CCI Newsletter

Canadian Conservation Institute

Institut canadien de conservation

Canadian Heritage Patrimoine canadien

Canada

No. 27
June 2001

ISSN 1180-3223

CCI is a knowledge-based organization; our mission is based on the development and active dissemination of information that will support conservation professionals in their crucial task of protecting cultural heritage. Our clients clearly indicate that this is **the** indispensable product they look to CCI to provide, and we take their message to heart.

The Institute has contributed to the understanding of heritage preservation throughout its history. This creation of knowledge is not just an accidental byproduct of our work; it is the principal product and focus of our strategic planning. With increasingly limited resources at our disposal, the potential to generate new and useful information is a major consideration in the review of all project proposals. And regular consultations with our client community ensure the work we undertake is also carefully targeted to meet their needs and interests.

CCI's knowledge is generated through the analysis and treatment of artifacts, and research and testing programs. Some of our activities in recent years have included: detailed studies of the materials and techniques of Canadian artists (Alfred Pellan, Tom Thomson, and David Milne), development of a knowledge base related to the stabilization and treatment of corroded archaeological iron and waterlogged wood, studies on the paints used on artifacts in Aboriginal collections, research into the processes of deterioration, preservation, and photographic recording of Aboriginal rock painting and petroglyphs, the development of a new Canadian standard for permanent paper, the development of new standards for the American Society of Heating, Refrigerating and Air-Conditioning Engineers, and the creation of a mini-suction table.

Bill Peters
Director General and Chief Executive Officer
Canadian Conservation Institute
tel: (613) 993-4266 – e-mail: bill_peters@pch.gc.ca

With this issue we're launching a new and updated look for the *CCI Newsletter*. Watch for further changes in future issues.

Cover photo: Flora Davidson consolidates flaking paint on the badly damaged canvas of Banting's kayak.

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:

Publications Sales
Canadian Conservation Institute
1030 Innes Road
Ottawa ON K1A 0M5 Canada
tel.: (613) 998-3721 ext. 250
e-mail: cci-icc_publications@pch.gc.ca
WWW site: http://www.cci-icc.gc.ca

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

Contents

CCI Innovation and Collaboration at Work in the Restoration of Banting's Kayak

by Tom Stone, Senior Conservator, and Flora Davidson, Intern, Treatment and Development Division - Objects

Sir Frederick Banting, best known for his co-discovery of a treatment for diabetes, acquired this sealskin-covered 7.6-m (25-ft.) Labrador Inuit kayak sometime after 1927. After his death in 1941 it languished in a barn on the Banting family farm until 1961, when Lady Banting donated it to the South Simcoe Pioneer Museum in Alliston, Ontario. By this time the kayak was in such poor condition that it could not be displayed. It arrived at CCI for treatment in the fall of 1998.

The years had not been kind to the kayak: the sealskin along the bottom had been cut off and the entire craft re-covered with cotton canvas; about 40% of this canvas was missing from the bottom and most of it was absent in the prow and stern areas; the sealskin that remained was deformed and brittle; the ribs of the stern were smashed and some had been lost; the bilge stringers and keelson were separated and out of alignment; and the prow[1] was completely detached.

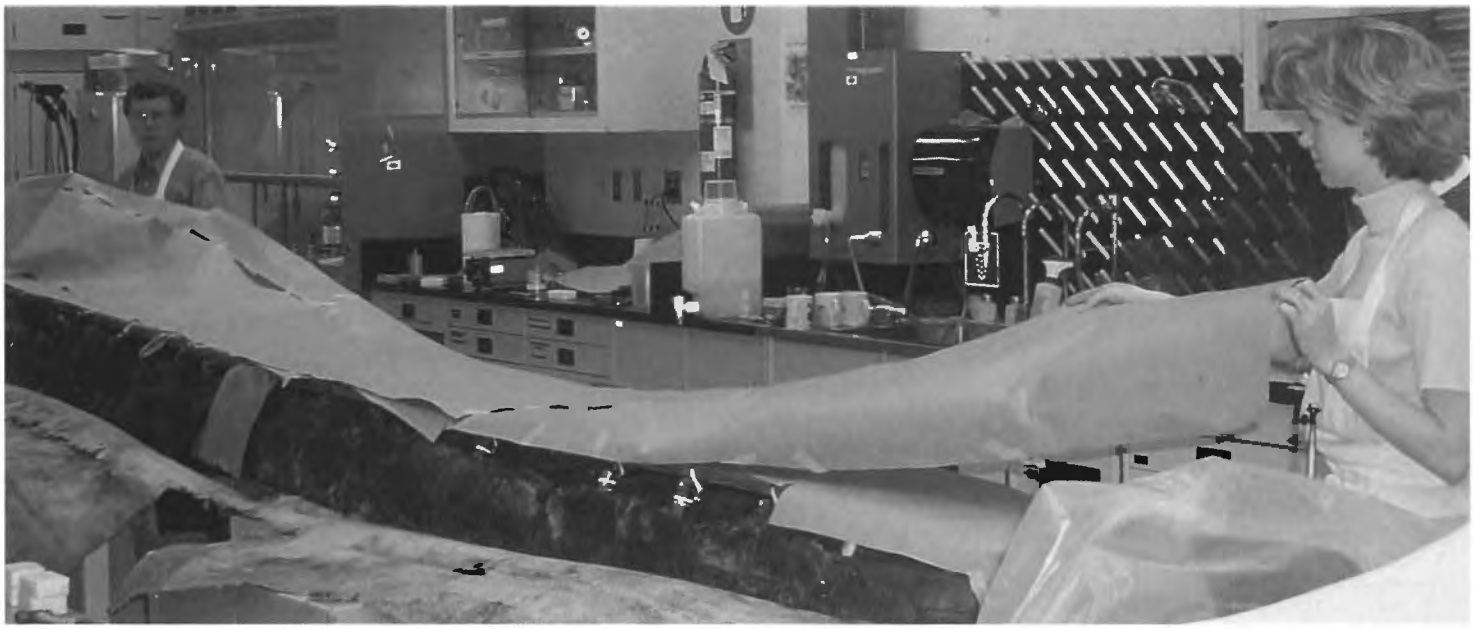
The first priority was to stabilize the structure of the kayak. Earlier repairs to several cracked deck beams had resulted in misalignment, so the smashed and broken ribs behind the cockpit no longer reached from gunwale to gunwale. As these previous repairs were part of the history of the kayak and it was ethically necessary to leave them in place, the ribs would have to be supported and their length extended by a few centimetres.

Replacement portion of the missing bilge stringer. The kayak is upside down and the original canvas has been folded back, revealing the remains of the original sealskin.

This problem was solved by cutting ordinary ABS plastic pipe down its length to produce two trough-like sections. These were cut to length, bent with the aid of a hot air gun, and then pressure fit along the inside face of the ribs and under the bottom edge of the gunwale.

These splint-like arrangements were fitted to each rib in the rear half of the kayak and lashed into place with cord.

The detached prow had notches cut into its interior face that would have fit the ribs of the kayak, and a series of holes for the seal or walrus skin lashings that would have held it

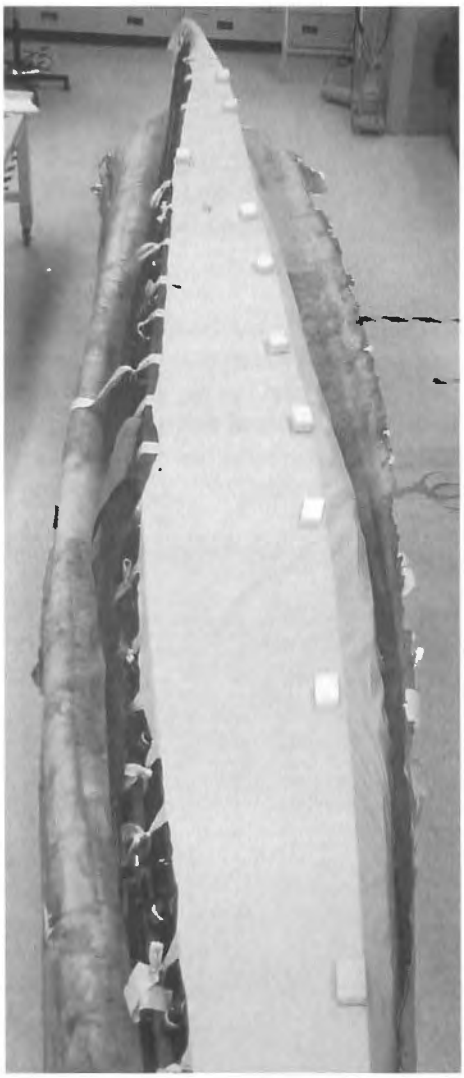


Tom Stone and Flora Davidson use kraft paper to develop a template for the replacement canvas.

tightly in place between the keelson and the gunwales. New ribs were made to fit between the gunwales and the prow, but the pattern for lashing the prow in place could not be discerned from the holes. The mystery was solved when a photo of several Inuit from northern Labrador tying the prow of a kayak into place was located in the archives at the Canadian Museum of Civilization in Hull. The detail in this photo indicated that a type of "Spanish winch" system should be used to pull the prow into proper alignment.

With the structural repairs and replacements complete, the major challenge was to integrate new canvas with the tattered remains of the old. After much thought and discussion with staff from both the Fine Arts and Textiles labs, a three-dimensional canvas lining approach was adapted from a method used to line paintings. Two new sections of acrylic canvas would be added; each would be 7.6 m (25 ft.) long, would extend down either side of the kayak, and would be adhered under the old canvas using BEVA 371 (a method often used by fine arts conservators for canvas-to-canvas bonds).

Tom Stone heat-sets the old canvas to the new acrylic canvas.



The unbleached cotton template fitted tightly to the frame of the kayak and tied in place.

Templates for the canvas strips were made using kraft paper. This rough shape was then transferred to unbleached cotton and further refined on the frame of the kayak before being transferred to the acrylic canvas.

The first 7.6-m strip (strip A) was adhered under the old canvas on the right side of the kayak, pulled tightly across the bottom, and tied to the wooden framework using a series of tabs. The second 7.6-m piece (strip B) was adhered under the old canvas on the left side of the kayak, pulled tightly across the bottom (overlapping strip A), and heat-set to strip A with BEVA 371. Strip B extended only halfway across the bottom of the kayak; its edge was tightly hand-stitched down the full length of the craft using curved needles.

Large excesses of material were left at each end of the craft on both strip A and strip B, and these were to be wrapped up and around to the top deck. Following advice on traditional tailoring techniques from the staff of CCI's Textiles Lab, the canvas strips were cut, and darts and tucks were inserted so that the material would form tightly to the prow and stern; all stitching was again done by hand using curved needles.

Once in place the new acrylic canvas provided backing and support for the original canvas, and returned the kayak to its original taught, sleek shape. After painting the replacement canvas to approximate the colour of the old canvas, the work was finally complete. The kayak was once again an object of beauty, and is currently on display at the South Simcoe Pioneer Museum.

This long and challenging project exemplifies the multidisciplinary approach that CCI must often bring to complex conservation treatments.

1. The prow is a long slightly curved piece of wood that links the bottom of the kayak to the gunwales at the very tip of the craft, and when covered with skin or canvas forms the bow that cuts through the water.

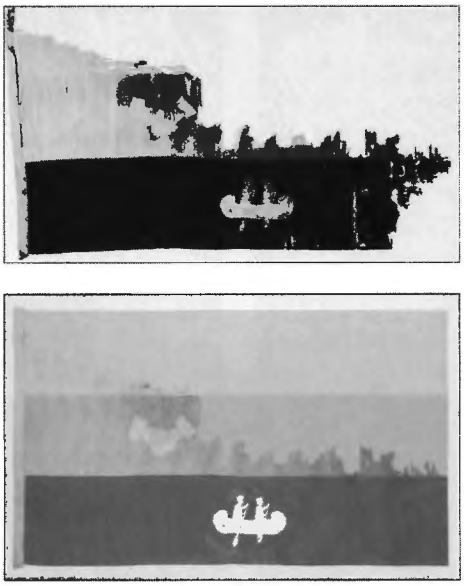
Conservation Treatment of the Kanehsatake Flag

by Jan Vuori, Conservator, Treatment and Development Division - Textiles

Flags are important symbols of cultural identity. This one, from the Tsi Niionkwarihò:ten Cultural Centre Ne Kanehsatake in Kanehsatake, Quebec, possesses a special significance because it is unique. Made by three Kanien'kehá:ka women from Kanehsatake (Eleanor Awenhó:kon Simon Martin, Mary Kakwirá:'es, and Rebecca Margery Martin) more than 90 years ago, it was raised regularly for ceremonies and holidays. Over time, however, the condition of the flag deteriorated (from insect attack on the wool portions, as well as mechanical damage from use) to the point where it could no longer be handled without risk of further loss. To preserve what remained of this flag and enable it to be displayed, it was sent to CCI for treatment.

After careful consideration, it was decided that the flag should be cleaned, aligned, and mounted onto fabric that would indicate its original dimensions, with no attempt to re-create the lost appliquéd decorations. Although approximately half the flag was missing, a small portion of hem remaining on the 'fly' end clearly indicated its length, and the width could be deduced from the tripartite construction. This treatment would not only physically stabilize the flag, but also make it look like a flag once more.

The initial stage in the treatment was cleaning. Mechanical surface cleaning was carried out through protective screening using a vacuum cleaner with reduced suction. Wet cleaning (i.e. delicate washing using conservation methods) was conducted only after testing all components for colourfastness. Wet cleaning is desirable because it not only removes soils but also flushes out acidic degradation products and 'plasticizes' the fibres so that the fabric can be straightened and the wrinkles reduced. The flag was stitched between two layers of a sheer polyester fabric to prevent any loss during the wet cleaning procedure.



Kanehsatake flag, before (top) and after (bottom) treatment.

Because old textiles become weaker when wet, the flag was also placed on a rigid screen made from ABS piping and nylon screening. Canpac 645 (a neutral pH detergent) was then applied by sponging it through an additional layer of screening, followed by thorough rinsing.

The flag was then transferred to a tabletop where it was aligned or 'blocked out' using the water to 'float' the fabric. Once the main outline and the larger fragments were aligned, the flag was blotted and quickly air-dried. Tangled loose threads were later coaxed into proper position using a lightly dampened brush.

The final stage of the treatment was mounting the flag onto fabric that would indicate its original dimensions. As each of the three bands of the flag was in a different condition, each required a different technique for attachment.

The cotton fabric making up the top band and the pole sleeve was too weak to withstand very much stitching. These areas were backed with silk crepeline (a fine, nearly transparent fabric) coated on both sides with a solution of Clariant T1460 (a thermoplastic adhesive). The excess crepeline was trimmed away, and the cotton was then adhered to the backing fabric by heat setting. This method reinforced the cotton to the extent that a few small stitches could be taken around the edges using hairsilk (an extremely fine silk thread).

The middle band of fabric was a wool/cotton blend. Areas of loose threads in this band were also adhered to patches of silk crepeline and heat set to the backing fabric. This method of attachment was augmented with couching stitches in hairsilk. Sound areas of this band of fabric were attached to the backing fabric solely by stitching.

The bottom band of fabric was also a wool/cotton blend. In this band the fly end was so fragmented that it could not be stabilized with adhesive-coated crepeline because the adhesive would be too difficult to remove from the many areas where it would be exposed. Fortunately the fabric was strong enough to be stitched, so all of the bottom band was attached to the backing fabric in this manner. Fragments and weak areas were couched onto the backing fabric using hairsilk.

Even after treatment the flag required a solid support in order to be displayed. This was made from plywood covered with Marvelseal (a nylon, aluminum, polyethylene laminate that prevents wood's acidic products from escaping), which was then padded with needle felted polyester batting and covered with pre-washed cotton. The flag was attached to this mount primarily by stitching through the support fabrics, with some stitching through the flag itself around the appliquéd decorations and outer edges. The mounted flag was then installed in a Plexiglas case, made by a local plastics firm, to protect it from dust and accidental soiling.

Icons of the Basilian Fathers Restored

by Carol MacIvor, Senior Communications Advisor, Information Services and Marketing

Among the wide range of objects that CCI has treated over the years are six religious icons of rare beauty that belong to the Order of St. Basil the Great (commonly called the Basilian Fathers).

CCI's first contact with the Basilian Fathers Museum came in 1986 when the Mobile Laboratory visited the museum to assess the condition of some of its icons. Most of these religious paintings on wood had been acquired by a Basilian priest, Father Josaphat Jean, a scholar and collector of Ukrainian ecclesiastical art. By 1986 the icons were suffering various amounts of damage.

Icon of Saint John the Evangelist *before (left) and after (right) treatment.*

The building of a new museum in 1990 resulted in another visit by CCI a couple of years later. At this time six valuable icons were selected for treatment by Senior Conservator Peter Vogel. The oldest of these icons dated to the mid-16th century.

Peter says the approach to treating icons "is completely different than paintings on wood because of their religious and historical significance." Some of the damage may be "historically relevant and part of their importance."

Take for example the icon of *Saint John the Evangelist*, an 18th-century panel of tempera on wood. There are bullet holes across the icon, some Cyrillic lettering on both sides of the Saint's head, and damage around the edges. There is also evidence that, at some point, efforts were made to remove the lettering by covering it over with some kind of plate. Peter points out that it is also common for icons to sustain damage from being handled repeatedly, moved from place to place, and exposed to the smoke of burning candles and incense.

The treatment plan for this icon was worked out in consultation with Dagmar Rais (curator of the museum) and the Basilian Fathers. It was decided that the bullet and pellet holes and the Cyrillic writing should be left untouched because they form an important part of the icon's history and value, but water damage along the bottom and other stains from handling over the years should be treated.

An inpainting technique known as 'trateggio' was used to restore areas on the figure of the Saint where paint had come off. This technique is less intrusive than some other methods, and consists of a pattern of vertical lines of paint of varying thickness and shade. The retouching, although visible from close range, is not apparent from a normal viewing distance.

Peter states that he feels "privileged" to have been involved in the treatment of the icons (a few of which were treated under his guidance by private conservators on contract). In reference to *Saint John the Evangelist*, he says "the icon has regained its unity and its artistic and liturgical messages have been preserved." "More importantly," he adds, "the damage and marks left behind, from a turbulent history, remain silent witnesses."

More information on CCI and its activities can be found on CCI's World Wide Web pages:
http://www.cci-icc.gc.ca

The Basilian Fathers: Their Mission and Their Museum

by Dagmar Rais, Curator, the Basilian Fathers Museum

A 45-minute drive east of Edmonton lies the small town of Mundare, an important historical centre of Ukrainian settlement and of the Basilian Fathers in Canada. A Ukrainian Catholic religious order of priests and lay brothers, the Basilian Fathers came to Canada in 1902 to serve the Ukrainian people who had begun to settle here in 1891.

When contacts with communities in Ukraine were cut off by the Communist regime during the 1940s, the Basilians realized that they had a role to play in preserving not only the religious life but also the cultural life of Ukrainian-Canadians. To meet this need they decided to establish a museum in the location of their first mission, the town of Mundare.

The core of the original museum collection was an accumulation of artifacts acquired by Father Josaphat Jean, a French Canadian who assimilated into Ukrainian life and eventually became a Basilian monk. In 1910, inspired by the desire to do missionary work among the Ukrainians in Canada, he went to Ukraine to learn the language and the Byzantine Rite. Motivated by the colourful history of Lviv and impressed with the monastery library holdings, he began to collect old liturgical books and icons. He later started collecting a wide variety of artifacts with the intention of establishing a Ukrainian museum in Canada. This dream was realized in 1953 with the opening of the first Ukrainian museum in Mundare by the Basilian Fathers.

The new Basilian Fathers Museum in Mundare, AB.

The current museum was opened in 1990. It boasts three galleries: one focuses on Ukrainian settlement in western Canada; the second highlights the history of the Basilian Fathers in Alberta; and the third houses changing exhibitions related to the community.

Historically Accurate Reconstructions of Oil Paint

by Leslie Carlyle, Senior Conservator, Materials Historian, Conservation Processes and Materials Research Division

Although a great deal of information is available on artists' pigments, knowledge of the oil binder and mediums has been much slower to develop. This is not surprising seeing that methods to investigate the ingredients from small samples (small enough to allow detailed analysis from actual paintings) have become available only in the last few decades. These new techniques have awakened great interest in the function of these materials.

In 1999,[1] I was involved in making historically accurate reconstructions of oil processing and paint mediums using recipes from artists' instruction books that had been published in Britain between 1808 and 1845. These oils and mediums were then used to make hand-ground paints using lead white pigments, umber, and vegetable black. One goal of this work was to discover what components contribute to defects commonly seen in old paintings, e.g. film-formation problems such as drying-craqueleure and wrinkling as well as the tendency of lead white paints to yellow in the dark and to grow increasingly transparent with age.

To ensure that all steps in this study followed historical practice, linseed oil[2] was freshly pressed from organically grown flaxseed using a custom-built oil press. The subsequent oil was treated with and without lead driers [lead (II) oxide (litharge), lead acetate, and lead subacetate], and with and without heat. The oil was also treated by washing it in water over a period

of weeks. In some cases, untreated freshly pressed oil was used for comparison.

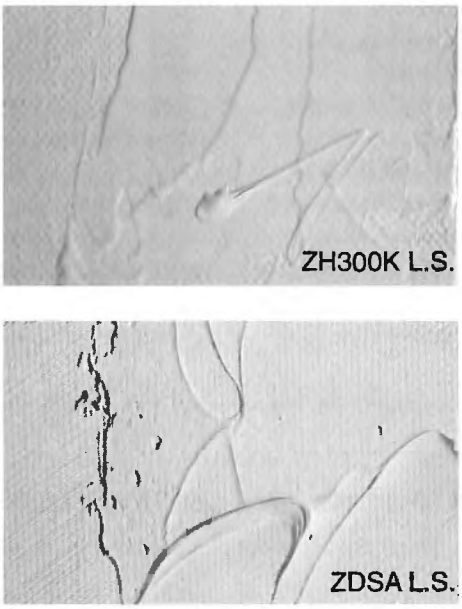
Oils and pigments were ground together using a granite slab (5 cm thick, 50 x 50 cm square) and a granite muller (8.5 cm diameter, 4.7 cm high); this equipment was necessary because grinding lead white requires substantial force. The paint was applied to several different substrates (artists' boards, black and white opacity charts, and Mylar) with different application techniques: a brush and a palette knife on the artists' boards, and a draw-down bar that deposits a thin film of uniform thickness on the opacity charts and Mylar.

It was evident, even in the initial stages of grinding, that the method of oil processing has a profound effect on the texture, consistency, and flow properties of the paint. This was especially true of lead white paints, and less so with umber and vegetable black.

Another interesting finding was the relationship between the oil content and the paint flow. One might expect that a paint containing less oil would be more stiff than a paint made with more oil, yet the most fluid lead white paints were made with the least amount of oil. The type of drier also had a striking influence, e.g. the addition of lead acetate to the oil resulted in a thick, fluffy, and sticky paint with a consistency not unlike whipped butter. In these examples the deciding factor in the rheology of the lead white paint was the oil processing method rather than the amount of oil present or the presence of other mediums.

When Megilp or Gumtion[3] was added to paint, the characteristics of these gelled mediums generally overshadowed the effect produced by the oil processing method; the addition of either resulted in a highly manageable paint. Copal varnish, another 19th-century addition to paint, initially behaved similarly but it had a very short working time and tended to slump after application. Full details of the preparation of the oils and mediums and the working characteristics of the paints can be found in CCI Report No. 72894.[4]

These oils and paint samples have been part of several studies in the Netherlands to investigate their chemistry before and after artificial aging, and the development of transparency as the paint ages. At CCI, a project is underway to investigate the response of the lead white samples to light exposure and storage in the dark. Lead white paint is well known for its tendency to yellow in the dark and to bleach when exposed to light. A previous project demonstrated that this phenomenon still occurs in oil paintings that are more than 100 years old. By subjecting the lead white paint samples to cycles of dark and light and reading their response with a spectrophotometer, it is possible



Lead white paint made with oil heated to 300°C (top). Lead white paint made with fresh oil, drier added during paint grinding (bottom).

to determine what constituents lead to greater or lesser yellowing in the dark. Initial results indicate that temperature during heat treatment can play a role in this, e.g. oils heated to 300°C yellow less in the dark than oils heated to only 150°C. The choice of the drier and the amount used are also important in the yellowing behaviour of the paint.

It is anticipated that these historically accurate paint samples will not only contribute significantly to the understanding of artists' oil processing and mediums in the studies mentioned above, but they will continue to be useful to researchers far into the future.

1. This work was undertaken during a 14-week fellowship in Amsterdam with Molecular Aspects of Aging in Art, a 5-year project (launched in February 1995) funded by the Netherlands Organisation for Scientific Research. The object of this project was to develop a scientific framework for the conservation of painted art from the 15th to the 20th century on the molecular level. Art historians, restorers, analytical chemists, and technical physicists were involved.

2. Artists' linseed oil is expressed from flaxseed (linseed), and must be refined or processed to remove water-soluble components (the mucilage) and hasten drying. Mucilage can be removed simply by allowing the oil to stand for long periods (since it gradually separates out) or it can be removed by washing the oil with water or treating it with heat and/or driers (metallic compounds).

3. Megilp and Gumtion were popular artists' mediums. When these gels were added to paint it became quite liquid and flowing under the brush, but when the brush was lifted the paint was more solid and did not run. John Scott Taylor described the buttery effect of adding Megilp, explaining that such paints "keep their place in working, with a flimsy firmness that is perfectly delightful" (p. 33 in Taylor, J.S. *Modes of Painting Described and Classified.* London: Winsor & Newton Limited, 1890).

4. Carlyle, L. *Molart Fellowship, Historical Reconstructions of Artist's Oil Paint: An Investigation of Oil Processing Methods and the Use of Medium-Modifiers.* CCI Report No. 72894. Ottawa: Canadian Conservation Institute, April 2000.

Soliciting Ideas for Future Research

by Carol MacIvor, Senior Communications Advisor, Information Services and Marketing

In May 2000, CCI once again consulted delegates at the annual meeting of the Canadian Association for Conservation of Cultural Property (CAC) about possible directions for future CCI research.[1] This feedback also provided an indication of the current concerns of the conservation community. The top 10 suggestions are shown in Table 1.

Although it is not a research topic per se, CAC members again cited advocacy as their most important priority for CCI. This is a clear indication that the conservation community wants to see CCI as a frontrunner in the promotion of conservation to Canadians. CCI agrees, and is actively considering how best to promote the concepts and practices of preservation and conservation within government, the heritage community, and the public.

The concern for the future of the conservation profession is also evident, with the need for both succession planning to safeguard current conservation and preservation knowledge (no. 2) and adequate training programs and employment opportunities for new conservators (no. 5) being mentioned. This is an ongoing problem that cannot be solved overnight. However, when the Queen's University Master of Art Conservation program celebrated its 25th anniversary in March 2001, CCI used the event to solicit input from the preservation community about future directions for conservators, including issues related to training and development.

With regard to iron gall ink, identified as the third most important priority, there has already been a considerable amount of research in Europe where collections are faced with it either fading or eating through paper. Although similar work has not as yet been undertaken in Canada, a starting point might be to make the current information more accessible by gathering it together.

The issue of architectural reproductions was also identified as an area of growing interest. Again, it may be worth exploring what research has already been undertaken in other countries. As architectural reproductions and iron gall ink are primarily archival issues, CCI will be discussing them further with the archival community.

Knowing which issues are most important to the heritage community will help CCI to develop a balanced research program that meets the identified needs. Unfortunately, a lack of expertise in some areas, coupled with commitments to other research projects, means that some of the topics may not be included for several years. In the meantime, CCI remains committed to listening and responding to your suggestions.

1. A similar consultation was conducted at the 1999 annual meeting of the CAC; see *CCI Newsletter* No. 24 (November 1999), pp. 6–7, for details.

Table 1
Summary of suggestions for CCI research by delegates at the CAC annual meeting, May 2000

Rank	Idea
1	Increase public awareness and advocacy about conservation and the role of conservators in heritage preservation.
2	Apprenticeships/fellowships to enable the transfer of knowledge and skills from older and soon-to-be retiring conservators to younger ones.
3	Iron gall ink: the deterioration process, evaluation of current treatments, storage applications, etc.
4	Architectural reproductions (blueprints, diazotypes, blueline, brownline): stability, storage, and treatments.
5	Increased opportunities for new conservators.
6	Recommendations for construction materials for architects, engineers, etc. for building new (or renovating old) museums, archives, libraries.
7	Analysis of the materials used by contemporary artists and the creation of an online database of the results.
8	Research into the deterioration mechanisms of rubberized fabrics.
9	Analysis of the stability of digital output media (such as dye sublimation prints).
10	Research into non-aqueous deacidification spray and the effects of residues on aging and future treatments.

Editor's Note

These three regular features appear in each issue of 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

Furniture Polishes

by James Hay, Senior Conservator, Treatment and Development Division - Furniture and Decorative Arts

As furniture has been around for thousands of years, so has the task of polishing it. And the methods and materials that have been used for this task have been as varied as the furniture itself.

Wax and oil finishes were the norm from the Iron Age until about 4 centuries ago. For wax finishes, periodic re-applications of wax made into a paste with turpentine sufficed to maintain the dull gloss and protection. Wherever flax could be grown, boiled linseed oil was popular as a finish and a polish.

Oil and spirit varnishes became popular by the 17th century; both of these produced a hard, shiny, reasonably permanent film, but they responded differently when polished. In 1861, Mrs. Beeton[1] suggested making a polish of "equal proportion of linseed-oil, turpentine, vinegar, and spirits of wine" which was to be applied with a clean linen rag, rubbed, then whisked off with a clean cotton duster. This may have worked well on intact oil varnish surfaces but since 'spirits of wine' was an old lay term for ethanol (which would instantly dissolve and strip spirit varnished surfaces), following this advice must have caused a lot of damage to a lot of furniture. Another peculiar recipe from the 19th century was cigar ashes and mayonnaise (the fine cigar ash provided a mild abrasive while the water/oil emulsion of mayonnaise provided a lubricant for grinding).

Moving into the 20th century, raw as well as boiled linseed oil and beeswax were being recommended for furniture polish, but with the addition of turpentine. Many commercial furniture polishes were also introduced.

There are two problems with all of these recipes. First, unless the compatibility of a polish with the furniture has been tested, the result of polishing is guesswork (and could result in damage). Second, it is always necessary to remember the goal of polishing, which is generally to maintain the finish rather than 'improve' it. Sometimes 'polishing' with any applied material is too severe a treatment—buffing with a 100% cotton cloth may be more than enough.

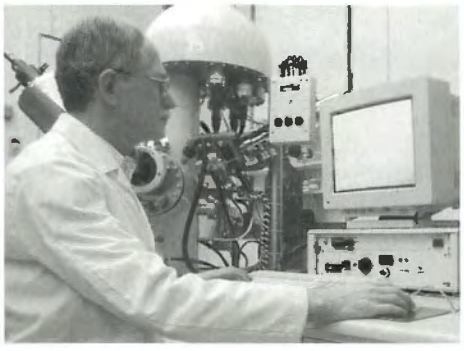
"What should I use to polish my furniture?" is about as easy to answer as "How should I bring up my kids?" To do either, one must first have an understanding of the raw materials and the times we live in, and then take a position on the value of the past in the future.

1. Beeton, I.M. *The Book of Household Management*. London: S.O. Beeton, 1861.

The Science of Conservation

Surfactant Residue and Rinsing Procedures for Historic Textiles

Season Tse, Conservation Scientist, and Dorit von Derschau, Intern, Conservation Processes and Materials Research Division



Gerald Pleizier, at the National Research Council of Canada, carries out X-ray photoelectron spectroscopic analyses.

Water washing is one of the most effective methods of cleaning historic textiles, and can be improved still further with the addition of detergents to the wash water. However, the long-term effects of detergent residue on textile artifacts are not well known, and are therefore a great concern for textile conservators.

Detergents are formulations of cleaning agents that are made up of the active cleaning ingredient, a surfactant, and various additives. Surfactants (surface active agents) are long-chain organic molecules with an oil-soluble end and a water-soluble end. They improve the cleaning action of water by lowering its surface tension, which allows better penetration of the water into soiled surfaces. The surfactant molecules also form spherical micelles that trap the oily soils, keeping them emulsified and suspended in the water. Additives are included in detergent formulations to enhance the cleaning power of the product; they may include builders to reduce water hardness, stain remover, antiredeposition agents, fillers, and other auxiliaries.

Conservation research into wet-cleaning and detergent use is ongoing in the United Kingdom. The British Museum and the Victoria and Albert Museum

have collaborated to study detergent efficacy and impact on historic textiles, and David Howell at Hampton Court Palace and Dr. Christopher Carr at the University of Manchester Institute of Science and Technology have pioneered the use of surface analytical techniques to investigate surfactant residue on light-aged wool fabrics.

CCI is also studying surfactant residue using surface analyses, working in collaboration with Dr. Yves Deslandes and Gerald Pleizier of the Institute of Chemical Process and Environmental Technology of the National Research Council of Canada (NRC). The goal of this small study is to evaluate the usefulness of X-ray photoelectron spectroscopy (XPS) for the detection of surfactant residue, and to look at the effectiveness of various rinsing procedures for different types of surfactants from different types of textiles.

The surfactants being used in the study are sodium dodecyl sulphate (SDS), Synperonic N, Synperonic A7, and saponin; the textiles are silk, wool, cotton, and linen. Each fabric has been rinsed at frequencies ranging from zero to six 10-min rinses. Shake test and UV-visible (UV-Vis) spectrophotometric analyses have been carried out for all the rinse waters; the results from UV/Vis analysis of rinse water were used to quantify the materials washed from the textiles and the detergent rinsed out. XPS analysis of textiles after treatment was done by Gerald Pleizier at NRC; this technique detects surfactant residue by analysing the surface 5–10 nm of the textile fibre for changes in surface atomic composition before and after treatment. Colour measurement (L*a*b*) of textiles after treatment and during light-aging will be used as an indicator of the long-term effect, if any, of detergent residue on textiles.

Results from wash water analyses showed that the shake test is very sensitive and gives results similar to those from UV/Vis spectrophotometry. Early XPS results showed loss of oils and other soluble material from 15-year-old wool test fabric after immersion in water and surfactants. Synperonic A7 proved to be more effective than SDS in removing oily soils from wool.

Research such as this will eventually be able to answer conservators' questions about the long-term effects of detergent residue, and allow them to use detergents more effectively and with greater confidence.

On Display

A 1911 CCM Motor Bicycle

by George Prytulak, Conservator, Treatment and Development Division - Industrial Collections

CCI recently restored a 1911 CCM motor bicycle for the St. Marys Museum in St. Marys, southwestern Ontario.

Only three of these bikes are known to exist: the one sent to CCI for treatment; a 1911 model on display at the Canada Museum of Science and Technology in Ottawa; and a 1910 model on display at the Burnaby Village Museum in Burnaby, BC. The latter was brought to CCI both to serve as reference material and to be restored itself later. For the first—and very likely last—time, all three CCM motor bikes were within walking distance of each other.

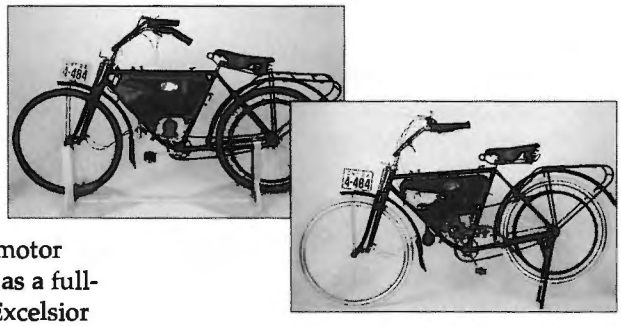
These motor bicycles were made by the Canada Cycle & Motor Company of Weston, Ontario, only during 1910 and 1911, and very little is known about them. They were not the precursors of motorcycles, but rather a hybrid that combined the best features of the bicycle and the motorcycle. Billed as both a "Lightweight Motorcycle" and "Motor Bicycle," they weighed less than 90 lb. (41 kg) and were "quick, wonderfully quiet and clean, with a famous 2-horse power motor"; top speed was 30 mph[1] (48 km/h) and fuel consumption an enviable 130 miles per gallon (46 km/L). In terms of performance, one testimonial claimed that "The machine has many admirers in Quebec. It goes up the Cote d'Abraham to the City Hall, and many motor cars cannot do that." Another satisfied customer claimed that, on being subjected to ridicule from local motorcycle riders, his bike had "simply sniffed at them and fairly bounded up [the hills]."

The one-cylinder motor was made in Switzerland, and the saddle in Birmingham, England. The remaining parts were manufactured entirely in Canada, including the wooden wheel rims made from the "finest selected Canadian hard maple." Priced at $190, these motor bikes cost about half as much as a full-sized, 4-hp (3-kW) Indian or Excelsior motorcycle. Not a king's ransom, but still a substantial sum at the time.

Having this trio of related bikes together contributed immensely to the accuracy of the restoration work. Much of the project focussed on repairing broken parts and fabricating replicas of missing components. Because most of the original surfaces were long gone or hidden by coats of paint, many hours were also devoted to re-creating an authentic paint scheme.

The motor bicycle is currently on display at the museum in St. Marys, a town which has, interestingly enough, a fair number of hills.

1. Presumably going downhill, with a tail wind, on a smooth stretch of road....



The CCM motor bicycle before (left) and after (right) treatment.

Is It or Isn't It? Scientific Examination of F 614 Reveals the Truth

by Marie-Claude Corbeil and Elizabeth Moffatt, Senior Conservation Scientists, Geneviève Sansoucy, Conservation Scientist, and Jeremy Powell, Senior Scientific Documentation Technologist, Analytical Research Laboratory

It is not often that CCI is asked to examine a painting that is considered to be a fake—especially a famous one—but such was the case with F 614.

F 614 is the number identifying the painting in the de la Faille catalogue, the first *catalogue raisonné* of van Gogh's *œuvre*. Soon after publication of the catalogue in 1928, scandal broke out when it was revealed that 33 of the listed paintings, including F 614, were suspect. These paintings had all been purchased from art dealer Otto Wacker, and the public prosecutor's office of Germany soon brought charges against him. The case known as "the Wacker affair"[1] opened on April 6, 1932.

Experts from many fields, including de la Faille himself, were called upon to testify. Although de la Faille had previously concluded that all 33 paintings were indeed forgeries, in his testimony at the trial he reconsidered this opinion and stated that five of the paintings, including F 614, were genuine. Most of the other witnesses declared all of the paintings to be fakes, but one believed that eight of them, again including F 614, were genuine. Otto Wacker was found guilty on April 19, 1932. But what about the paintings? Were they also guilty, or was there still a reasonable doubt about some of them, such as F 614?

It was with this question in mind that the current owners of the painting approached CCI. They were on a mission to determine once and for all if F 614 was a genuine van Gogh or a fake. Their quest for truth took them to Ottawa and Amsterdam, and was documented by Riverain Productions for the Canadian Broadcasting Corporation program *Witness*.

The painting arrived at CCI in the summer of 2000. It depicts cypress trees, and closely resembles another van Gogh painting entitled *Cypresses* (F 613), dated June 1889, in the collection of the Metropolitan Museum of Art. Other paintings depicting cypress trees, either as the main subject or as part of landscapes, are similarly dated to van Gogh's Saint-Rémy period (May 1889 to May 1890).

Once in the CCI laboratory F 614 was carefully examined first with the unaided eye and then with a stereomicroscope. It was radiographed and documented using various photographic techniques, and microscopic paint samples were removed for chemical analysis to determine the nature of the binder and pigments. The painting was then sent to the van Gogh Museum in Amsterdam.

The painting known as F 614.

Several observations suggested the painting was not by van Gogh, and test results brought to light various anomalies in the materials used to produce the painting, two of which were very significant.

First, the painting had been executed on a symmetrical, plain weave canvas (the number of threads being the same in the warp and weft directions), instead of the asymmetrical canvas typically used by van Gogh toward the end of his life. The original appearance of the canvas, which had been obscured by the painting's lining, was revealed by X-radiography.

Second, the paint's binding medium contained resin in addition to oil. The presence of a mixture of oil and resin was not, per se, anomalous; however, at the time of the scandal about a third of the paintings had been submitted to chemical analysis and resin had been found in the Wacker paintings but not in original van Goghs. Also, although very few binding medium analyses of van Gogh paintings have been reported in the modern conservation literature, those results have never shown the presence of resin.

The experts at the van Gogh Museum noted the anomaly regarding the canvas as soon as they saw the X-radiographs. With their vast knowledge of van Gogh's technique, they also discerned other aspects of the painting that indicated it was not his work.

Finally, all the pieces had come together. The story unfolded in the *Witness* documentary, from the Wacker trial in the early 1930s to the modern inquiries in the laboratories of CCI and the van Gogh Museum. The quest for truth had been successful and the deception revealed. F 614 was placed where it belonged, as part of the original group of 33 forgeries.

The painting remains part of one of the most famous art fraud cases. As such, and as an object of research for many years, it will always bear a special significance to its owners.

1. Details about the Wacker affair were taken from:
Feilchenfeldt, W. "Van Gogh Fakes: The Wacker Affair, with an Illustrated Catalogue of the Forgeries."
Simiolus 19, 4 (1989), pp. 289–316.

CCI Interns

by Carol MacIvor, Senior Communications Advisor, Information Services and Marketing

CCI is pleased to provide internship opportunities to students and graduates of conservation programs. Not only do these individuals get to hone or acquire new skills and research directions, but they add to CCI's knowledge base. Starting with this issue, the CCI Newsletter *will highlight the work of some recent interns.*

Dr. Emilio Cano Díaz (a graduate student from the National Center for Metallurgical Research in Madrid, Spain) worked in the Preventive Conservation Services Division with Jean Tétreault from July to December 2000. The study he undertook at CCI was a team project that included Maarten von Bommel (Netherlands Institute for Cultural Heritage, the Netherlands), Dr. David Scott (Getty Conservation Institute, United States), Dr. Luc Robbiola (École national supérieure de chimie de Paris, France), and Dr. Jean-Pierre Dallas and Dr. Marie-Geneviève Barthes (Centre National de la Recherche Scientifique, France).

The purpose of the project was to study the corrosion of copper and lead in environments rich in carbonyl vapours. [Carbonyl compounds include harmful vapours such as formic and acetic acid as well as formaldehyde; this is significant to museums because display and storage environments are often rich in carbonyls.] Emilio's role was to prepare about 200 samples of lead and copper, and then measure weight and colour changes of the samples as corrosion progressed. A chromatographic technique was used to monitor the levels of carbonyls; other techniques used in the study included X-ray diffraction and X-ray photoelectron spectroscopy.

Emilio Cano Díaz prepares metal samples for exposure to carbonyl vapours.

Lead corrodes more quickly than copper in the presence of acetic acid vapour at levels higher than 0.1 parts per million (ppm), which can easily be reached in museum situations if various display and storage materials (e.g. wood, fresh paint, white glue, and acid-type silicone) are used incorrectly. However, preliminary test results showed that if lead was exposed to formic acid, stable compounds that minimized further corrosion would form on the surface.

Copper, on the other hand, corrodes more quickly than lead in the presence of formic acid vapour levels above 2 ppm (which can easily be reached in display cases that are coated with oil-based or alkyd paints). And unlike lead, copper exposed to formic acid does not acquire a stable surface film. As a consequence, such exposure results in ongoing damage.

In research that is still underway, X-ray diffraction and X-ray photoelectron spectroscopy analysis will help to identify the composition of the compounds that build up on the surface of lead and copper as it corrodes. Increased understanding of the causes of rapid corrosion of copper and lead in carbonyl environments will help conservation scientists, environmental consultants, and conservators to improve control strategies.

Irene Karsten (a doctoral student in textile conservation science in the Human Ecology Department at the University of Alberta) worked in the Conservation Processes and Materials Research Division with Jane Down during the summer of 1999.

Irene Karsten cuts samples of adhesive films before measuring their tensile properties.

Irene's previous work had suggested that relative humidity (RH) during the drying process can affect the quality of adhesive coatings on sheer fabrics that are used to support textiles, as well as the stiffness and peel strength of silk textiles that are heat-sealed to these supports. Her goal at CCI was to test the theory that RH during drying can influence the properties of adhesive films. The work involved preparation of adhesive films at five different RH levels ranging from 6 to 85%, and measurement of their tensile properties and gloss after the films had dried.

Measurements were taken after 1 day and after 4 weeks of conditioning in an ambient laboratory setting with 50%RH. After 1 day of conditioning, dispersion adhesive films that had

been dried at very low RH levels exhibited lower gloss, lower tensile strength, and higher elongation at break than films that had been dried at very high RH levels. The differences in tensile properties disappeared after 4 weeks of conditioning in 50%RH, but the gloss differences persisted. Preliminary tests of adhesive films cast over polyester Tetex indicated that these differences in tensile properties could affect the integrity of the adhesive coating if the fabric was pulled off a Teflon-coated glass cloth release surface immediately after adhesive drying.

Clearly, therefore, RH is an important factor to be considered during the preparation of an adhesive-coated support fabric for textile conservation treatment. The results of this study, along with Irene's previous work that revealed the problem, will eventually be published in detail in the conservation literature.

Some other interns who have been at CCI in the past 6 months include:

Elizabeth Berry: A graduate of the Collections Conservation and Management program at Sir Sandford Fleming College. October 2000 to April 2001 in the Treatment and Development Division - Objects with Tom Stone.

Sarah Brett: A graduate of the Collections Conservation and Management program at Sir Sandford Fleming College. February to November 2001 in Learning and Development with Sonya Milly.

Wing-Fai Lai: A graduate of the Hong Kong University of Science and Technology and presently a conservator at the Hong Kong Museum of Art. January to December 2001, a joint internship with the Treatment and Development Division (with Bob Barclay) and the Preventive Conservation Services Division (with Jean Tétreault).

In Memoriam: James Hanlan

It is with sadness that CCI marks the passing of a colleague and, for many, a gifted mentor. James Hanlan died at his home in Kingston on August 1, 2000. His long and brilliant scientific career touched a wide variety of disciplines, and included work for DuPont, the National Gallery of Canada, CCI, and Queen's University.

While at the National Gallery, Jim contributed to the development of an analytical chemistry and research capability and pioneered the use of X-ray energy spectrometry for non-destructive elemental analysis of works of art. One early application of this technique was the compositional analysis of French-Canadian church silver. His work helped lead to the creation of CCI in 1972, and he worked at the Institute for two years before moving to Queen's University.

While at Queen's, Jim was responsible for the science component of the Master's of Art Conservation program. As one of the founders of conservation science in Canada, he guided his students through areas of science he felt were fundamental

to their profession: the physics of light, surface chemistry, polymer science, colorimetry, microscopy, and instrumental analysis. He also drew in the Chemistry, Physics, and Geology departments for demonstrations of other analytical instruments, a multidisciplinary approach that conservators often require. A large number of his students now work in the conservation profession across Canada and around the world.

Under Jim's supervision and guidance in studying conservation treatment methods and material, designing experiments to test the theories, and analysing and reporting the results, the research projects of his graduate students generated a remarkable quantity of diverse and interesting work. Over the years, he also identified a number of different chemical compounds with potential applications in conservation treatments.

Anecdotes abound about Jim's academic and scientific work, not to mention the social events he hosted with his wife Camille where long-lasting friendships developed among his students. One recalls a certain 'experiment' that left Jim and some colleagues stumped. On a fall duck hunting trip, the group found that beavers had built a dam on Jim's plot of land and the resulting pond made access to the site difficult. To outsmart the beavers and drain off the water, they inserted a large-diameter perforated pipe at the base of the dam. When next they visited, the pond was still intact and the pipe was sitting on the top of the dam!

CCI extends our deepest sympathy to Jim's family. He—and his contributions to conservation science—will always hold a special place for us.

Art Meets Science at the Varley Art Gallery

by Carol MacIvor, Senior Communications Advisor, Information Services and Marketing

A new and exciting exhibition was held at the Frederick Horsman Varley Art Gallery of Markham, Ontario, from January 31 to March 25, 2001. *Art Meets Science: An Investigative Look at Conservation* was put together by gallery director Sharon Gaum-Kuchar and conservator Janice Passafiume (of Jana Conservation). CCI Director General Bill Peters was on hand for the opening.

The exhibit highlighted the ways in which applied science is used in the conservation and preservation of heritage objects as well as contemporary ones. There were lectures, workshops, open house clinics, and even school tours for students ranging in age from 6 to 14.

Visitors had the chance to see how the various analytical tools are actually applied by conservators to detect damage and carry out restoration work.

Janice Passafiume (left) with Bill Peters and Sharon Gaum-Kuchar at the opening of the exhibition.

Conservators and conservation scientists from CCI, the Art Gallery of Ontario, the Royal Ontario Museum, the McMichael Canadian Art Collection, the City of Toronto Archives, and the University of Toronto Art Centre collaborated on the exhibition. CCI's Jean Tétreault, conservation scientist from the Preventive Conservation Services Division, was present for an information session on March 4.

The New Canadian Standard for Permanent Paper Has Been Adopted

Canada has a new national standard for permanent paper (CAN/CGSB-9.70)—the result of nearly a decade of research done by the Pulp and Paper Research Institute of Canada and CCI.[1]

The need for this standard was driven by the growing use of recycled paper and the longer-term challenge of preserving documents and publications printed on rapidly deteriorating acid paper. The need was particularly urgent in the case of recycled paper because of the difficulty in exercising control over its fibre content.

The research on which this standard is based was designed to study the factors that affect paper permanency, and the industry's ideas about this issue were very different from those of the archival community (the custodians of Canada's documentary and written heritage). The primary factor proved to be acidity from external sources (e.g. air pollutants), but research showed that the addition of calcium carbonate as a buffering compound could counteract the effect of air pollutants and improve the stability of paper. The research also showed that the composition of paper (e.g. the presence of lignin or surface coatings) can cause discoloration with age, even in otherwise stable paper. A distinction has therefore been made between mechanical and optical stability.

The new standard provides for a broad range of material to be used in the manufacture of permanent paper. This should lead to an increase in its use, which will in turn have a major impact on the preservation of paper documents.

CCI is proud to have been part of the work leading to the development of this standard.

1. For more information, see *CCI Newsletter* No. 24 (November 1999), pp. 1–2.

A Personal Review of
Adhesives for Textile and Leather Conservation: Research and Application

by Zenzie Tinker, Conservator, Victoria and Alberta Museum

[Excerpted from *Conservation News* 71 (March 2000), pp. 50-51.]

The CCI is an institution renowned for its conservation research and communication skills, so it was with high expectations that I joined 30 or so participants for this workshop. The participants, of varied conservation disciplines, were predominantly North America-based, but there were also conservators from Brazil, Mexico, Sweden, Estonia, Switzerland, France and Italy. I was the only UK-based conservator.

On our first morning we were greeted with an enormous ring binder containing samples and information, and a daunting-looking programme. We were ably led by Jane Down, Senior Scientist responsible for the adhesive research undertaken by the CCI over the last 20 years. Her first talk, which explained the results of the well-known CCI adhesives testing programme, greatly enhanced my understanding of this complex report. Some of the vinyl acetate/ethylene copolymer (VAE) adhesives have tested quite well, but can be problematic. The CCI is examining these problems and Jane's second talk, entitled Towards a Better Emulsion Adhesive for Conservation, comprised a preliminary report recently published by the CCI on the effects of modifiers on pure VAE.

An overview of adhesives for the support of textiles was given by Ela Keyserlingk, retired Senior Textile Conservator and Project Manager at the CCI.

Carole Dignard, Objects Conservator at the CCI, gave an overview of adhesives for the treatment of skins and leather.

Case histories formed a valuable part of the programme and were presented by both CCI staff and participants. Many illustrated the importance of cross-discipline approaches. Janet Mason, CCI Objects Conservator, detailed the treatment of an 1870s fur-trimmed cape. Nancy Pollack, a private conservator from the US with a paintings background, talked about treating an artist's paint-smeared overalls. Celine Bonnot-Diconne, Conservator at ARC Nucleart, Grenoble, presented the treatment of an early sealskin kayak and illustrated an air pressure-controlled syringe that administers minute amounts of adhesive, useful when treating delaminating surfaces.

During 14 hours of practical sessions we experimented with our huge range of adhesive samples and backing materials (which had taken CCI staff and interns many weeks to assemble). The benefits of hands-on experimentation cannot be over-emphasised. Sometimes the pace felt relentless, particularly with the innumerable leather samples, but while we grappled with our sausage skins and shared our observations, a good rapport was established between co-participants and workshop leaders.

The programme was well balanced between scientific research, object-based talks and workshop sessions. The combination of textile and leather worked well. Some of the practical sessions felt rushed and would have benefited from more formal discussion. This became evident only during the final session's evaluation of the adhesives we had used. Inexperience in using some of the adhesives meant that there was a danger of inaccurate conclusions regarding their characteristics being formed - something which may have been avoided had discussions been led by conservators familiar with the use of each particular adhesive. Overall, however, there was excellent exchange of information and experience.

Zenzie Tinker hangs a sausage skin (casing) to dry during one of many hands-on lab sessions during the workshop.

The organisers sought our opinions of the workshop and have already expanded their programme to five days, allowing more time for workshops and discussion. A lecture on the mechanics of adhesives and the bonds they form has also been added. The workshop was probably one of the most stimulating conservation events that I have attended due to the openness and enthusiasm of all involved. The huge amount of information that I came away with has already proved a valuable reference.

I am grateful to the V&A Conservation Department for financing my trip - the travel costs made attendance prohibitively expensive for many UK conservators. It is with this in mind that the CCI and the V&A have been discussing the possibility of bringing the workshop to the UK. Following a similar format, we would combine the CCI's experience with adhesives and of running such workshops with a more UK/European emphasis, in terms of materials and past adhesive use. It is hoped that this will be possible in Spring 2002.

Adhesives for Textile and Leather Conservation: Research and Application

Advanced Professional Development Workshop

October 15-19, 2001, at the Canadian Conservation Institute, Ottawa, Canada

Practical conservation techniques and science brought together in one workshop!

Format:

This five-day workshop (45 hours) combines extensive hands-on lab sessions with informative interactive lectures, demonstrations, group discussions, and participant talks.

Topic Include:

- adhesives for support, backing, and mounting of textiles and skins/leather, and for textile mount-making
- case histories and ethical concerns
- preparation, application, and techniques for removal of adhesive backings
- CCI research on: poly(vinyl acetate), acrylic, and vinyl acetate/ethylene copolymer emulsion adhesives; skins/leathers; and textiles

Registration:

Participants are expected to have practical background in the conservation of textiles, and/or of leather and skin objects.

Enrollment will be strictly limited to ensure an appropriate instructor/participant ratio. Language of instruction will be English. CCI reserves the right to cancel this workshop 1 month prior to presentation in the event of insufficient registration, and make program changes and/or substitute instructors as deemed necessary.

Registration fee (includes lunches and health breaks, materials, participant's manual with samples, and all applicable taxes):

Prior to July 31, 2001	CAN$700 for Canadian participants / US$950 for all others
On or after July 31, 2001	CAN$950 for Canadian participants / US$1250 for all others

CMA Bursaries are available for eligible Canadian participants; apply directly to CMA (http://www.museums.ca).

Learning Outcomes:

- understanding of the latest CCI research on adhesives as it relates to textiles and skins/leather
- familiarity with a variety of adhesives, backing and mounting materials, and methods of application
- first-hand experience with various adhesive treatments including an opportunity to build a personal set of samples
- exposure to the ideas, concerns, and personal experiences of colleagues from around the world

Instructors:

- Jane Down, Season Tse, and Dr. Greg Young, conservation scientists specializing in adhesives, textiles, and leather
- Carole Dignard and Janet Mason, objects conservators
- Jan Vuori, Renée Dancause, and Janet Wagner, textiles conservators

Registration is available online (http://www.cci-icc.pch.gc) or by contacting:

Christine Bradley
Canadian Conservation Institute
1030 Innes Road
Ottawa ON K1A 0M5 Canada

Tel.: (613) 998-3721 ext. 250
Fax: (613) 998-4721
E-mail: christine_bradley@pch.gc.ca
http://www.cci-icc.gc.ca

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 2001–2002. Specific dates and locations will be posted on our Web site at www.cci-icc.gc.ca [under Learning Opportunities] as they are confirmed.

Summer 2001

Emergency and Disaster Preparedness for Cultural Institutions
Host(s): Vancouver Maritime Museum
Location: Vancouver, BC
Date: July 5-6, 2001
Contact(s): Jennifer Breckon, Curator
Tel.: (604) 257-8307
E-mail: jbreckon@umm.bc.ca
Leader(s): David Tremain, Deborah Stewart

Works of Art on Paper
Host(s): Association of Manitoba Museums
Location: Winnipeg, MB
Date: September 13-14, 2001
Contact(s): Wendy Molnar, Training Coordinator
Tel.: (204) 947-1782
E-mail: amm@escape.ca
Leader(s): Sherry Guild, Heather Hendry

Care of Historical Furniture Collections
Host(s): Museum Association of Newfoundland and Labrador
Location: Twillingate, NF
Date: September 15-16, 2001
Contact(s): Ute Okshevsky, Executive Director
Tel.: (709) 722-9034
E-mail: uokshevsky@mail.gov.nf.ca
Leader(s): Michael Harrington, James Hay

Storage Planning for Cultural Facilities
Host(s): British Columbia Museums Association
Location: Quesnel, BC
Date: September 18-19, 2001
Contact(s): Lesley Moore, Resource Services Coordinator
Tel.: (604) 660-0916
E-mail:
Leader(s): Siegfried Rempel

Fall 2001

Preservation Management for Seasonal Museums
Host(s): Council of Nova Scotia Archives
Location: Halifax, NS
Date: October 18-19, 2001
Contact(s): Christine Lovelace, Education & Outreach Archivist
Tel.: (902) 424-7093
E-mail: cnsa@fox.nstn.ca
Leader(s): Deborah Stewart

Storage Planning for Cultural Facilities
Host(s): PEI Museum and Heritage Foundation; Archives Council of PEI; Community Association of PEI
Location: Charlottetown, PE
Date: October 25-26, 2001
Contact(s): Linda Berko, Curator of Collections & Conservator
Tel.: (902) 368-5743
E-mail: jberko@gov.pe.ca
Leader(s): Siegfried Rempel, Helen McKay

Winter 2002

Current Issues in Light and UV Deterioration
Host(s): Eastern Ontario Regional Museums Group
Location: Brockville (Brockville Museum), ON
Date: January 17-18, 2002
Contact(s): Bonnie Burke, Curator/Director
Tel.: (613) 342-4397
E-mail: bmchin@cybertap.com
Leader(s): Stefan Michalski, Jean Tétreault

Packing and Transport of Works of Art
Host(s): Ontario Association of Art Galleries
Location: Cambridge, ON
Date: January 24-25, 2002
Contact(s): Sandra Fraser, Program & Membership Services
Tel.: (416) 598-0714
E-mail: oaag@interlog.com
Leader(s): Paul Marcon

Emergency and Disaster Preparedness for Cultural Institutions
Host(s): Prince of Wales Northern Heritage Centre (PWNHC)
Location: Yellowknife, NT
Date: February 5-6, 2002
Contact(s): Rosalie Scott, Conservator
Tel.: (867) 873-7664
E-mail: rosalie_scott@ece.learnnet.nt.ca
Leader(s): David Tremain, Deborah Stewart

Modern Information Carriers
Host(s): Archives Society of Alberta
Location: Edmonton, AB
Date: February 15-16, 2002
Contact(s): Linda Fraser, Chair, Archives Society of Alberta Education Committee
Tel.: (403) 220-7420
E-mail: lmfraser@ucalgary.ca
Leader(s): Joe Iraci, Tom Strang

Modern Information Carriers
Host(s): Manitoba Museum of Man and Nature
Location: Winnipeg, MB
Date: February 18-19, 2002
Contact(s): Barry Hillman
Tel.: (204) 956-2830
E-mail: bhillman@manitobamuseum.mb.ca
Leader(s): Joe Iraci, Tom Strang

Emergency and Disaster Preparedness for Cultural Institutions
Host(s): Yukon Council of Archives
Location: Whitehorse, YK
Date: February 28 - March 1, 2002
Contact(s): Donna McBee, Director
Tel.: (867) 667-8785
E-mail: donna.mcbee@gov.yk.ca
Leader(s): David Tremain, Deborah Stewart

Détérioration due à la lumière et aux rayons UV
Host(s): Société des musées Québécois
Location: Montréal, QC
Date: To be determined
Contact(s): Manon Lapointe
Tel.: (514) 987-3264
E-mail:
Leader(s): Jean Tétreault, Stefan Michalski

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.

November

At the **Walters Art Gallery** in Baltimore, MD, Jane Down and Scott Williams took samples from the Archimedes palimpsest (a 10th-century parchment manuscript that contains copies of seven of Archimedes theorems and is considered the oldest copy of these works) to analyse adhesives, identify ink, assess mould contamination, and assess the state of deterioration of the parchment.

Scott Williams takes a sample from the Archimedes palimpsest.

At the 47th annual meeting of the **Canadian Society of Forensic Science** in Ottawa, Marie-Claude Corbeil gave a lecture "Authenticity and Art Fraud: Scientific Examination of Works of Art."

Marie-Claude Corbeil participated in the first International Working Group Meeting on Developing Postgraduate Curricula for Conservation Scientists (CURRIC) at the **International Centre for the Study of the Preservation and Restoration of Cultural Property** (ICCROM) in Rome.

Robert Barclay presented a lecture "The Silent Artisan" for the **Literary and Historical Society of Quebec** in Quebec, QC.

As part of the ongoing Canadian Forces Museums' preventive conservation surveys contracted by the **Directorate of History and Heritage of the Department of National Defence,** Stefan Michalski visited the **Labrador Military Museum** in Goose Bay, NF, and the **Maritime Command Museum** in Halifax, NS.

December

At the request of the **Montpelier Foundation,** Stefan Michalski visited **James Madison's Montpelier** in Virginia to provide advice to Michael Quinn (Executive Director) and Lee Langston-Harrison (Curator) about climate control proposals for the exhibit "The Pleasure of Your Company is Requested: A 'Harvest Home Supper' with the Madisons."

Siegfried Rempel visited the **Winnipeg Art Gallery** in Winnipeg, MB, to consult on upgrading options.

January

In Winnipeg, MB, Brian Laurie-Beaumont facilitated a weekend development planning session for the **Transportation Heritage and Technology Centre** (a proposed new museum that will encompass more than a dozen transportation-related organizations in the Winnipeg area).

Siegfried Rempel visited the **Beaverbrook Art Gallery** in Fredericton, NB, to consult on environmental control upgrades.

Judy Logan attended the **Archaeological Institute of America** (AIA) conference in San Diego, CA, as a member of the AIA's Conservation and Heritage Management Committee.

As part of the ongoing Canadian Forces Museums' preventive conservation surveys contracted by the **Directorate of History and Heritage of the Department of National Defence,** Siegfried Rempel visited **CFB Cold Lake,** AB.

Judy Logan presented a paper "Towards an Understanding of the Archaeological Record: Learning Through Conservation" at the annual conference of the **Society for Historical Archaeology** in Long Beach, CA; she also chaired a session on "Education in Archaeology" and attended a meeting of the Society's Curation, Conservation, and Collections Management Committee.

Jane Sirois and Ian Wainwright visited the **Canadian Museum of Civilization** in Hull, QC, to analyse (non-destructively) Aboriginal artifacts to detect the presence of arsenic and mercury compounds.

In Chicago, IL, Stefan Michalski met with Karen Sweeney (Director of Restoration) and Cheryl Bachand (Curator) of the **Frank Lloyd Wright Preservation Trust** to provide advice about climate control proposals for **Robie House;** he was also asked to survey (with Richard Born, Curator) the Wright furniture collection held by the University of Chicago's **Smart Museum of Art** and report on its vulnerabilities.

James Bourdeau led a CCI team (including Paul Heinrichs, Nancy Binnie, and James Hay, with the assistance of Marie-Claude Corbeil and Elizabeth Moffatt) on an investigation of the interior finishes in the **Supreme Court of Canada** building in Ottawa.

February

In response to an increasing number of inquiries on **outdoor murals,** Debra Daly Hartin visited Chemainus, BC, to examine briefly the condition of the town's many murals.

David Grattan (right) and two students in the Marine Archaeological Conservation program examine a piece of waterlogged wood.

David Grattan presented a course "Introduction to Organics" to 16 students in a new diploma program in Marine Archaeological Conservation at the Department of Conservation Studies, **Evtek Institute of Art and Design,** Vantaa, Finland (for more information see Web site http://www.evitech.fi/muotoilu/aikuiskoulutus/koulutusohjelmat/marine).

Siegfried Rempel and Brian Laurie-Beaumont undertook a major review of the collections preservation needs of the **National Library of Canada** in Ottawa.

Brian Laurie-Beaumont and Siegfried Rempel visited the **Reynolds-Alberta Museum** in Wetaskiwin, AB, to review the facility and its operation to gain insights and information that may be of use to other transportation and technology institutions under consideration.

CCI hosted a meeting with the **Canadian Council of Archives** (CCA) to discuss archival needs, including modern information carriers, architectural drawings, iron gall ink, mould, and adhesives. In attendance from the CCA were Michael Moosberger, Johanna Smith, Margaret Bignall, John Grace, Rosaleen Hill, and Mireille Minniggio; CCI participants included Joe Iraci, Paul Bégin, Jane Down, Season Tse, Tom Strang, and Charlie Costain.

Geneviève Sansoucy and Jane Sirois visited the **Royal Ontario Museum** to analyse (non-destructively) 220 objects from the Anthropology Division to detect the presence of arsenic, mercury, and lead.

In conjunction with a CCI workshop in Whitehorse, YK, Debra Daly Hartin and Sherry Guild visited the **MacBride Museum Society** and the **Yukon Provincial Archives** to advise on specific objects; these visits were arranged by Valery Monahan (Conservator, Heritage Branch of Yukon Tourism).

Siegfried Rempel visited the **New Brunswick Museum** in Saint John, NB, in support of a Museums Assistance Program application; he also went to Alberta to visit the **University of Lethbridge Art Gallery** in Lethbridge in support of a Movable Cultural Property Program inquiry, and the **Royal Tyrrell Museum** in Drumheller to assist in a facility upgrade planning exercise.

March

Charlie Costain attended meetings of the Advisory Committee and the Council at **ICCROM** in Rome.

In conjunction with the 25th anniversary of the Master's of Art Conservation program at **Queen's University** in Kingston, ON, CCI hosted a meeting with private conservators to discuss future directions for conservation as well as training and development needs; CCI's Director General Bill Peters and staff members Charlie Costain, Cliff McCawley, Linda Street, and Sonya Milly participated.

David Tremain presented a one-day workshop "Emergency & Disaster Preparedness for Cultural Institutions" to staff of the **George R. Gardiner Museum of Ceramic Art** in Toronto, ON.

Brian Laurie-Beaumont and Siegfried Rempel met with members of the steering committee for the proposed **RCMP Heritage Centre** at "The Depot" (the RCMP national training centre and currently home to the RCMP Centennial Museum) in Regina, SK, to comment on the planning done to date and make suggestions for future development.

April

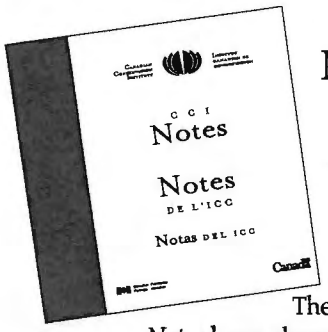
Many CCI staff participated in the 54th annual meeting of the **Canadian Museums Association** in Ottawa-Hull, which included an opportunity for delegates to visit CCI's laboratories. Charlie Costain also attended a meeting of the Forum of Provincial Museum Associations to report on CCI's activities and directions, and Stefan Michalski took part in a panel presentation with Bill Barkley, Candace Sweet (Parks Canada), and Rob Waller (Canadian Museum of Nature), on practical risk assessment methods for museums.

During the fall of 2000, CCI was pleased to welcome a contingent from the Getty Conservation Institute (GCI) in Los Angeles, CA. Alberto de Tagle (Group Director for the Science Department) was accompanied by Michael Schilling (Associate Scientist), James Druzik (Senior Scientist), and Franciza Toledo (Intern). This visit to Ottawa was just one in a series of ongoing exchanges between CCI and GCI on research topics of common interest. Pictured above (from left to right), Charlie Costain, Michael Schilling, James Druzik, Alberto de Tagle, and David Grattan take time out to view the scenic fall foliage of Gatineau Park, QC.

Jane Sirois presented a lecture "Analysis of Museum Objects for Hazardous Pesticide Residues" at the symposium "Preservation of Native American and Historical Natural History Collections Contaminated with Pesticide Residues" (sponsored by the **Society for the Preservation of Natural History Collections**, the **National Park Service**, and the **National Museum of the American Indian**) in Shepherdstown, WV.

During a trip to New Brunswick, Brian Laurie-Beaumont and Siegfried Rempel visited Fredericton to discuss the development of a **Museum for the Malisseet First Nation**, and Eel River Bar to discuss the development of the **Medicinal and Aromatic Plants Aboriginal Heritage Garden**, a Mi'kmaq project.

James Bourdeau conducted an investigation of the materials and condition of three decorative ceilings in the **Official Residence of the Canadian Ambassador to Japan** in Tokyo.



Notas del ICC

The *CCI Notes* have always been a mainstay of CCI publications, and this year we are pleased to offer them in Spanish as well as English and French. The translation was done by the Centro Nacional de Conservación y Restauración (CNCR) in Santiago, Chile, under the auspices of a Memorandum of Understanding with CCI and with funding from the Fundación Andes. Clients in Central and South America and the Caribbean can obtain *Notas del ICC* directly from CNCR. All other clients can order the complete set from CCI.

21.5 x 28 cm (8.5 x 11") – 3-hole punched and inserted into binder – 1999
In Canada: CAN$85
Other countries: US$85