Copper (II) chloride hydroxide	paratacamite*	Cu ₂ (OH) ₃ Cl	20
Surface contamination			
Silicon oxide	quartz	SiO ₂	126
Calcium sulphate hydrate	gypsum	CaSO ₄ •2H ₂ O	33

* Probably clinoatacamite: see Further Reading.

disease'. Nantokite has been identified on archaeological bronzes, usually next to the metal surface, but it has rarely been identified on outdoor bronzes.

Many crystalline materials identified in the analysis are not associated with bronze corrosion, and were most likely surface contaminants. The most important of these was quartz, found in 75% of the surface samples. The quartz could be residual material from the casting process, but could also be from wind-blown sand, suggesting the statues are being slowly sand-blasted by their environment. Another find was gypsum, a calcium sulphate. Gypsum is often used during casting to fill the inner core of the mould. The foundry usually removes this core material, but it is impossible to remove it completely. Because gypsum is slightly soluble in water, some of it will dissolve in the moisture that inevitably condenses inside hollow statues. Wherever this water flows out of cracks, holes, or casting flaws in the bronze, it leaves a residue, and over time a deposit can build up. These deposits are usually not the expected white colour of gypsum, but instead are gray or green because they are contaminated with

impurities, usually copper (II) compounds.

We detected several organic materials. There were waxes (mainly beeswax and paraffin wax), a drying oil which in a few cases was identified as linseed oil, and a silicone oil called poly(dimethyl siloxane) which is often added to furniture waxes. These had probably been applied as protective coatings in the past. We also identified both a calcium and a copper oxalate, formed by reactions with oxalic acid which is secreted by microorganisms such as lichen and, in urban areas, is abundant in fog and rain. Finally, we identified uric acid and its hydrate, which are most likely from bird excrement.

Bronze corrosion requires contact with water, and if salts are dissolved in the water, corrosion is faster than if no salts are present. The materials identified in our surface samples possess a range of solubilities: some are soluble or slightly soluble in pure water; others are essentially insoluble in water but become more soluble as acidity increases. The presence of these water-soluble salts makes it important to carry out proper surface cleaning to remove them during the

initial stages of a conservation treatment. Furthermore, the application and maintenance of a protective coating on bronze is important because it limits contact between the bronze and water, thereby slowing corrosion.

The results from this study document an impressive range of compounds on the surface of outdoor bronzes. Although such results rarely alter the conservation treatment, they are important in confirming the need for a treatment that includes both surface cleaning and the application of a protective coating.

Acknowledgments

I would like to give credit to the people who played an important role in this project: the scientists hired on contract (David Downham, Marilyn Laver, Jacques Poitras) to collect and analyse the samples, Nancy Binnie of CCI who kept track of the data, and the staff (past and present) of CCI's Analytical Research Laboratory, whose help, analytical expertise, and advice were invaluable in interpreting and presenting the results for publication. Thanks also to the members of the Curatorial Committee and the staff of Craig Johnson Restorations for cooperation and advice.

Further Reading

Selwyn, Lyndsie, "The Bronzing of Parliament Hill." *CCI Newsletter* No. 9, April (1992), pp. 6-7.

Selwyn, L.S., N.E. Binnie, J. Poitras, M.E. Laver, and D.A. Downham, "Outdoor bronze statues: analysis of metal and surface samples." *Studies in Conservation*, Vol. 41, No. 4 (1996), pp. 205-228.

Jambor, J., J. Dutrizac, A. Roberts, J. Grice, and J. Szymanski, "Clinoatacamite, a new polymorph of Cu₂(OH)₃Cl, and its relationship to paratacamite and 'anarkite'." *The Canadian Mineralogist*, Vol. 34 (1996), pp. 61-72. •

Pigment Research at CCI: From Titanium Whites to Iron Oxides

by Kate Helwig, Senior Assistant Conservation Scientist, Analytical Research Laboratory

The third volume of *Artists' Pigments: A Handbook of their History and Characteristics*, which includes a chapter entitled "Titanium Dioxide Whites" by Marilyn Laver, was recently published by the National Gallery of Art in Washington. This beautifully illustrated book with contributors from all over the world is an encyclopaedic reference for artists' pigments. The first three volumes of the series have covered more than 40 pigments, both natural and synthetic, including those with a long history of use (e.g., Egyptian blue, red lead, and lead antimonate yellow) as well as more modern ones (e.g., cadmium yellows, oranges, and reds, and titanium whites).

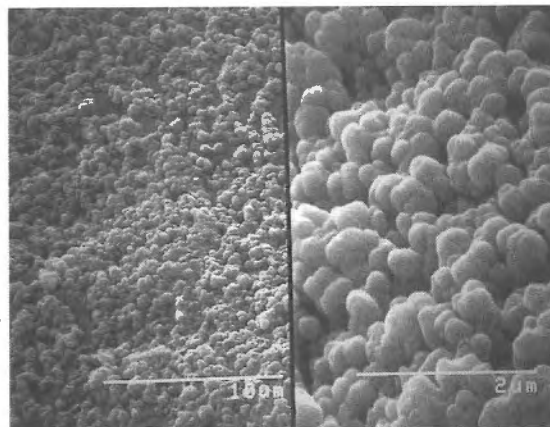
Marilyn Laver, currently of Lavinco Conservation Science Services in Willowdale, Ontario, carried out her research on the titanium white pigments for the *Artists' Pigments* series while she was a senior conservation scientist in the Analytical Research Laboratory of CCI. "Titanium Dioxide Whites" is CCI's second pigment research project published in this series; the first contribution, devoted to lead antimonate yellow (Naples yellow), was co-authored by Ian Wainwright, John Taylor, and Rosamund Harley. The detailed knowledge of the composition and occurrence of pigments gained from these projects is essential to the scientific examination of paintings and artifacts that CCI undertakes for Canadian museums and galleries.

The publication of "Titanium Dioxide Whites" marks the culmination of many years of research. The titanium white pigments, materials of great industrial importance, were developed in the first part of the 20th century and provided a non-toxic alternative to lead white in artists' paints. A careful study of the scientific and patent literature of the early

20th century has allowed a detailed history and a chronology of manufacturing methods to be developed. As well as outlining the history of use of the titanium whites, the chapter includes sections on pigment properties, composition, identification, and characterization. Occurrences of titanium white in works of art are also tabulated; it has been identified in paintings by Georgia O'Keefe, Pablo Picasso, Jackson Pollock, Barnett Newman, and Norval Morrisseau, among others. Anomalous occurrence of titanium white has also proven valuable in authentication studies.

Research for a contribution to the fourth volume in the *Artists' Pigments* series is well underway at CCI. This work is focussed on the iron oxide pigments, a group that encompasses both the natural earth pigments and their synthetic analogues. The natural earth pigments have long been used as colouring materials; they are, for example, prominent colorants in palaeolithic cave paintings in Europe, such as those at Lascaux and Altamira. In Canada, natural earths have been employed by many native cultures, both in rock art and as pigments on decorated wooden and hide artifacts. Various types of manufactured iron oxide pigments also have an important place in the artists' palette. Of these, the best known are the synthetic iron oxides, known as mars colours, developed in the later part of the 18th century.

As part of this research, a large reference set of iron oxides, including historic pigment samples as well as unprocessed materials from a variety of geological sources, has been collected and the scientific analysis of these materials is in progress.



Scanning electron micrograph of rutile titanium white from the New Jersey Zinc Company. Sample is from the Freer Gallery of Art, Smithsonian Institution, Washington.

Documentary sources that will shed light on the history of the iron oxide pigments are also being studied. The heterogeneous composition, variable properties, and complex chronology of the iron oxides will ensure that this work is as challenging and rewarding as the previous pigment research projects undertaken at CCI.

Volumes 1 to 3 of the *Artists' Pigments* series may be purchased from the Gallery Shop of the National Gallery of Art in Washington. They are also available for consultation or loan from the CCI library.

Further Reading

Helwig, Kate. "A Note on Burnt Yellow Earth Pigments: Documentary Sources and Scientific Analysis." *Studies in Conservation*, Vol. 42 (1997), pp. 181-188.

Laver, Marilyn E. "Titanium Dioxide Whites" in *Artists' Pigments: A Handbook of their History and Characteristics*, edited by Elizabeth West FitzHugh. Washington: National Gallery of Art, 1997, Vol. 3, pp. 295-339.

Wainwright, Ian N. M., John M. Taylor, and Rosamund D. Harley. "Lead Antimonate Yellow" in *Artists' Pigments: A Handbook of their History and Characteristics*, edited by Robert Feller. Washington: National Gallery of Art, 1986, Vol. 1, pp. 219-254. •

Editor's Note

Three new regular features have been added to the *Newsletter*. "The History of Conservation" looks at conservation treatments of the past, "The Science of Conservation" examines recent scientific analyses that have been conducted at CCI, and "On Display" highlights recent conservation treatments. Watch for them in future issues!

The History of Conservation

Blades' *The Enemies of Books**

by David Tremain, *Conservator, Preventive Conservation Services*

Among the "enemies" that William Blades' eccentric rantings *The Enemies of Books* singles out for criticism, along with fire, water, and vermin, are book-binders. He accuses these "biblioclasts" of desecrating books by trimming margins, and suggests collecting the shavings and "roast[ing] the perpetrator of the outrage over their slow combustion"! He is equally dismissive of one binder who had the temerity to soak off the cover of a unique 15th-century *Indulgence* "the result being that when dry it was so distorted as to be useless. That man soon after passed to another world, where we may hope his works have not followed him, and that his merits as a good citizen and an honest man counterbalanced his demerits as a binder." But when it comes to restoration he has nothing but praise: "...nothing is more astonishing to the

uninitiated than the transformation they [the books] undergo in the hands of a skilful restorer." It is Blades' description of the washing process that deserves some comment here:

"When all the sections are loose, the separate sheets are placed singly in a bath of cold water and allowed to remain there until all the dirt has soaked out. If not sufficiently purified, a little hydrochloric or oxalic acid, or caustic potash may be put in the water, according as the stains are from grease or from ink. Here is where an unpractised binder will probably injure a book for life. If the chemicals are too strong, or the sheets remain too long in the bath, or are not thoroughly cleansed from the bleach before they are re-sized, the certain seeds of decay are planted in the paper, and although for a time the leaves may look bright to the eye, and even crackle under the hand like the soundest paper, yet in the course of a few years the enemy will appear, the fibre will decay, and the existence of the books will terminate in a state of white tinder."

Blades' implication that washing will remove dirt is not totally correct—washing paper without first removing the surface dirt results in driving the dirt further into the interstices and fibres of the paper. Thus he muddies the waters by confusing surface cleaning to remove dirt, with washing to remove impurities, and with bleaching to remove stains. In this context "washing" can be taken to mean discoloration caused by residual impurities in the paper, such as acidity. He appears to show some understanding of the problems caused by insufficient washing and the subsequent breakdown of the cellulose fibres, but we know today that the use of these chemicals is highly questionable. Used well into the first half of this century to bleach paper, they are now recognized to be severely deleterious to paper and it is very probable that their very use, regardless of the extent of washing, would have induced further deterioration. •

*Blades, William. *The Enemies of Books*, 3rd edition. London: Trübner & Co., Ludgate Hill (1881).

The Science of Conservation

A Colourful Examination of John Lennon's Rolls-Royce ("Baby you can wax my car...")

by Kate Helwig, *Senior Assistant Conservation Scientist, Analytical Research Laboratory*, and Michael Harrington, *Acting Manager, Treatment and Development Division*

The Analytical Research Laboratory of CCI was recently given the unusual opportunity to examine paint samples from a 1965 Rolls-Royce automobile once owned by former Beatle John Lennon

(1940-1980). The car was purchased by a Vancouver entrepreneur at Expo 86 and later donated to the Royal British Columbia Museum, where it currently resides. As seen in the photograph, this is not just an ordinary Rolls-Royce. In 1967, the car was

painted in a brightly coloured floral motif on a yellow background by one of Lennon's friends, known as 'Gypsy Dave'. Knowledge of the type of paint used would help conservators determine the best way to clean the surface of the car and protect it from paint losses and other damage, so Valerie Thorp, Chief of Conservation Services at the museum, requested the paint analysis from CCI.

Samples were mounted as cross sections to determine the structure of the paint layers. Paint chips were also analysed using Fourier transform infrared spectroscopy, X-ray diffraction, X-ray microanalysis, and polarized light microscopy. The analysis revealed that both cellulose nitrate and an oil-modified alkyd resin media had been used and that the surface of the paint had been coated with an oil-modified alkyd resin varnish. A colourful array of pigments was identified, including chrome yellow, titanium white, ultramarine blue, and toluidine red.

Based on the materials identified, cleaning and waxing the car was recommended; the analysis showed there was nothing in the paint that would be harmed by water or by

the application of a protective wax coating. To minimize damage to the varnish and painted surface, it was also recommended that the car not be exposed to direct sunlight for long periods as this could cause deterioration of both the cellulose nitrate and the alkyd resin.



*John Lennon's Rolls-Royce
(photograph courtesy of the Royal British Columbia Museum).*

Although teenagers today may prefer the Tragically Hip to the Beatles, the staff of CCI is nonetheless pleased to have been

able to contribute to the longevity of this tangible reminder of 1960s' pop culture. •

On Display

Wrapping It Up: The Cape

by Janet Mason, Conservator, Objects Lab

This elegant cape, made around 1870, would keep any Victorian lady warm. Originally owned by Mrs. Wm. Magwood (Mary), it was donated to the J. A. V. David Museum, Inc., Killarney, Manitoba, in 1992. The silk brocade lining and the black velvet were in good condition but, unfortunately, the fur trim and the black glass beads that decorate the velvet were considerably changed from the days when the cape was worn to dazzle the beholder.

The skin portion of the fur, which is either goat or sheep, was extremely weak. (Copper and iron compounds used as mordants in the dye process are likely responsible for the reduced strength of the skin, now akin to the strength of a paper towel.) It had torn in many places and at times conservators remarked that it resembled a jigsaw puzzle. Careful alignment and mending of the tears with custom-made strips of a fine polyester fabric coated with a heat-sensitive adhesive

allowed the trim to be handled safely. Once fills of dyed sheepskin were added to areas of loss, the trim was restitched to the cape at the hem and collar.

'Glass disease', an inherent problem resulting from the manufacture of the



The restored cape.

glass, was evident on the beads sewn to the velvet. Exposure to atmospheric moisture had caused a powdery alkaline coating to form on the surface of the glass; this was meticulously removed using alcohol on a cotton swab, as water accelerates the degradation. The threads holding the beads to the velvet were weakened because of contact with this alkaline coating. To avoid additional bead loss, conservators carefully reinforced the points of attachment with new thread. But in spite of this effort, the powdery coating reappeared after several months. Even storage within a stringently controlled relative humidity will only slow this process of deterioration. A valuable lesson was learned: cleaning of unstable glass should be undertaken only to improve the appearance of an artifact for short-term exhibit.

The cape will soon be returned to the museum. Although it will never be strong enough for long-term exhibit, it can now be carefully handled by museum staff to show an appreciative audience a truly beautiful garment. •

Start Your Engines: A Search for Meaningful* Conservation Advice on the Internet

by George Prytulak, Conservator, Industrial Collections

By now almost everyone has experienced the wonders of the World Wide Web. The initial excitement (“This is incredible!”) and the hype (“This will transform society!”) have died down and, love it or leave it, we may as well face the fact that the Internet is here to stay. Like the hole in the ozone layer, it won’t go away—it’s just going to keep growing. The time has come to conduct a rational assessment of this medium. And what better way to rate it than in terms of its usefulness to the field of conservation?

There are a number of ways to find conservation-related information, but they all require the use of a search engine. You don’t have to be a computer programmer or a skilled typist to do this. All you have to do is type a word or two inside a little rectangular space, then click on the ‘Search’ button. If you can successfully operate a touch-tone phone, you have the manual and mental dexterity necessary to use a search engine.

The search engine ‘Yahoo!’ seems to be a favourite these days, if only by default. The simplest search method is to enter a broad term, like ‘conservation’, and then weed through the results. This yields (at the time of writing) 1092 site matches. But don’t despair. It won’t take you long to realize that only a very limited number of these sites are relevant to art and artifact conservation. The Horned Lizard Conservation Society (Texas Chapter) is not concerned with the preservation of natural history specimens. And the Organization for Bat Conservation is not related to the Baseball Hall of Fame. These sites are, obviously, the domain of environmentalists, and they outnumber ours by about 20 to 1.

You can save time by being more specific with your search terms. For example, if you enter ‘art conservation’, you will get only 73 site matches, of which at least 10 will still be related to nature (as in, “The art of wise land use and conservation”). The trick now, as any bona fide surfer will testify, is to find the sites that give away something useful for free. Today’s Internet was created largely by altruistic people with little thought for commerce, and a spirit of sharing still serves as its sacred and unshakeable foundation.

Among the most useful conservation-related sites, one stands out in terms of its depth, timeliness, and sheer generosity: CoOL, or Conservation OnLine (<http://palimpsest.stanford.edu>). This is everything we expect of the Internet: tons of free information and advice, all provided by selfless professionals who are interested only in helping others. And all under one roof, so to speak. In addition to news, bibliographies, and feature articles, CoOL operates several mailing lists devoted to conservation, like the ConsDist List (Conservation Distribution List). Anyone with e-mail can subscribe, free of charge, and tap into the ongoing discussions among conservators all over the world. If you’re shy, you can sit back and read other people’s dialogues, or you can sift through *ten years’* worth of archived inquiries and responses. If you’re feeling bold, you might even consider posting your own inquiry by e-mail. But be warned. The experience is something akin to stepping up to the microphone at an international conference and addressing your peers. It can’t be done anonymously.

Another method of finding meaningful conservation advice is to surf through the doors of your favourite cybermuseum (they never close, and admission is free). The Canadian Heritage Information Network’s *Guide to Canadian Museums and Galleries* is part of the CHIN Web site (<http://chin.gc.ca>). Every museum on the Internet can be found (<http://www.icom.org/vlmp>). Canada has 137 sites and the United States has 399.

With this kind of search, it pays to think big. Only fairly large museums have conservators on staff, let alone conservators with access to the Internet and time to spend contributing to a Web site.

One of the most useful museum sites is that of the Henry Ford Museum & Greenfield Village in Dearborn, Michigan (<http://www.hfmgv.org>). Check out their Preservation Fact Sheets; there are 11 in total, ranging from the care of furniture, glass, and textiles to historical silver and clocks. The complete text for each subject is free on your screen, or you can order hard copies through the mail for \$5.00 each. That’s a choice we can live with.

In another *Newsletter*, we’ll delve further into the conservation resources of cyberspace, including the anonymous heavyweights like ICCROM, SCMRE, GCI, CHIN and—yours truly—CCI. † •

* Accurate, up-to-date, and—most important—free!

† <http://www.pch.gc.ca/cci-icc>

Getting It Together: Spotlight on CCI's Workshop on Adhesives

by Mary-Lou Simac, Chief, Extension Services,
and Jane Down, Senior Conservation Scientist, Conservation Processes and Materials Research Division

An adhesive is a substance that bridges and fills the gap between two materials, adheres to both surfaces, and achieves a sufficiently strong interface between the materials to hold them together as one. Adhesives play an important part in conservation treatments; they are used to reassemble and attach broken glass and ceramic objects, repair leather tears, re-line paintings, and back fragile flags, to name just a few examples. Conservators want to use adhesives that are not only sufficiently strong to do the job, but also stable and innocuous, so that they do not further damage the artifact.

For the past 20 years, research has been going on at CCI to study the properties of various adhesives in order to assist conservators in selecting the most suitable and stable product for their needs. Epoxy resin, poly(vinyl acetate), acrylic, and vinyl acetate/ethylene (VAE) copolymer adhesives have been studied in some detail, and changes have been monitored under natural dark and fluorescent light ageing.

CCI's workshop on adhesives is presented by senior conservation scientist Jane Down. It gives conservators the opportunity to learn about the Institute's research into adhesives, and to experiment with new



Conservation students at Queen's University assessing properties of adhesives during a workshop.

adhesives and adhesive additives that the Institute is investigating.

During this "Adhesive Research Update" workshop, conservators work with actual samples to see what effect additives such as plasticizers, solvents, wetting agents, thickeners, fillers, humectants, and freeze-thaw stabilizers have on a VAE adhesive. A participant in a recent seminar co-sponsored with the Manitoba Heritage Conservation Service noted that it was "a very good, practical workshop which simplified a complex topic"; comments from other

conservators included "the case histories for problem-solving and hands-on exercises were fun and stimulating for adult learning" and "will use the research to make decisions about which adhesives to use."

In 1999, CCI will be offering several advanced level workshops at the Institute in Ottawa for practising conservators and other conservation professionals. One of the workshops will focus on adhesives for textile and leather conservation. Please contact CCI for further details and registration information. •

Françoise Flieder: Senior Member of the Conservation Profession Retires...

by Cliff McCawley, Director, Conservation and Scientific Services

The year 1997 saw the retirement of Françoise Flieder from the Centre de Recherches sur la Conservation des Documents Graphiques (CRCDG), in Paris. Madame Flieder founded the centre in 1963 and has long been its director, as well as Director of Research at the Centre national de la recherche scientifique. She has been appointed

Researcher Emeritus and will no doubt spend some of her retirement bringing to completion her research projects. In a very full and distinguished career she has filled many positions, including being a member of the Council of IIC and a member of the Directory Board of the ICOM Committee for Conservation. This latter organization made her an Honorary Member at

its 11th Triennial Meeting in Edinburgh—fitting recognition of the considerable contribution she has made to the conservation profession.

Françoise, your many friends at CCI wish you a happy and fulfilling retirement. And we extend an open invitation for you to visit us in Ottawa. •

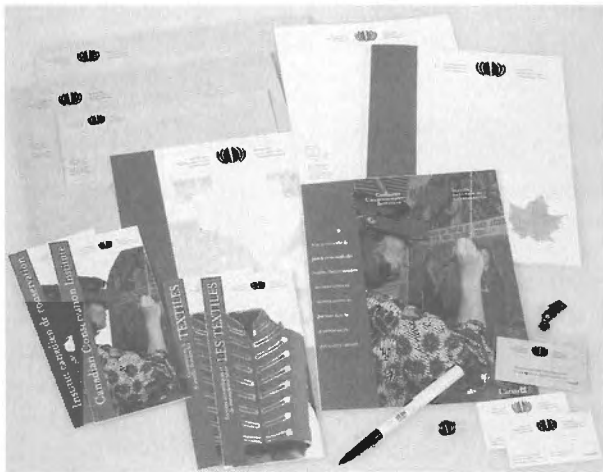
CCI Puts Forward a New Face

by Susanne Richter, Marketing Advisor, Marketing and Strategic Planning Directorate

As promised in the last issue, CCI is proudly sporting a new look—a strong corporate identity including a newly developed logo and graphic standards package.

In response to the Institute's new directions, a comprehensive marketing plan was developed early last spring. The plan included initiatives to promote and market the products and services of each division individually, as well as CCI as a whole. As many of these initial activities were based on direct mailings to targeted audiences, the production of promotional materials was essential to the success of the marketing plan. The information contained within these materials was compiled with direction and input from CCI staff, clients, potential users of the services, and marketing experts in the cultural field.

In November 1997, the first of the scheduled mailings took place, including a letter from the Director General, a CCI services brochure, and a fee schedule clearly explaining the new structure. This package was distributed to more than two thousand Canadian museums, galleries, and related heritage institutions.



CCI's newly developed promotional materials exhibit a strong corporate identity.

To help Canadian organizations become more familiar with the wide range of services offered by the Institute, a series of service-specific brochures was designed. Each brochure describes a specific service: treatment and restoration, examination and scientific analysis of objects, preventive conservation, on-site testing, and the CCI library, to name a few. These brochures were used in several mailings in February 1998. Recipients of the information packages included provincial museum associations and organizations, educational organizations offering museology programs, and past users of CCI services.

To complement the mailings, a variety of other marketing initiatives took place simultaneously: CCI was represented at several conferences with a refurbished trade show 'booth', advertisements were placed in carefully selected magazines, and visits to the Institute were encouraged through an open house and private tours.

While the external elements of the marketing plan were being carried out, changes were also taking place internally to support the results of these initiatives. To monitor information requests and responses to marketing efforts effectively, a new project tracking software



Mary-Lou Simac (left) and Susanne Richter staff the CCI booth during the trade show at the American Association of Museums conference in Atlanta, Georgia, in April 1997.

including a powerful, multifaceted client database was designed for the Institute. This tool will help to maintain a high level of client satisfaction and ensure cost-effective mailings, in addition to guiding future marketing directions.

Readers of the new brochures will notice reference to 'client services'. Using existing resources, this new service function was developed to ensure that all information inquiries are answered quickly and efficiently.

The long-term success of these marketing initiatives depends greatly on the Institute's steadfast commitment to preserving Canadian heritage and supporting conservation and heritage institutions in Canada. As CCI continues to monitor the results of these marketing efforts, develop new services and products to fulfill identified needs, and modify the marketing plan where necessary to guide future directions, your help will be needed. Please feel free to forward your comments, questions, or suggestions to the Marketing Division at CCI. •



PROTEUS Takes Shape: CCI's New Project Tracking System

by Ian N.M. Wainwright, Manager, Analytical Research Laboratory

Until December 1997, CCI stored all data related to client services in *ICARUS* (Index of Conservation and Analytical Records), a database in a mainframe computer managed for CCI by the Canadian Heritage Information Network (CHIN). In preparation for the shutdown of the CHIN mainframe at the end of March 1998, it became necessary to move the data to a new system. CCI's business processes had also not been revamped for many years; they did not reflect today's economic environment and relied heavily on manual systems for generating documents. So the time was ripe to create a brand new system that could take advantage of the advances in computer technology since *ICARUS* was designed in the late 1970s and early 1980s, i.e. local area networks, the Internet, and faster computers.

The first step was a business process re-engineering study which was undertaken by Eva Frank, a management consultant with Progestic International Inc. in Ottawa, and a core group of CCI staff comprising Marie-Claude Corbeil, Raymond Dorion, Jane Down, Maureen MacDonald, and Helen McKay. To ensure that the system would meet as many needs and interests as possible, input was also received from other staff members through focus groups and individual consultations. Following a detailed comparison of several software options on the basis of cost, maintenance, ease of use, and communications within CCI and over the Internet, Progestic recommended the use of Lotus Notes from Lotus Development Corporation; this was endorsed by CCI management. Although

the BASIS software and Cyber computer in which *ICARUS* ran would be missed for their power and speed, Notes offered significant advantages for both staff and clients, e.g. it provides easy communication and access, lots of flexibility in applications, and is user-friendly. And because the Department of Canadian Heritage had already acquired Notes for electronic mail, the system could be implemented at relatively low cost.

The new Project Tracking System, named *PROTEUS*, was designed by systems analyst Brigitte Patry and programmer analysts Bob Sparks, Peter Nehme, and Nina Dekker of Progestic with input from CCI staff. It runs on a server at CCI linked to the Department's Internet server in Hull. Jean Bisson and Rick Bédard of CCI, the Information Management Branch of the Department of Canadian Heritage, and Diane Bowden and others at CHIN have contributed enormously to the project.

Three databases are accessible to staff at all times: *PROTEUS*, *ICARUS*, and the CCI Client Database. *PROTEUS* handles the flow of data and communications right from the time a client first contacts CCI, and stores scientific and technical data generated from the time *ICARUS* was taken offline in December 1997; it gives staff quick access to information about their own projects and those of others at CCI, generates standard documents, and should reduce the need for paper and paperwork. Preprinted forms have been virtually eliminated. *ICARUS* has been downloaded from CHIN's Cyber computer and reformatted for access as a Lotus Notes Database. The CCI Client Database contains

client information including names, addresses, needs and interests of museums, art galleries, archives, and others.

PROTEUS was launched on December 15, 1997, and will enable CCI staff to deliver information and services more efficiently. Translation of the system is underway to achieve full functionality in both English and French. Plans for the near future include building an interface between *PROTEUS* and the World Wide Web to enhance CCI's ability to inform the Canadian museum community and the world about our programs and services. •

"Proteus, in Greek mythology, the prophetic old man of the sea and shepherd of the sea's flocks (e.g., seals). He was subject to Poseidon, and his dwelling place was either the island of Pharos, near the mouth of the Nile, or the island of Carpathus, between Crete and Rhodes. He knew all things — past, present, and future — but disliked telling what he knew. Those who wished to consult him had first to surprise and bind him during his noon-day slumber. Even when caught he would try to escape by assuming all sorts of shapes. But if his captor held him fast, the god at last returned to his proper shape, gave the wished-for answer, and plunged into the sea. From his power of assuming whatever shape he pleased, Proteus came to be regarded by some as a symbol of the original matter from which the world was created."
(*Encyclopaedia Britannica*)

Arctic Journeys

by Judy Logan, Senior Conservator, Archaeology, and David Grattan, Acting Manager, Conservation Processes and Materials Research Division



Arctic Journeys is a CD-ROM about the traditional lifestyles, history, archaeology, artifact conservation, flora, and fauna of the area covering the Northwest Territories, Yukon Territory, and High Arctic. Information for this disc was contributed by the Canadian Conservation Institute (CCI), Canadian Heritage Information Network, Canadian Museum of Civilization, Canadian Museum of Nature, National Library of Canada, Parks Canada, Department of Canadian Heritage, and Kakivak Association, a non-profit community economic development organization located in Iqaluit. CCI contributed information about archaeological field work and site stabilization, treatment of various artifacts from arctic sites, application of conservation science to treatment development,

conservation research on the fossil forest, and the CCI workshop on traditional skin preparation techniques. The disc was produced and is being distributed by On/Q Corporation, a CD-ROM producer located in Montreal.

This project was first proposed by the Canadian Museum of Nature in the fall of 1993. The result, produced in both English and French (sold as separate discs), is an opportunity to explore a fascinating part of Canada—an area unique in its beauty, environment, and history.

Both versions will be available in spring 1998. For a purchase price of CAN \$59.00, you can obtain it from CD-ROM retailers or you can order it directly from most of the contributors.

System Requirements for Windows:

- 486DX33
- 8 MB (16 MB recommended) available RAM for application
- 8-bit (256 colour) display card supporting 640X480 resolution
- 16-bit Sound Blaster compatible sound card
- double speed CD-ROM drive
- Microsoft Windows 3.1 or Windows 95
- 16-bit Quicktime for Windows

System Requirements for Macintosh:

- 68030/25MHz processor or better (includes Power Macintosh)
- 8 MB (or more) available RAM for application
- System 7.0 or higher software
- Quicktime 2.0 or higher
- Sound Manager 3.0 or higher
- double speed CD-ROM drive •

SLOWPOKE-Toronto: Analysis for Archaeology

by Ian N.M. Wainwright, Manager, Analytical Research Laboratory

Dr. R.G.V. (Ron) Hancock, Director of SLOWPOKE-Toronto, presented a lecture on "The Role of SLOWPOKE-Toronto in Canadian Archaeological Studies" at CCI on December 3, 1997. SLOWPOKE-Toronto is a chemical analysis centre at the University of Toronto based on the Canadian-invented SLOWPOKE nuclear reactor, which is cost-effective, safe to operate, and produces a stable neutron flux over a long term that makes it an excellent analytical tool. Bulk elemental analysis for major and trace elements — using an analytical technique called neutron activation analysis — can be undertaken at SLOWPOKE, and if one makes use of only short-lived radioisotopes, the chemical analysis is often non-destructive and samples can be returned to

their owner. Applications of SLOWPOKE to archaeological materials can potentially cover the range of inorganic remains, including bone and shell, ceramics, glass (trade beads), lithics, and various metal alloys (copper, brass, iron, — even lead).

Examples of successes (and failures) resulting from chemical analyses of such materials were presented. In some cases, only simple questions such as "what is it made from?" can be answered, but in others quite interesting leaps of interpretation can be achieved. In the past, CCI has turned to Dr. Hancock and the SLOWPOKE facility for assistance with projects requiring the sensitivity of neutron activation analysis and specialized expertise in interpreting these data. For example, CCI collaborated with

SLOWPOKE in the analysis of the famous argillite that has been mined at the Slatechuck Creek quarry in the Queen Charlotte Islands and used by Haida carvers since the 1800s. Chlorine in corroded iron from marine archaeological sites, and native copper artifacts have also been analysed for CCI at SLOWPOKE. A collaborative research project into native copper artifacts from the Canadian Arctic is currently underway and involves CCI, SLOWPOKE, McGill University, the Archaeological Survey of Canada (Canadian Museum of Civilization), the Prince of Wales Northern Heritage Centre, and the University of Alberta.

A visit to Ron Hancock's Web site (<http://www.chemeng.utoronto.ca/~hancock>) will provide further information. •

New Publications Available from CCI

New and Revised (1998) CCI Notes

\$2.00 each, bulk discounts available

Preventive Conservation

- N2/4 - Environmental Monitoring Kit
- N2/6 - Fire Protection Issues for Historic Buildings
- N2/7 - Museum Fires and Losses
- N2/8 - Automatic Sprinkler Systems for Museums

The Museum Environment - Biological Factors

- N3/4 - Psocids or "Book Lice": A Warning of Dampness

Paintings and Polychrome Sculptures

- N10/16 - Wrapping a Painting

Other Materials

- N15/4 - Indoor Display of Industrial Collections

Technical Bulletins

Technical Bulletin #19 -

"Security Hardware and Security System Planning for Museums" by Wayne Kelly

Numerous, inexpensive methods of improving security protection and various types of currently available sensors and computerized alarm systems are illustrated and described. Various types of sensors and their placement within a standardized level of protection proposed for each area in a cultural facility are also recommended. (\$6.00 each)

Special Publications and Products

"The Care of Historic Musical Instruments" edited by Robert L. Barclay; co-published by CCI, the U.K.'s Museums & Galleries Commission, and CIMCIM - ICOM's International Committee of Musical Instrument Museums and Collections. Provides thorough and expert guidance on the care of heritage musical instrument collections, ethics and the use of instruments, materials, basic conservation treatments, maintenance strategies, and documentation. Written by seven international specialists in the care and preservation of historic musical instruments. Includes bibliography and resources list. 145 pp. (\$36.00 each)

"Mount-making for Museum Objects" by Robert L. Barclay, André Bergeron, and Carole Dignard; co-published by CCI and CCQ. Provides advice for conservators, designers, display technicians, and others who require specific information on the mounting of museum objects. Topics covered include the reason for creating mounts, recommended stable materials, tips on choice of materials and their working properties, and methods for measuring artifacts. A wide range of objects that needed custom-made mounts has been illustrated with photographs and line drawings. A supplies list and bibliography are also included. (\$42.00 each)

"Fabric of an Exhibition: An Interdisciplinary Approach - Preprints." A collection of 26 papers, plus abstracts of posters and demonstrations, presented at Textile Symposium 97. 206 pp. (\$50.00 each)

Twenty-five Years Young: Celebration of the Past and Anticipation of the Future

The Canadian Conservation Institute (CCI) marked its 25th anniversary in 1997.

The Institute was created in 1972 to promote the proper care and preservation of Canada's cultural heritage and to advance the practice, science, and technology of conservation. Twenty-five years later, it has not only survived, but grown stronger. Recognized internationally as a leader in the field, CCI now markets its services and products around the world. The official birthday party was held

at CCI on October 9, complete with a large cake. Many former and current staff members were present to toast CCI's past achievements and to view the new corporate logo and identity that will carry the Institute into the future. Other events throughout the year included a barbeque on May 7, a staff picnic in Vincent Massey Park on June 25, and a golf tournament on September 10. Celebrations were capped on October 23 when CCI invited the public to an Open House. Approximately 250 guests wandered the labs, fascinated and amazed by

the intricate processes of conservation and preservation that are routinely carried out at CCI.

As CCI moves into its second quarter-century, the Institute itself is undergoing a form of conservation and preservation treatment. Reorganized and revamped to reflect the changing economic conditions of today's environment and to improve service to clients, CCI faces the new millennium with renewed strength and vigor to thrive for many years to come. •

Wrapping a Career with the "Fabric of an Exhibition"

In September 1997, CCI played host to Textile Symposium 97 (the first biennial North American Textile Conservation Conference, organized jointly by textile conservators in Canada and the United States) and to the 83rd Scientific Session of the Institute of Textile Science. Such a major undertaking required the coordinated efforts of many individuals. The Local Organizing Committee included CCI staff members Renée Dancause, Jane Down, Tara Grant, Sherry Guild, Michaela Keyserlingk, Season Tse, Jan Vuori, and Janet Wagner; R. Scott Williams and Stefan Michalski each presented papers, and Stefan also gave a demonstration. Indeed, most staff were involved in the preparations for these meetings and in the tours of CCI provided to delegates. But special mention should be made of Michaela Keyserlingk, known to CCI as 'Ela'. If staff members were the fibre, Ela was the loom that wove those fibres into the "Fabric of an Exhibition."

Born in Germany, Ela first acquired an interest in historical artifacts from her father, a medical doctor who was also an amateur archaeologist. Trained as a teacher, she moved to Canada with her husband and spent

her early years here raising their four children. As the children grew older, she returned to school to study museum technology, where she became intrigued with textile conservation. She joined CCI in 1978 as an intern in the Textile Laboratory, and became a fulltime employee in 1980.

Throughout her career Ela worked on many different projects, some of her favourites being Lucy Maud Montgomery's wedding dress, military uniforms from the Battle of Lundy's Lane, the Carillon banner, and the Gondar Hanging. She also travelled from coast to coast with the mobile lab program, and attended conferences in several countries. In the last few years she became more involved in administration and, with her unshakeable belief that hard work and a willingness to change will keep CCI relevant and productive, helped CCI respond to the changing professional and museological climate. And as Acting Manager of the Treatment and Development Division she was instrumental in organizing Textile Symposium 97, the final curtain of her career.

Wrapped in the cloth of success, Ela left CCI on October 28, 1997, riding into retirement in a white limousine.



She will be remembered fondly by her many friends and colleagues.

Below are two first-person accounts, one of Textile Symposium 97 and one of the meeting of the Institute of Textile Science, written by delegates. Diana Komejan is a conservator with the Heritage Branch of Yukon Tourism and as such serves seven community museums as well as the Yukon Arts Centre Gallery and the Government of the Yukon collections of cultural material. David Howell is a conservation scientist with the Historic Royal Palaces, Hampton Court Palace, Surrey, United Kingdom.

Those with a special interest in textiles can obtain the complete text of all papers presented at the symposium; *Fabric of an Exhibition: An Interdisciplinary Approach - Preprints* is available from CCI for CAN\$50. •

Report on Textile Symposium 97 "Fabric of an Exhibition: An Interdisciplinary Approach"

by Diana Komejan, Conservator, Heritage Branch, Yukon Tourism, and Delegate, Symposium 97

Textile Symposium 97 was hosted by the Canadian Conservation Institute (CCI) in Ottawa on September 22–25, 1997. It was an opportunity for textile conservators, curators, designers, and others from around the world to share ideas and developments in the preservation of textiles. The high quality of the papers, posters, and technical demonstrations indicated that these conferences will be valuable and much anticipated in the future.

The symposium was divided into seven main topics: Exhibition Perspectives, Exhibiting the Historic House, Considerations for the Long Term, The Exhibition Environment, Travelling a Collection, Support and Presentation, and Expanding Roles; papers were supported with practical and informative demonstrations and other visual aids. Some of the presentations are discussed below.

The first paper, by Jonathan Ashley-Smith and Lynda Hillyer from the

Victoria and Albert Museum, outlined three themes that recurred throughout the symposium: conservation staff cannot be devoted exclusively to practical intervention (senior staff spend time planning, supervising, and training, and junior staff are being appraised and trained); no collection is static (in achievable display and storage conditions deterioration continues as conservation materials and treatments have limited lifetimes); and museums are not static (new objects are continually being acquired; objects

are being rotated between storage and display to avoid excessive exposure; and there are temporary exhibitions, renewed displays, and loans to reach new and greater audiences, and to tell new stories). These conditions exist even for institutions where there is no conservation staff per se. Many institutions have no budget specifically for conservation, and conservation occurs only when a specific artifact is identified for treatment in order to be used for an exhibit. A common condition for budgeting for conservation is that the artifact be used in a travelling display, which is frequently not in the best interest of an unstable object. Obviously, the reality of textile conservation today is far from optimum. The theme of exhibition perspectives was continued by Christine Paulocik as she introduced us to the collections and exhibits at the Metropolitan Museum of Art Costume Institute. The Costume Institute has a very busy mandate, opening three exhibits a year with little time between shows for preparation. To make the exhibit a success Chris stressed the "necessity of teamwork and flexibility on the part of those working to produce the show(s)."

Three papers discussed the problems historic houses pose for the long-term preservation of textiles. Abby Sue Fisher of the United States National Park Service discussed the necessity of open dialogue among those involved in exhibitions in historic sites in order to satisfy everyone, including the viewing public. Jennifer Iredale of the Southwest Okanagan Region, Heritage Branch, Government of British Columbia, described a conservation cleaning program implemented at her sites to ensure preventive conservation measures. This program included regular cleaning and inspection of artifacts and the storage/exhibit room. Deborah Lee Trupin of the New York State Bureau of Historic Sites - Peebles Island discussed display options when few original pieces remain. The solution in such cases is to substitute reproductions, but these are expensive and also require long-term preservation.

Deborah Bede from the Minnesota Historical Society dealt with long-term considerations in her very frank paper detailing how her institution developed a system for rotating or removing exhibit textile artifacts before they had been exposed to amounts of light that would cause serious deterioration. This system worked in theory but was difficult to put into practice because of the time and labour required. Complicated display case construction made it impossible to follow the schedule. In the future, conservation staff will consult on all levels of planning and construction so that cases are designed with ease of access and the use of props wherever possible.

A number of papers examined the exhibition environment. Toby Raphael introduced the new "Conservation and Exhibits: A Handbook Incorporating Conservation into the Museum Process," published by the United States National Park Service. Toby has taken the guidelines for exhibits, published 10 years ago, and incorporated the subsequent developments in preservation awareness. This will be a valuable tool for all involved in exhibit design and construction. Scott Williams of CCI introduced us to some of the problems we can expect from plastics used in textiles. Conservators have been aware of the problems associated with plastic artifacts in collections for a number of years now. Plastics started appearing in textiles in the 20th century and these unstable components have become a concern for textile conservators. Scott discussed the potentially destructive plastics in exhibition, storage, or packing materials. Very useful tables were included in his paper on types of plastics, their deterioration characteristics, and the damage they can inflict on neighbouring textile fibres.

Stefan Michalski of CCI presented a very comprehensive paper complete with tables and graphs that can be used to determine appropriate light levels for exhibiting textiles in collections. Larry Bowers of the United States National Park Service introduced us to the many virtues of fibre-optic lighting. He described the different types of fibre-optic systems and demonstrated some of their uses. The ideas presented in his paper were reinforced with demonstrations showing examples of various systems.

Travelling a collection is currently very common. Many of the agencies that assist with funding for exhibit development ultimately require the displays to travel to increase public exposure. Exhibitions that would not normally be considered for travelling are now being moved across countries and continents, for display in places not equipped or staffed for handling artifacts. Elizabeth Lominska Johnson and Darrin Morrison of the University of British Columbia Museum of Anthropology presented a paper describing the process they had followed to develop a travelling exhibition of Cantonese Opera costumes. The Chinese community in Vancouver had been involved to ensure accuracy of the display. Description of the exhibit and packing techniques and materials conveyed ideas that were both imaginative and practical. Carol Brynjolfson of the Vancouver Museum explained the difficult



Charlie Costain (centre) demonstrating the microspot fading test, a means of evaluating the vulnerability of colorants, to delegates of Textile Symposium 97.

process of preparing a clothing exhibit for travel. The exhibit had custom-made mannequins with porcelain heads, forearms, and chests. The mannequins were so difficult to dress that they travelled wearing the costumes; quilted covers were made for the costumed mannequins and full-sized crates with internal supports were used for shipping. Carol concluded with some very useful suggestions for travelling exhibits of textile artifacts.

The dilemma for present day conservators is slowing artifact deterioration in a speeded up world. Textile Symposium 97 offered suggestions and ideas for handling and displaying sensitive textile collections in innovative ways.

There are many important textile artifacts in the Yukon collections. Attending this symposium was an opportunity for me to discuss developments in textile conservation with

conservators from large museums and institutions throughout the world. Remaining abreast of new developments will enable me to use the most up-to-date practices in caring for the textile collections in the Yukon.

The CMA Bursary Program and the Museums Assistance Program of the Department of Canadian Heritage provided financial assistance for me to attend Textile Symposium 97; I would like to thank them. •

"Ageing and Degradation of Textiles":

The 83rd Scientific Session of the Institute of Textile Science

by David Howell, Conservation Scientist, Historic Royal Palaces, Hampton Court Palace

This one-day conference, held at CCI in Ottawa on September 26, 1997, contained an interesting juxtaposition of three papers dealing with textile conservation issues and two papers dealing with textile degradation problems from the viewpoint of the textile industry.

Crystal Tait began the presentations with her paper "Effects of Conservation Freezing Treatments on Wool," jointly authored by Nancy Kerr. With freezing becoming such a standard treatment for pest control, and often being recommended as a holding operation in the event of flood damage, this was both interesting and relevant. The first part of the talk was an exhaustive and comprehensive presentation of how the samples were prepared and tested, and the second part was a presentation of the results. Reassuringly, but perhaps not surprisingly, all of the tests indicated that there was no significant change in the properties of the samples before and after freezing. However, it did rather beg the question as to why we should even think that wool, a very durable material, would be damaged when much more sensitive material such as human embryos are not.

The next presentation, "Ageing and Degradation from the Carpet Side,"

was by Clayton Legault (DuPont). I particularly enjoyed this because it introduced a concept I had not previously considered; i.e. that synthetic fibres may be partly degraded before they are made into carpets, garments, or used in conservation treatments. I know that the degradation of natural fibres can start before they are used (e.g. photodegradation of wool while still on the sheep, chemical degradation during retting, carbonization, dyeing, etc.), but it seems that small errors in manufacture can cause similar damage in synthetics, some of which will not be apparent till much later.

Shirley Ellis followed with her presentation "A Preliminary Investigation of the Tensile Properties of Yarn used for Textile Conservation." This was an interesting contribution to the ongoing debate concerning the choice of conservation material, which always tends to divide into two camps: natural vs. synthetic. This paper suggested that we ignore the source of the fibre and make informed decisions purely on the measurable properties, in this case the tensile properties and how they change with age. For me, this raised the question as to whether or not we really know what we want or need, and are there any standards that we could use to find out?

The importance of standards in the textile industry was demonstrated in the presentation of ITS bursaries and awards that followed lunch. Many of those honoured with fellowships were given them in recognition of their contribution to textile industry standards. The textile industry has a long history, and has always been (relatively) well resourced, so a large amount of the fundamental work has been covered and is constantly updated and revised. But in conservation we are still at the stage of deciding the right questions to ask, while at the same time spending most of our energies applying what are considered to be the best conservation techniques currently available.

After delegates had been shown the work and facilities at CCI, Irene Karsten spoke on "The Effect of Light Ageing on Selected Properties of Silk adhered to Sheer Polyester and Silk Backing." This project seemed to be somewhat thwarted by the complexity of evaluating changes in a layered structure, especially colour changes which to many may be the main consideration. This work is still in progress, and it will be interesting to see how the problems are reconciled, and what conclusions are drawn. The last speaker, Dr. Keith Slater (School of Engineering, University of

Guelph), gave a talk on "Modern Aspects of Textile Degradation and the Associated Risks." This demonstrated the huge range of testing types that are available in the textile industry, and showed that wildly different results can be obtained from different testing regimes. Many of the tests seemed to be named after individuals, and it was sometimes a little difficult to visualize how a test was carried

out. Although many of these tests are to evaluate harsh treatment in a relatively short time frame (in conservation terms), a knowledge of these methods could perhaps help to answer some of the questions as to what materials to use in conservation, and how to apply them.

In all, this was a useful day, and the contrast between industrial and

conservation problems made it all the more interesting.

David Howell, Conservation Scientist
Historic Royal Palaces
Hampton Court Palace
Surrey KT8 9AU
E-Mail: davidathcp@intonet.co.uk
Tel: +44-(0)181 781 9812/9814
(Direct Line)
Fax: +44-(0)181 781 9813 •

Turning A Page: Helen Burgess Retires

by Cliff McCawley, Director, Conservation and Scientific Services,
and Season Tse, Conservation Scientist, Conservation Processes and Materials Research

Helen Diana Burgess, one of CCI's longest serving and most successful conservation scientists, retired in January of this year. After obtaining an Honours B.Sc. from the University of Lethbridge, Alberta, an M.Sc. in chemistry (specializing in protein chemistry) from the University of British Columbia, and an M.A.C. in conservation science from the Art Conservation Program at Queen's University, Kingston, Helen joined CCI in 1978. She worked in the Conservation Processes Research Division, conducting research on the effects of conservation treatments on paper. Over the years Helen, a Senior Conservation Scientist since 1987, published widely and was responsible for greatly extending our knowledge and understanding of conservation processes for paper and textiles. Both nationally and internationally, Helen is renowned as a researcher and a leading expert in the areas of cellulose degradation analysis, conservation



bleaching, washing, enzyme applications on paper, as well as aqueous and mass deacidification of paper. Her handbook "Practical Considerations for Conservation Bleaching" remains a frequently used reference by many conservators.

In 1988 Helen co-ordinated CCI's international symposium "Conservation of Historic and Artistic

Works on Paper." Both the conference and its proceedings were significant contributions to the paper conservation profession. Helen also co-ordinated major research projects for the Canadian Council of Archives and the Chairman's Committee for Preserving Documentary Heritage.

Helen's career truly has had a lasting impact on her many conservation friends and colleagues, as witnessed by their outpouring of concern over the past few years while she has been on medical leave. Away from the office, Helen has many passions in life, including beautiful objects and flowers of all kinds, particularly roses. She also is an accomplished artist, and enjoys spending time with her many friends and doing volunteer work. From all of your friends and colleagues at CCI, Helen, we thank you for your outstanding contribution to the success of the Institute, and we wish you a very happy retirement. •

Internships

The following individuals are currently participating in an internship at CCI:

Filipa Cordeiro, of Estoril, Portugal, October 1997 - March 1998 (Professional Development Internship - Fine Arts Lab).

Kristopher Legate, an inorganic chemistry graduate, University of Toronto, October 1997 - March 1998; Science and Technology Internship funded by the Young Canada Works Program (Conservation Research Internship - Analytical Research Laboratory).

Sylvie Ramel, a conservation student at the Sorbonne, Université de Paris, February - May 1998 (Curriculum Internship - Conservation Processes and Materials Research Division).

Charles Rousseau, a graduate of Royal Military College, Kingston, Ontario, and Collège Militaire Royal, St-Jean, Quebec, December 1997 - March 1998; Science and Technology Internship funded by the Young Canada Works Program (Conservation Research Internship - Preventive Conservation Services).

CCI Services: Seminars, Lectures, Workshops, and Visits

September

Nancy Binnie participated in the final underwater field study on a War of 1812 shipwreck at Deadman Bay, Kingston, Ontario, in a project to study the effect of mollusks such as zebra mussels on submerged historic sites including shipwrecks.

George Prytulak visited Doon Heritage Crossroads in Kitchener, Ontario, to examine former CPR locomotive No. 894. He also examined former CNR locomotive No. 6213 for the Toronto Historical Board.

Cliff McCawley was a keynote speaker at the National Heritage Conference "Preserving the Past for the Future" organized by the Australian Institute for the Conservation of Cultural Materials, Inc., on Rottneest Island, Western Australia.

Stefan Michalski presented a paper "The Lighting Decision" at Textile Symposium 97. He was also a speaker and participant at the "Symposium on the Collection Environment" hosted by the Conservation Analytical Laboratory of the Smithsonian Institution; gave a lecture on the preservation of contemporary art collections at the international symposium "Modern Art: Who Cares?" in Amsterdam, The Netherlands; and gave a presentation to the CIE (International Commission on Illumination) technical committee "Museum Lighting and Protection Against Radiation Damage" during its meeting in Ottawa to discuss the contents of its planned publication on museum lighting.

R. Scott Williams presented a paper "Concerns about Plastics During Exhibition and Transport of Textile Objects" at Textile Symposium 97.

James Bourdeau presented a two-day seminar and workshop "Contemporary Varnishes, Materials and Techniques" at the Straus Conservation Center, Harvard University, to conservators from Boston and the New England area. He also gave a lecture "The Ideal Varnish: Some Thoughts on the History and Appearance of Contemporary Picture Varnishes" at the Sackler Museum, Harvard University, to a meeting of the New England Conservation Association.

David Grattan chaired the semi-annual three-day planning session of the Directory Board of the ICOM Committee for Conservation, hosted by CCI; during the meeting CCI organized a reception in honour of ICOM and representatives from the Canadian National Committee and other international committees attended, including three past Chairs of the Committee for Conservation, Cliff McCawley, Brian Arthur, and Janet Bridgland.



Dr. David Grattan (left), current Chair of ICOM-CC, along with past Chairs (from left to right) Cliff McCawley, Janet Bridgland, and Brian Arthur.

Helen McKay coordinated and made arrangements for the visit of Dr. Costas Balas of the Foundation for Research and Technology - Hellas, Greece, who gave a presentation and demonstration of the real-time imaging system he has developed. This talk/demonstration was co-hosted by CCI and the National Gallery of Canada.

Siegfried Rempel visited the Oakville Galleries, Oakville, Ontario, to help resolve architectural design issues; this was a follow-up visit to a previous site survey he had done on facility development options and requirements.

Bob Barclay presented a paper at the conference for the CIMCIM Policy on the Preservation of Musical Instruments, Musée de la Musique, Paris.

David Tremain gave a lecture on "Emergency Preparedness for Museums" to students in the

Collections Conservation and Management, Museum Management, and Curatorship programs at Sir Sandford Fleming College, Peterborough, Ontario.

Leslie Carlyle presented a two-day seminar "British 19th-century Artists' Oil Painting Materials and Techniques" and a one-day hands-on workshop to the AICCM Paintings Group in Victor Harbour and Adelaide, Australia, as part of their annual symposium.

October

Jane Down presented a seminar "Adhesive Research Update" to students in the Art Conservation Program at Queen's University, Kingston, Ontario.

George Prytulak conducted a one-day training session on Industrial Conservation Materials and Techniques for the City of Woodstock, Ontario, and the Woodstock Museum. The session focussed on air abrasives and the restoration of the local fire hall's bronze bell (907 kg) dating from 1901.

Carl Bigras presented a paper "Kite Aerial Photography of the Axel Heiberg Island Fossil Forest" at the First North American Symposium on Small Format Aerial Photography sponsored by the American Society for Photogrammetry and Remote Sensing in Cloquet, Minnesota.

Stefan Michalski spoke at a technical workshop on "Humidity and Temperature Control in Historic Buildings" at the annual conference of the National Trust for Historic Preservation in Santa Fe, New Mexico.

The Canadian Council of Archives Conservation Committee held its annual joint research meeting at CCI. The meeting, chaired by Mike Mosseberger of the Manitoba Archives, considered various current issues, including a government task force report on digitization of records, as well as the whole issue of the preservation of modern archival media. CCI has prepared two information bulletins for CCA (one is a guide to preservation photocopying and the other is humidity and temperature guidelines for archives), which will be released shortly.

Brian Laurie-Beaumont and **Siegfried Rempel** visited the McNichol Estate at the request of the City of Burlington, Ontario, to tour the house and grounds and discuss the potential of the site to become the home for an art gallery. The two also visited the Art Gallery of Hamilton, Hamilton, Ontario, to discuss collection storage needs.

James Bourdeau visited the Haskell Free Library and Opera House in Stanstead, Quebec, to assess the condition of the historic opera house interior. His report will form the basis of a needs assessment to initiate a project for the interior conservation and restoration. He also visited les Archives du Séminaire de St-Hyacinthe to pack two early Canadian portraits by Louis Dulongpré for transport to CCI for conservation treatment. As well,

James met with Canadian Pacific Hotels in Quebec City to establish conservation priorities for the renovation work to the interior of the Chateau Frontenac Hotel, and established conservation guidelines for the tendering process on this project and interviewed bidders.

November

Janet Wagner and **Renée Dancause** presented a seminar "Construction of Mannequins for Historic Costumes" at the Old Kings Courthouse Museum in Kentville, Nova Scotia, in association with the Federation of Nova Scotian Heritage.



Participants at the "Construction of Mannequins for Historic Costumes" workshop applying plaster to a paper tape form to create a mannequin.

Cliff McCawley chaired a meeting of the CGSB Subcommittee on the Permanence of Paper which reviewed feedback on the draft version of the final report of the Canadian Co-operative Permanent Paper Research Program "The Impact of Lignin on Paper Permanence"; the meeting also considered a draft Canadian standard (CGSB-9.70) on paper permanency. Representatives from government, cultural institutions, and the Canadian Pulp and Paper Industry attended the meeting, which marked an important step forward in achieving a new performance-based standard for Canada.

Season Tse gave a lecture "Investigations in Conservation Cleaning Methods for Paper and Textiles" to students in the Master of Art Conservation Program at Queen's University, Kingston, Ontario.

James Bourdeau presented a talk "Paintings Conservation and the Private Collector: What Can It Do For You?" at the Antique Fair at Ashbury College, Ottawa.

Cliff McCawley was a keynote speaker at an international congress organized by the Fundación del Patrimonio Histórico de Castilla y León, in Valladolid, Spain. His talk was titled "Conservation: Costs and Benefits."

Stefan Michalski gave a talk "Preventive Conservation for the 21st Century" at an international congress organized by the Fundación del Patrimonio Histórico de Castilla y León, in Valladolid, Spain. He also gave a one-day seminar to facilities managers and building engineers in Fredericton, New Brunswick. The seminar was organized by Harold Holland of the Provincial Archives of New Brunswick.

Siegfried Rempel visited the Thunder Bay Art Gallery, Thunder Bay, Ontario, to gather information on potential environmental control improvements and related cost savings that might be realized through a facility upgrading project.

David Grattan, **Elizabeth Kaminska**, **Paul Bégin**, and **Joe Iraci** attended a research review meeting of the ASTM/ISR paper permanency program on the "Effect of Aging of Printing and Writing Papers" at the Image Permanence Institute, Rochester Institute of Technology in New York State.

December

David Tremain, Deborah Stewart, and Charlie Costain attended a meeting at the Canadian Museum of Civilization to discuss an emergency preparedness network for cultural institutions in the National Capital Region. This forms part of a series of ongoing meetings being held in the National Capital Region as a result of the ICOMOS Canada initiative to participate in the Blue Shield Program.

David Grattan attended a meeting of the ICOM Executive Council at UNESCO in Paris, France.

January

Tom Stone visited the Woodland Cultural Centre in Brantford, Ontario, to discuss CCI's Aboriginal Issues Project with the Centre's Director, Tom Hill. He also visited the Brant County Museum and Archives in Brantford, as well as the London Museum of Archaeology and the McIntosh Gallery at the University of Western Ontario in London, Ontario.

Leslie Carlyle presented a two-day seminar "British 19th-century Artists' Oil Painting Materials and Techniques" and a one-day hands-on workshop for 70 participants at the Limburg Conservation Institute, Maastricht, The Netherlands. She also visited the Royal Cabinet of Paintings: Mauritshuis, The Hague, The Netherlands, to discuss paint inclusions in Rembrandt's *The Anatomy Lesson of Dr. Tulup*, and the collection at the Museum Mesdag, The Hague, to view 19th-century craquelure and 'bitumen-cracking'. In addition, Leslie was discussion chair and commentator in MolArt "The Evaluation Workshop," FOM Institute, Amsterdam.

Lyndsie Selwyn presented a workshop on metals and metal corrosion to students in the Art Conservation Program at Queen's University, Kingston, Ontario.

Stefan Michalski gave a lecture "Cracking and Deformation of Oil Paintings such as Picasso's *Guernica*" at the symposium "Guernica and the Ethical and Technical Problems of Handling Works of Art," in Madrid, hosted by the Museo Nacional Centro de Arte Reina Sofia.

James Bourdeau, assisted by **Janet Mason** and **Michael Harrington**, gave a talk on "Applying Conservation Process to Routine Maintenance and Housekeeping" as part of a two-day course on the maintenance of heritage buildings organized by the Federal Heritage Building Review Office and the Heritage Conservation Program and presented to management and staff of the Parliamentary Precinct. James also travelled to Quebec City to sample an historic ceiling in the Salon de Madeleine-de-Verchères at the Chateau Frontenac Hotel to determine the original decorative scheme so that this room could be restored to its original appearance.

February

Nancy Binnie presented a lecture "Zebra Mussels: What's Happening to our Historic Shipwrecks" at the annual general meeting of Preserve our Wrecks, an avocational scuba-diving group in Kingston, Ontario.

Jan Vuori, Janet Wagner, and Renée Dancause examined and provided conservation advice about a Renaissance altar cloth from the collection of the National Gallery of Canada.

Lyndsie Selwyn presented a lecture to students in Art Conservation at Buffalo State College, Buffalo, New York.

Michael Harrington organized CCI's professional development workshop "The Conservation of Gilded Artifacts" held at the Institute. **Deborah Bigelow** of Beacon, New York, was the primary instructor, and **Nancy Binnie, James Bourdeau, Leslie Carlyle, Marie-Claude Corbeil, and Kate Helwig** gave presentations at the workshop.



Deborah Bigelow (left) demonstrating bole manipulation techniques to participants in the workshop "The Conservation of Gilded Artifacts."

Bob Barclay gave a talk on "The Care of Antiques and Collectibles" at the Nepean Antiques Show, Nepean, Ontario.

Stefan Michalski gave a one-day seminar "Mechanical Behaviour of Paint Films: Implication for Treatment Processes" in Winnipeg, Manitoba, hosted by the Manitoba Heritage Conservation Service.

Brian Laurie-Beaumont visited the DesBrisay Museum and Exhibition Centre, Bridgewater, Nova Scotia, to discuss environmental control and facility upgrading.

Vicki Davis organized a meeting of the BCIN Content Review Board at CHIN. Participants from ICCROM, ICOM, ICOMOS, SCMRE (formerly CAL), and GCI came to CCI for a tour.

Retirements

CCI recognizes and thanks the following employees who retired recently after many years of service: **Paul Baril, Wayne Kelly, Émile Mongrain, Jacques Richer.**

Upcoming Seminars and Workshops

Responding to expressed needs, the Institute offers learning opportunities related to the care and conservation of collections in collaboration with Canadian heritage associations and organizations.

CCI is pleased to provide the following seminars and workshops in various localities across Canada during the period April 1998 - March 1999. Please contact the co-sponsoring organization to confirm dates and obtain registration information.

Opening and Closing a Seasonal Museum

Association Museums
New Brunswick
contact: Gilles Bourque,
tel. (506) 452-2908

Emergency and Disaster Preparedness for Cultural Institutions

Archives Association of
British Columbia
contact: Megan Cornish,
tel. (250) 385-9114

Ontario Association of Art Galleries
Ontario Museums Association
(joint sponsors)
contact: Susan Stevenson,
tel. (416) 598-0714, or
Janet Chessell,
tel. (416) 348-8672

Storage Planning for Mixed Collections

Association of Manitoba Museums
contact: Wendy Molnar,
tel. (204) 947-1782

Care of Industrial Collections

Museums Alberta
contact: Audrey Yardley-Jones
or Tali Laurenson, tel. (403) 424-2626

Prince of Wales Northern
Heritage Centre
contact: Rosalie Scott,
tel. (403) 873-7664

Preservation of Magnetic and Electronic Records

Association of Newfoundland
and Labrador Archives
contact: Jessie Chisholm,
tel. (709) 726-2867

Archaeological Conservation: Specialized Techniques and Research for Wet Objects Professional Development Workshop

November 2-5, 1998
at the Canadian Conservation Institute,
Ottawa, Canada

Wet archaeological materials present special challenges to the conservator. Improper treatment can result in irreparable damage. There has been considerable progress in the conservation of these materials over the last two decades, but there are many practical and scientific aspects of the assessment and treatment of wet archaeological objects that are not well understood. CCI is actively involved in research and treatment development in this area.

This intensive, four-day workshop will focus on the research, analysis, and treatment of **wet organic materials, iron, and iron composites** and combines presentations, hands-on experiences, lab tours, and demonstrations.

Instructors include scientists and conservators from CCI and the Canadian Parks Agency.

Participants should have practical experience in the conservation of wet archaeological materials. Conservation students and archaeologists with a special interest in the area are welcome.

Fee: CAN\$500
Registration deadline: October 2, 1998
(maximum 20 participants)

For further information and registration forms please contact:

Mary-Lou Simac
Conservation and Scientific Services
Canadian Conservation Institute
1030 Innes Road
Ottawa ON K1A 0M5 Canada
Tel. (613) 998-3721
Fax. (613) 998-4721
E-mail: mary-lou_simac@pch.gc.ca

CCI reserves the right to cancel the workshop if registration is insufficient.