Tara

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The *equus lambei* : an Ice Age horse

by Tara Grant, Conservator, Conservation Processes and Materials Research

In 1993 the partial carcass of a horse (*equus lambei*) was discovered near Dawson City, Yukon. Frozen in the permafrost for 26,000 years, the preserved remains were uncovered by miners digging for gold. The miners, who often find the remains of Ice Age animals in the deposits they are working, contacted the office of the Yukon archaeologist, who in turn notified Dr. Richard Harington of the Canadian Museum of Nature (CMN). Both the hide and the leg were sent to the CMN for further study.

The find consisted of a well-preserved foreleg and most of the hide. The leg was intact with bones, sinew, skin and inner hoof. Radiocarbon dating of the bone from the leg confirmed the age of the artifact. Already freeze-dried, the foot needed no conservation treatment, but the hide would deteriorate if left to dry out. Dr. Harington contacted CCI for advice on treatment.

Equus lambei was a small horse about the size of a modern pony. During the last Ice Age, it roamed in large numbers throughout the area that is now the Yukon and Alaska. It shared this region with woolly mammoths, scimitar cats, mastodons, Arctic rhinoceroses, short-faced bears and lions. The climate was warmer then and much of the area was unglaciated. Having evolved in North America, *equus lambei* eventually crossed the Bering Sea land bridge to populate Asia. Cooling climatic

Tara Grant cleaning the horse hide using water supply/water suction device (left). Detail of head (right).

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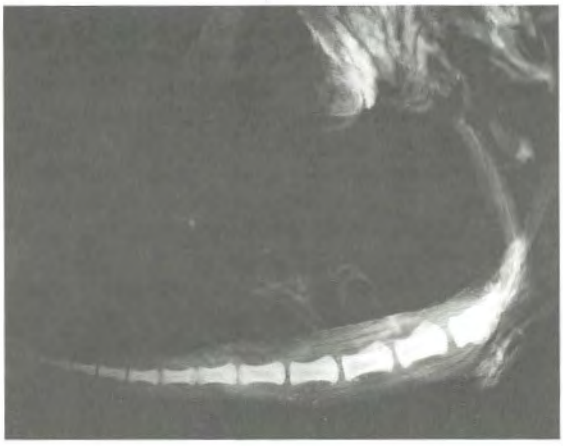
Illustration of the equus lambei.
Credit: Canadian Museum of Nature, Ottawa. Watercolour by E. Kish.

conditions, changing flora and human predation toward the close of the last glaciation may have caused the extinction of the horse in North America. The horse was re-introduced to this continent by the Spaniards 500 years ago.

The hide that came to CCI was a wadded mass of skin and hair. The majority of the hide was intact, although part of the head area was missing. The nose and one side of the head, including one ear, were no longer extant. The remaining ear appeared fairly typical of a modern horse in size although most reconstructed drawings of *equus lambei* show it with long ears. Little body hair remained except in the folds of the skin, where abrasive or biological deterioration due to burial would not have been as severe. The remaining hair was 4 to 6 cm in length, thick and blond in colour. The mane and tail hair were present in abundance but were prone to slippage and much of the longer hair was already detached and spread over the surface.

X-radiography revealed that all the vertebrae in the tail were still present. In the mane, which consisted of a thick, stiff ridge of tissue holding the long strands of blond hair, no vertebrae were revealed, but impressions of the vertebrae, moulded into the carcass, were visible at the base of the mane. During cleaning a single whisker was discovered.

Due to the extreme age of the specimen, the conservation treatment was limited to the least invasive procedures possible to minimize interference with future analysis. The carcass was wet, dirty and extremely smelly. The skin needed to be cleaned and dried to be stablized. Before cleaning, a grid of 20 cm by 20 cm squares was placed over the hide, and each square was photographed. It was decided to save as much of the dirt and other debris as possible to allow the potential analysis of pollen, parasites or the nature of the hair from different parts of the hide. The grid allowed material to be collected from identifiable locations on the hide. No detergents or solvents were used for cleaning; instead, the skin was cleaned with tap water using a water supply/water suction device. The device supplied a slow stream of fresh water onto the skin and then gently suctioned off the water and dirt via a tube. Dirt from each area of the grid was collected in a trap and saved for future analysis.



X-radiograph of tail showing vertebrae.

Due to the presence of bone, it was decided not to use vacuum freeze-drying. After cleaning, the skin was frozen and then placed in a walk-in freezer for drying. To avoid adding substances that might interfere with analysis, the possibility of greater shrinkage during drying was accepted: no polyethylene glycol or other chemicals were used. Monitoring of the shrinkage rate during freeze-drying indicates that almost no shrinkage has occurred. It is possible that the skin may have already shrunk while buried. Indeed, during the initial examination it was noted that large areas of the skin had the characteristic rippled appearance associated with shrinkage. The piece is still freeze-drying as the massive lump of mane tissue is still wet.

This unique specimen is one of the more complete hides in the world. Skeletal remains are common but preserved organic tissues are extremely rare. Further studies of this horse will lead to a greater understanding of the animal and the environment it lived in. ◊

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Predicting the Future: Accelerated Aging at CCI

by Jane L. Down, Senior Conservation Scientist, Conservation Processes and Materials Research

Jane Down rearranging adhesive samples in the fluorescent light exposure chambers at CCI.

Conservators use a wide variety of materials—adhesives, consolidants, paper, textiles, foams, packing materials, coatings, varnishes ... the list seems endless—and two questions always arise: How long will this material survive? Does it have any deleterious effect on artifacts over time? Generally, scientists like to accelerate the aging of these materials to get quick answers to these questions, but this can be a major technical challenge. At CCI, we have tried to speed aging by using high intensity light, high humidity, elevated levels of air pollutants or high temperature. We have also tried to develop more sensitive tests to measure the changes that occur. Unfortunately, the results have not always been successful, so it is difficult to develop certainty about the safety and longevity of materials.

In this area, CCI hopes to develop a better sense of what processes and tests offer reliable information for conservators. As a first step, CCI scientists held a one-day meeting on Thursday, February 29, 1996, to discuss accelerated aging and to define more clearly the key issues, problems and future directions. The scientists gave short, informal talks about their accelerated aging techniques and problems, and an open discussion afterward led to agreement on several items. If interest develops, CCI may decide to hold a much broader meeting with contributions from other institutions. The following briefly describes the day:

Spectral energy distribution of the various light sources
Scott Williams spoke about the spectral energy distribution of the various light sources that are used for accelerated aging. He briefly reviewed summer and winter sunlight, carbon arc, xenon arc, UVB 313, FS-40, UVA 351, FSBL, fluorescent sunlamps and fluorescent Vita lights, all of which have different spectral energy distributions. Scott emphasized that it is important to know how much energy at each wavelength is arriving at the sample. Temperature must also be considered. Scott suggested that CCI start collecting information on the spectral characteristics of different light sources. From this information it might be possible to develop conversion factors to allow more precise comparison of experimental data obtained by investigators using different light sources.

Adhesive research and accelerated aging
Jane Down discussed various aspects of adhesive research and accelerated aging, including both thermochemical and high intensity light aging. For thermochemical accelerated aging, Jane reported that the Arrhenius relationship did not seem to work for epoxy resin adhesives, poly(vinyl acetate) adhesives and animal glues. She proposed that the noncorrelation of predicted Arrhenius and naturally occurring yellowing rates could be due to the following possible effects: the various chemistries of the adhesives within each class, a relative humidity effect (dry ovens used), a film thickness effect relating to oxygen penetration, an effect relating to glass transition temperature or an effect caused by examining an overall rate rather than an initial rate. Jane intends to re-examine these effects for the adhesives mentioned to see if better correlation could be achieved. If so, then thermochemical accelerated aging could be used to predict the behaviour of polymeric adhesive material. Jane then discussed high intensity light aging and the need to prove reciprocity. She described the fluorescent light aging chambers in use for CCI adhesive studies and presented a lux map. Further characterizations of these lighting chambers using a radiometer are planned.

Accelerated aging of Parylene
Malcolm Bilz described the problems with the accelerated aging of Parylene. Under thermochemical aging in dry ovens, it was found that as lower aging temperatures were used, the predicted failure time at room temperature fell—that is, aging at higher temperatures pointed to longer lifetimes than aging at lower temperatures. This phenomenon is being investigated further. Malcolm also discussed the light aging of Parylene. Special light racks constructed to age Parylene were characterized using a radiometer and lux meter. Malcolm reported that the fluorescent lights used do not decay uniformly across the spectrum; the ultraviolet component decreases the most, the visible next and the infrared the least.

Testing of protective coatings
Nancy Binnie discussed the testing of protective coatings (e.g., rust paints) for artifacts exposed to outdoor weathering conditions. Past laboratory and outdoor tests have focused primarily on standard methods used by the protective coatings and corrosion-prevention industries. Nancy emphasized the use of product testing to establish the expected service lifetime of a coating under typical use conditions as a tool for the establishment of maintenance schedules and budget planning. Nancy also discussed optical changes to historical varnishes under different aging conditions (dark aging, light aging with full or reduced UV component, and gallery lighting) and the problems associated with relating this data to varnish-coated paintings exposed to these conditions.

Accelerated aging of paper
Paul Bégin discussed the accelerated aging of paper, particularly the stack-versus-single-sheet phenomenon. CCI has evidence that the properties of paper aged in stacks rather than in single sheets resemble those of naturally aged materials more closely. Tests will be performed at CCI to determine if this stack effect holds true as the accelerated aging conditions approach ambient conditions (23° C and 50% RH). Paul also discussed the moisture content of paper aged at higher temperatures; the relative humidity is increased at higher aging temperatures to keep the moisture content the same as it is at ambient conditions.

Extrapolating edge effects in paper
Stefan Michalski spoke on extrapolating edge effects in paper when volatile intermediates are involved. Compared with room temperature, high temperatures increase production of intermediate volatile species such as acids more than they increase the rate of diffusion of these volatiles out of the stack. It appears from approximate calculations that at room temperature, diffusion of degradation products out of a stack of paper (such as a book) is more rapid than re-absorption and reaction. At higher temperatures, the reverse may be true — but at present the experimental data on this point is very limited.

Accelerated aging and textile conservation research
Season Tse discussed accelerated aging and textile conservation research. In the past, CCI textile research has concentrated mainly on cellulosic textiles. The method of artificial aging used was thermal/humid aging. With a new priority to study protein fibres, Season plans to use artificial aging for the preparation of a series of samples for analytical method development, for the pre-aging of new samples prior to treatments, for the aging of samples after treatment, and for evaluating the light fastness of certain dyes. Methods of aging will include chemical tendering, thermal aging at different temperatures and light aging using a quartz-halogen light rack. The plan to build and age samples in a quartz halogen light rack is based on the fact that many museums are using these lamps for exhibition and some of the traditional fluorescent tubes will no longer be used in museums because of the new energy efficiency regulations (Michalski, *CCI Newsletter* No. 17, March 1996). Aging samples with these lamps will more closely approximate museum conditions.

Alternatives to accelerated aging
Gregory Young spoke about possible alternatives to accelerated aging such as using sensitive microanalytical techniques for monitoring natural aging over a period of a few years. He mentioned several instrumental methods of analysis currently available at CCI. Such alternatives should perhaps be considered first during the design phase of aging research.

Accelerated aging and the MolArt project
René Hoppenbrouwers from Stichting Restauratie Atelier Limburg, Maastricht, the Netherlands, was invited to discuss accelerated aging and how he and his colleagues want to use it for the MolArt project. After having replicated various types of old paintings and panels, they are trying to decide how best to age them and then to look at the molecular structure of the composite (i.e., binding media, oil and tempera paints, etc.). They were hoping that this meeting might help them to decide how to age their test pieces.

Malcolm Bilz holding a Parylene sample which is undergoing testing in a fluorescent light exposure chamber at CCI.

After a lively afternoon discussion, the following decisions were made concerning accelerated aging at CCI:

- Light levels in our testing apparati should be measured using both illuminance and irradiance. Illuminance measurements (time rate of flow of radiant energy evaluated according to its capacity to produce visual sensations) are necessary because our clients are more familiar with them. Irradiance (the amount of energy emitted by a source of electromagnetic radiation per unit time per unit area) is useful because it indicates the actual amount of irradiation falling on the surface of the sample and is not related to visual sensations.

- Scott Williams will collect information on the spectral energy distributions of light sources used in photochemical experiments and in museum lighting. Information on conversion factors for the various ways of expressing light intensity (e.g., Langleys, black light equivalents, lux, lumens etc.) will also be gathered.

- Despite being little used in the past, the Weather-Ometer will be kept because it is useful for intensity experiments.

- Light studies should be done with and without ultraviolet filters. Correction for the lost intensity due to the filter should be made. Not all elements of a study need to be followed with ultraviolet filters, but some samples should be included so that differences can be monitored.

- Sample temperature, not just chamber temperature, should be measured in light exposure studies.

- Standard materials (e.g., something more sensitive than the material being tested or something more stable) such as blue wool or Acryloid B-72 should be included in exposure tests. It is recognized that there are problems with using either of these materials.

- CCI should monitor a Canadian museum building thoroughly for light, temperature, humidity, pollutants and other factors to enable staff to learn more details about what goes on in buildings that house collections.

- Instead of using the word "aging", staff will use more exact terms such as "stability" or "durability" to describe the testing (e.g., thermal stability testing).

- An internal document on CCI standards for stability and durability testing will be created. These will be standards that all staff agree to follow. The initial draft will be written by Jane Down.

- A comprehensive list of all test samples that have been used for stability or durability testing and are still stored at CCI will be created. (At press time, this list had already been started.)

- A short workshop on the characterization of a light-testing apparatus using radiometry will be given by Malcolm Bilz to interested CCI staff.

- CCI should bring in lecturers with extensive experience in stability and durability testing (e.g., from Atlas or Norma Searle) to speak to CCI staff. Their experiences could be very useful.

The day proved to be informative and positive. Many difficulties with accelerated aging were identified, but possible avenues of future exploration were suggested and areas of consensus were reached. It has been suggested that CCI host a symposium on accelerated aging. This will be considered amongst several proposals and we would like to know if this would interest the conservation community. For comments or more information on the February meeting, please contact Jane Down at CCI or by E-mail at jane_down@pch.gc.ca. ◊

CCI Licenses Ottawa Firm to Produce Conservation Equipment

by Deborah Robichaud, Director, Information and Extension Services

CCI and an Ottawa business have entered into a partnership to manufacture and market technology that will aid conservators and professionals in related fields.

The Canadian Conservation Institute has licensed the Ottawa company CCRS (Canadian Conservation & Restoration Services) to manufacture and distribute a mini-suction table. The device was developed by CCI for use by conservators in the removal of pressure-sensitive tape residues and stains from a variety of paper artifacts.

Mr. Edmund J. Bowkett, Director of CCRS, says that the CCI design "incorporates unique features and new materials that allow for inexpensive manufacturing." As a result, he says, "the retail cost will be substantially less than comparable units on the market."

The table uses a fine stainless steel screen to support the artifact being treated as solvents are flushed through, carrying the stains and adhesive residues away. When flushing solvents through the suction table mesh, they are drawn through a vacuum pump housed in a sound-absorbing box and exhausted back into a fume hood. A solvent trap and pressure gauge are attached to the exhaust tubing to catch any excess solvent and to measure the air pressure on the table surface. Small extension tables (not shown) can be placed around the mini-suction table to increase the surface area and support larger paper artifacts during treatment.

Although developed for the archival and museum conservation world, the mini-suction table may have broader application in the dry cleaning industry. The table's control, precision and low solvent consumption make it an attractive choice for removing stains from a variety of materials. It is anticipated that this technology has a market in Canada, in the United States and abroad. As a first step, the table was showcased at the trade fair held during the annual meeting of the International Institute for Conservation—Canadian Group in Montréal on May 25, 1996.

According to Raymond Lafontaine, recently appointed Director of Marketing and Strategic Planning at CCI, "Entering a partnership with a private sector firm allows us to do what we do best, that is, generate, develop and evaluate ideas. CCRS's proposal was selected because they focused on production, quality control, marketing and after-sales service, areas of great importance to the conservation community."

CCRS was founded in 1995. The directors of the company are Edmund Bowkett and Robert P. Van Eyk. Both are graduates of Sir Sandford Fleming College, and they have a combined total of 11 years' experience in conservation and restoration within the museum community. Their company specializes in the treatment of furniture, decorative objects and industrial artifacts. They also produce historically accurate restorations and reproductions.

For additional information about the mini-suction table, the sound-absorbing box and a complete range of accessories, please contact Edmund J. Bowkett, Director, CCRS, at (613) 443-0847 or Raymond Lafontaine, Director, Marketing and Strategic Planning, CCI, (613) 998-3721. ◊

Robert Van Eyk, Edmund Bowkett and Ray Lafontaine with the mini-suction table.

Treatment of a Pair of Vault Doors

by Bob Barclay, Senior Conservator, Treatment and Development

George Prytulak and intern Kevin Machan filling losses around the inside edge of a door after re-attachment of the treated back plate.

The doors of a security vault from a historic house in Brockville, Ontario, were submitted to CCI for treatment. The doors weighed at least 2,000 pounds (900 kilograms) each and were solidly built of five-ply chrome steel plates and cast iron.

The vault had been built into Fulford Place, the home of George Fulford (of "Little Pink Pills for Pale People" fame), in 1904. It was intended for storage of the family silver and other valuables. Its location between the dining room and pantry suggests that it was intended for regular use by the servants of the house.

Aside from its mundane function of preserving the family's possessions, the vault was a work of art in its own right. Unlike most modern installations, this vault boasted delicately hand-painted decorations on all the metal parts, including miniature bucolic scenes. Gold leaf lines and scrolls decorated the edges and corners of the doors and framed the painted scenery. All exposed surfaces were coated with shellac. The doorframe featured outer and inner doors made of finely crafted wood. The company's advertisements boasted that even art critics found "beauty worthy of admiration" in these artistic designs. A Goldie & McCulloch vault was, in the company's words, "an extraordinary combination of modern mechanism and art."

Recently, staff at Fulford Place observed that cracks in the sides of the doors had begun to widen and that a white powder was trickling out. In addition, the doors no longer closed properly due to expansion, and the thin sheet-steel backplates were bulging outward and were perforated in many places. It appeared that something in the interior of the doors was expanding with extraordinary pressure—enough to bow hardened steel plate and crack 1/4" (7 mm) thick cast iron.

The original manufacturer, the Goldie & McCulloch Co. (established in 1844 in Galt, Ontario) had merged with the Babcock-Wilcox Co. in the late 1930s and soon switched from making safes and vault doors to boilers, pumps and compressors. The latter company still exists, but, unfortunately, no records of the vault manufacturing and installation period survived the merger. Nonetheless, research ascertained that during manufacture the doors had been filled with a slurry of plaster of Paris to provide fire resistance, and then sealed and painted. The plaster eventually initiated corrosion of the cast and wrought iron, causing expansion, which forced the doors to crack and burst apart. (The interior of the doors had been painted with red iron oxide primer to stop corrosion; evidently this measure had failed. Later in the century, the interiors of fireproof doors were instead coated with asphaltum.)

The plaster filling had to be removed before the doors could be repaired. The only access to the interior was through the back, which entailed removing the backplates. Because the backplates faced the inside of the vault, they were the thinnest part of the construction. They had been attached to the case sides by numerous countersunk screws, the heads of which had been made invisible by filling and painting. The screw heads were exposed by removing the filling, and attempts were made to remove them by the conventional method—with a screwdriver. Only two of the 58 screws responded to this approach. The rest had to be removed by drilling through their centres, whereupon the heads fell off and the remaining shanks could be easily extracted from the threaded hole. Once the screws were free, the backplates were lifted off to reveal the plaster filling, cracked and distorted by expansion and discoloured by corrosion. Well over 1,000 pounds (450 kilograms) of plaster were then removed from the interiors of both doors using pneumatic drills.

With the door cavities empty, it was possible to gain access to the multitude of cracks and losses to the cast iron sides. The weakened areas were reinforced from within with fibreglass, aluminum

Detail of painting on the inside before treatment, showing perforations and losses due to corrosion.

screening and filler. For the filler, a automobile body filler similar to "bondo" was found to be ideal; it was easy to apply, set quickly, and carved and painted well.

Where the cast iron had been distorted by sustained pressure, it was necessary to bolt reinforcing rods to the sides and to apply tension by means of turnbuckles. Once the interior was stabilized and filled, the losses and cracks visible on the outside were filled and then painted with a commercial, colour-matched alkyd paint.

Attention then returned to the backplates, which were badly corroded; in some places, all that was left was a thin lace-work of unsupported paint. After the loose corrosion was removed by corncob particle blasting, filler was applied to all losses from the interior and backed where necessary with woven fibreglass cloth. The fills were smoothed and air-brushed with diluted oil paint coloured to match. The backplates were then reattached with new screws, and all screw heads were covered with filler, finished and painted. Missing sections of the gold striping around the edges were replaced with new gold leaf, toned to match, and other painted details were reintegrated.

This restoration treatment appears to be unique, as no other detailed reference to such a problem has been located. Hundreds of hours were invested in the doors, both in developing the techniques for effective treatment and in their application. There is no doubt that, if left untreated, the vault doors would have deteriorated to the point of danger; the vault would have become unsafe and a fine example of industrial craftsmanship would have been lost. ◊

Update on Planning at CCI

by Bill Peters, Director General

March to June 1996 encompassed an important period in the planning process that CCI started in December 1995. With the strong participation of CCI staff, working groups completed the presentation of recommendations to CCI management on preparing a corporate plan—phase one of the process.

A thorough internal examination of CCI's values, vision, resource allocation, organizational structure, performance appraisal and environmental scanning supported the work of policy development. The examination also generated a basis for public consultation with the heritage community. It was important that CCI first reach an internal understanding of its capacities—both as they stand now and as they may be in light of future budget cuts.

The emerging orientation for CCI's future is based on the concept of the Institute as a knowledge-based organization that is increasingly client-focused and results-oriented. It is hoped that this orientation will stimulate the development and marketing of a range of new products and services founded on the knowledge and expertise of our staff, thereby generating new sources of revenue that will allow us to meet the needs of Canada's heritage community into the future.

A number of changes have been made to the CCI organizational structure to support these new directions and to make CCI more responsive to client needs. The structure brings conservators and conservation scientists together in new working relationships to improve conservation treatments and methods and to advance conservation science. Among the results will be easier access to CCI's services and more emphasis on the dissemination of information at all levels.

The reorganization also reflects the reality that CCI must operate in an increasingly business-like fashion with domestic and international clients. Some services will be actively marketed outside the country, and the revenues generated will be used to maintain services offered to Canadians.

In June 1996, I announced the following appointments as the first step in implementing a new organizational structure at CCI: Director of Preventive Conservation and Analytical Services, Charlie Costain; Director of Conservation Treatment Services, Cliff McCawley; Director of Marketing and Strategic Planning, Raymond Lafontaine. The directorates of Information and Extension Services (Director: Deborah Robichaud) and Finance and Administration (Director: Della Dupuis) remain unchanged.

In October 1996, CCI will begin consultations with client groups across the country through face-to-face meetings and telephone discussions. Topics include priority services, options for the implementation of user fees and partial cost recovery, research priorities and international activities. These valuable discussions enable CCI to make decisions that will guide the next phase of the process—strategic planning—and to prepare for full implementation of the new directions in the 1997-98 fiscal year. ◊

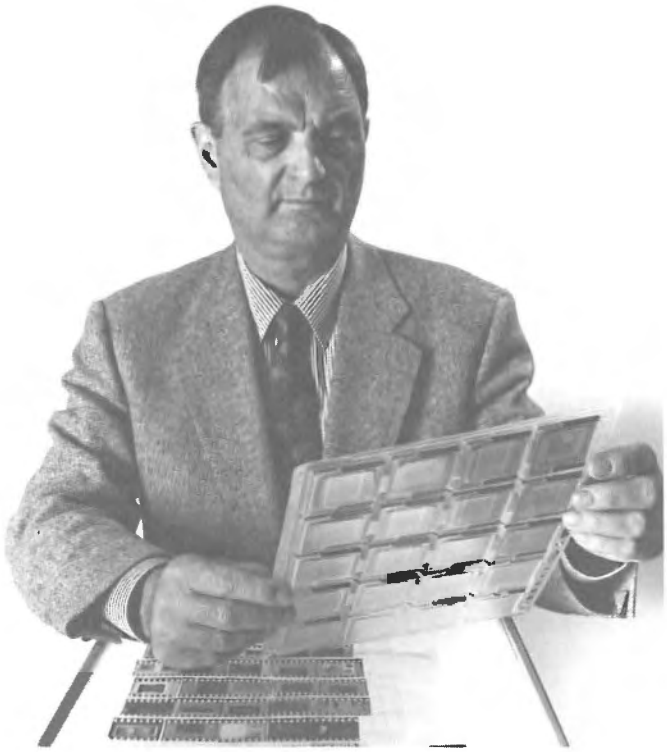
CCI Hosts MolArt Visitors

CCI hosted two distinguished visitors from the Netherlands for the last week of February: Dr Jaap J. Boon, Project Coordinator for the MolArt Project from the FOM Institute for Atomic and Molecular Physics in Amsterdam; and René Hoppenbrouwers from the Training Program for Painting Conservators and Conservators of Painted Objects at the Stichting Restauratie Atelier Limburg in Maastricht. They came to CCI to discuss accelerated aging and other topics of mutual interest with various CCI scientists and conservators and to attend the accelerated aging meeting on February 29, 1996.

While here, Dr Boon gave a fascinating lecture on his work and the MolArt project entitled "Paintings and Painting Materials Studied by Organic Mass Spectrometry and the MolArt Project". The MolArt project, an interdisciplinary research program that was started in 1995, is centred in Amsterdam. The project brings together conservation science, fundamental molecular research and thorough research of historical sources on painting techniques.

Obituary

Dr. Klaus B. Hendriks, 1937–96



It is with great sadness that we record the untimely death of Dr. Klaus B. Hendriks, on May 27, 1996, after a lengthy battle with cancer.

After receiving a PhD in carbohydrate chemistry from the University of Alberta and spending four years at Laval University, Klaus came into the conservation field in 1975 as a photo conservation chemist in the Technical Division of the National Archives of Canada. In 1977 he became Chief, then Director of the Picture Conservation Division. In 1991 he was appointed Director of the newly formed Conservation Research Division, which was transferred to CCI in the spring of 1994.

Klaus will be remembered for his significant contributions as a scientist in the field of conservation, and his work will continue to have an impact both internationally and within Canada for many years to come. It will continue to serve the interests of conservators and archivists and to have a fundamental effect on the preservation of Canada's heritage.

One subject in particular for which the CCI and the archival community in general are deeply indebted to Klaus and his foresightedness is paper permanency. In establishing the Conservation Research Division for the National Archives of Canada, he recognized that paper permanency would become an issue of considerable importance for Canada. It is almost completely due to Klaus that CCI now possesses what are perhaps the world's best equipped laboratories for studying paper permanence. His vision will continue to be of benefit for many years to come.

Another area in which Klaus was renowned is photographic conservation, where he made many advances in the understanding of photographic materials, their deterioration and their stabilization. Fortunately, Klaus published much on this and other subjects, and conservators will long be grateful for his seminal work *Fundamentals of Photograph Conservation: A Study Guide*, which was published by the National Archives of Canada in 1991.

In addition to his first-class research and extensive writing and lecturing, Klaus gained great satisfaction from encouraging people to enter conservation and then helping them to develop their careers. Two of these scientists, Paul Bégin and Joe Iraci, are now playing an important part in CCI's research into paper permanence. Klaus gave to the field he loved in other ways: from 1983 to 1985 he was President of the Canadian Group of the International Institute for Conservation.

That Klaus was a man of many talents and interests there is no doubt. Friends and colleagues attest to his great curiosity and sense of wonder, his love of the outdoors and a rural way of life and the pleasure he derived from his farm and its maple syrup production. Those who knew Klaus well talk of the wonderful host he was—a raconteur who liked nothing better than to sit around the debris of a dinner table with a bottle of wine, exchanging stories and ideas on every imaginable subject, from the arcane to the simple. Always, he was an agreeable companion. The many portraits of Klaus depict a remarkable individual who cared passionately about certain things and about people, and who was in all things a man of high standards and unshakeable integrity.

To me, nothing demonstrated Klaus Hendriks' magnificent character more than the courage, determination and humour with which he dealt with his illness. During the days he was undergoing exhausting treatments or suffering their debilitating aftermath, he never lost his commitment to his work nor to the welfare of the Institute. In his final weeks, whenever I talked with him on the telephone, his concern was never with how he felt or how he was coping with his illness. Rather, he expressed dismay that he had not been able to participate fully in CCI's strategic planning process; he was concerned about whether he had submitted the correct forms for his absence; he wanted to know what was happening with the work on paper permanence that meant so much to him. During the week before his death I received three papers prepared from talks he had presented earlier this year. He had written them during the worst days of his illness.

With Klaus Hendriks' death we have lost a courageous man, a caring man, a dedicated scientist with few peers in his chosen field and an individual of great integrity. His friends and colleagues at CCI appreciate his substantial contributions to our field, for which we held him in the highest esteem. He will be sorely missed.

Cliff McCawley
Director of Conservation
Treatment Services

Emergency Preparedness in Taiwan and Poland

A Tale of Two Cities: Taipei and Kraków

by David Tremain, Conservator, Preventive Conservation Services

Earlier this year I was invited to give presentations on emergency preparedness at two international conferences being held almost back-to-back on opposite sides of the globe. The first was in Taipei, Taiwan, at the "Symposium on the Conservation and Preservation of Cultural Properties, Lecture Series on Preservation and Disaster Planning", sponsored by the Hwa Kang Museum, Chinese Culture University, June 3 to 8. The second was at the conference "Cultural Heritage Protection in Wartime and in State of Emergency", held in Kraków, Poland, June 18 to 21.

At the Taiwan conference, my paper focused on the many important elements that need to be considered in developing an emergency response plan, such as key personnel, liaison with emergency services, equipment and supplies, disaster mitigation, risk management and response procedures. Other speakers from Canada, the United States, the People's Republic of China and Taiwan discussed, among other things, emergency salvage measures for collections, the security systems at the National Palace Museum (Taipei) and the Palace Museum (Beijing), seismic disasters, fire hazards, water-damaged paper materials and magnetic media, and the effects of world conflicts on cultural property.

The conference was not without controversy. The summary on the planning for the rescue and protection of cultural heritage within the flooded area of the Three Gorges Reservoir, presented by Mr. Huang Kezong, the engineer responsible for the China-managed project, caused an outcry from some of the Taiwanese delegates, who objected to not having been consulted about the fate of their mutual cultural heritage. Briefly, this project involves the flooding of the Three Gorges area on the Yangtze River to build a dam to supply hydro-electric power to China. By the time the project is completed in 2009, only 10% of the underground relics will have been salvaged and 30% of the tombs and historical sites—in all, about 1,281 sites and monuments will be relocated.

After the conference we visited various museums in Taipei and Taichung. At each, we were given brief tours of the collections storage facilities, then we met with the director or chief curator and other staff to discuss our observations. In Taipei we visited the National Central Library, the Museum of Fine Arts and the National Palace Museum; in Taichung, the National Museum of Natural Sciences and the Taiwan Museum of Art. None of these buildings is more than about 10 years old. One area we particularly focused on was earthquake protection, as Taiwan is in a major seismic zone. At each venue we were impressed by the storage facilities and the attempts made to protect collections from earthquakes.

At the end of our tours, Jerry Podany (Head of Antiquities Conservation at the Getty Conservation Institute, Los Angeles), Fiona Graham (conservator in private practice, Ottawa) and I compiled a report of our findings, which was sent to Professor Chen Kuo-Ning, Director of the Hwa Kang Museum. While a few improvements are needed to the storage systems in some of the museums we visited to better mitigate the effects of seismic activity, our other suggestions are, for the most part, minor (except for the replacement of the omnipresent Halon 1301, a fire-suppression gas that is being progressively banned around the world because it depletes the Earth's ozone layer).

The following week, at the invitation of Major General Czesław Laszczkowski, Commander-in-Chief, Polish Civil Defence, and Mr. Stephen Orosz, Deputy Director of NATO's Civil Emergency Planning Directorate, I went on to Kraków, Poland. Ann de Beaupré of Emergency Preparedness Canada (EPC) and Dinu Bumbaru of ICOMOS Canada were the other members of the Canadian delegation. The conference was co-organized by NATO, the Polish ministries of National Defence and Culture and Art, and the Voivode of Kraków. It formed part of a series of conferences held under the auspices of the Partnership for Peace (PfP) program initiated by NATO Alliance leaders at the January 1994 Brussels Summit. About 120 delegates were registered, the vast majority from Poland, with others from NATO countries—the United States, the Netherlands, Belgium, Italy, Germany and Norway—and from Estonia, Lithuania, Russia, the

National Palace Museum, Taipei, Taiwan.

Cathedral - Wawel Castle, Kraków, dating from the Renaissance.

Czech Republic, Slovakia, Croatia and Hungary. The objective of this conference was to develop better working relationships at national, regional and local levels between those responsible for the protection and conservation of cultural heritage and those responsible for civil defence and emergency services.

The conference was held in the historic old part of Kraków, which is on the World Heritage List and is rich in architectural delights. It began with great pomp and circumstance: the entrance to the town hall had been decorated with the flags of all the NATO countries, and upstairs a military band played martial music. The keynote address was given by Dr. Lyndel Prott, Chief of UNESCO's International Standards Section, Cultural Heritage Division, who discussed issues relating to the current relevance of the Hague Convention and Protocol (Convention for the Protection of Cultural Property in the Event of Armed Conflict), such as changes in the world order since the Convention came into effect in 1954, military and cultural co-operation and training, and challenges faced by UNESCO in the 21st century. She concluded by saying that UNESCO will need the help of national authorities, particularly military authorities, to make the changes necessary to implement the Convention.

Ann de Beaupré and I then presented our joint paper, "Protection of Cultural Heritage in Peacetime Emergencies", in which Ann focused on the work of EPC and the kinds of emergencies faced in Canada, and I concentrated on CCI's and Canada's involvement in cultural emergencies and protecting cultural property—how CCI has responded to past emergencies, CCI's role in training museum personnel and Canada's role in discussions about international legal instruments to protect cultural property.

Other presenters discussed the protection of cultural heritage under a variety of conditions—in peacetime emergencies, against terrorism (such as the recent bombings in Italy) and during wartime and peace support operations by the military, including a talk on the 1954 Hague Convention implementation in the Netherlands. The presentations concluded with papers on the protection of cultural heritage in Poland and the protection of the urban complex of Kraków.

During the conference we were also taken on a tour of the Wieliczka Salt Mine (dating from the Middle Ages), which is also on the World Heritage List. Another tour was to Pieskowa Skała, a magnificent castle in the country, for the official conference banquet.

In a visit to a row of historic houses in Kraków, we saw how the houses were being restored by Polish architectural conservators. Demonstrations at the Wawel Castle and National Museum in Kraków illustrated how Polish museums would evacuate cultural property during an armed conflict. The demonstrations were poignant reminders of Poland's history of occupation by other countries (including Sweden, Germany and the Soviet Union), not to mention internal conflicts during the Cold War.

A final communiqué endorsed delegates' support of the implementation of the Hague Convention and condemned the wilful damaging or destruction of cultural property during military operations. It also recommended that NATO and its PfP partners "explore the possibility of further co-operation with UNESCO and with the International Committee of the Blue Shield."

Both conferences gave me insight into how two disparate countries approach emergency preparedness. In Taiwan, the focus is on natural disasters, such as earthquakes, of which there have been many over the past five years; the effects of Typhoon Herb, which hit the island on July 31, have no doubt reinforced this focus. In Poland, concerns about armed conflicts and security predominate.

The Taipei conference has cemented CCI's positive relationship with our Taiwanese colleagues, and future ventures with China and Taiwan may be considered. The conference in Poland not only created a much-needed dialogue between military authorities and museum officials, but also emphasized the need to respect cultural heritage during armed conflicts and civil unrest. Experiences during the Gulf War have demonstrated that it is possible for the cultural heritage community to work with military authorities to try to protect cultural property. Sadly, such co-operation has not occurred in the former Yugoslavia, where the wilful destruction of cultural property has been the order of the day. Clearly, much more work needs to be done by the international museum community in educating and sensitizing all sectors of society to the importance of preserving and respecting the world's cultural heritage.

The invitations to these two conferences came as international recognition of CCI's activity in the fields of emergency preparedness and the protection of cultural property. The exchange of information, particularly the experiences of colleagues from countries where cultural heritage is continually at greater risk than in Canada, has provided me with a much broader knowledge base, which I can share for the benefit of CCI's clients. ◊

CCI Spins a Thread on the Web

by Raymond Lafontaine, Director, Marketing and Strategic Planning

The World Wide Web is growing at an astonishing rate. With hundreds of new sites daily, it's impossible for web surfers to keep up, but we do hope you've found the new CCI site. On June 21, 1996, we officially arrived in cyberspace!

Several months ago, a small group of CCI staff members who are particularly interested in new technologies was brought together to begin the development of a site. Led by Deborah Robichaud and this author, the Web Team got to work: first some terms of reference; then a conceptual model that included target audience, objectives, domain information, specifications and presentation; and, finally, a working prototype that was demonstrated to CCI staff and management. The culmination is our very own Web site!

For us, the CCI Web site is a highly visible and increasingly accessible place to describe who we are, what we have to offer and what we do. It is a place to promote products and services and a forum for sharing our knowledge and conservation expertise. The target audience is varied: conservators, curators, conservation scientists, archivists, archaeologists, museologists, librarians, educational establishments, heritage institutions, associations, organizations and agencies, potential sponsors and partners, new clients and the general public. The scope, of course, is international.

The CCI Web site will continue to be developed and augmented with new information. In the future, we hope to offer a virtual visitors centre with virtual tours of the labs, tools that stimulate discussion on topics vital to the advancement of the conservation profession, a direct ordering process for products and publications and perhaps, later, a training component, possibly interactive, on topics such as preventive conservation, general care of objects and collections, and more.

We could tell you what is on our site now, but we'd much prefer if you found out for yourselves. So please visit the CCI Web site at http://www.pch.gc.ca/cci-icc and let us know what you think. Comments and suggestions are most welcome. ◊

Canadian Heads International Conservation Body

Dr. David Grattan, an internationally-respected conservation scientist, was elected Chairperson of the International Council of Museums Committee for Conservation (ICOM-CC) at the 11th Triennial Meeting in Edinburgh, Scotland on September 6.

ICOM-CC is the largest of ICOM's international committees, bringing together more than 1200 conservation professionals from more than 50 nations. It is the leading forum for the advancement of international conservation practice and science.

Dr. Grattan is elected to head ICOM-CC for a three-year term. He succeeds Dr. Catheline Périer d'Ieteren of the University of Brussels. He is Manager of Conservation Processes and Materials Research for the Canadian Conservation Institute, where he has worked since 1977.

He holds Bachelor of Science and PhD degrees in chemistry, and was a post-doctoral fellow at the National Research Council of Canada before coming to CCI.

During his tenure as Chairperson, Dr. Grattan will provide leadership for 23 Working Groups in ICOM-CC, addressing the challenges of conservation in today's international museum community.

New Pricing Policy for *CCI Notes* and *Technical Bulletins*

The Canadian Conservation Institute publishes *CCI Notes* and *Technical Bulletins* as means of providing practical advice and information to anyone concerned with the proper care, handling and storage of cultural objects. These publications are informative, illustrated and include bibliographies as well as suggestions for contacting suppliers.

As a result of fiscal restraint, along with rising printing and postage costs, it has become necessary to charge for these publications, which we provided free to Canadian and international customers for over 15 years. U.S. and overseas customers began paying for *Notes* and *Technical Bulletins* in 1995. On July 1, 1996, a pricing policy was implemented for our Canadian customers.

Almost 90 *Notes* are now available; eight *Technical Bulletins* are currently in print. New titles are published each year. *CCI Notes* and *Technical Bulletins* are affordably priced at $2 and $6 CDN respectively, plus applicable taxes, shipping and handling. Bulk discounts are available for purchases of 10 or more copies of *Notes*.

CCI carries over 130 products and publications developed specifically for the heritage community. To obtain a copy of our publications list or for more information about the pricing policy, please call Extension Services at (613) 998-3721, send us a fax at (613) 998-4721 or write to us at 1030 Innes Road, Ottawa, Ontario, K1A 0M5. You can also download a copy of the list and order form by visiting the CCI Web site at http://www.pch.gc.ca/cci-icc.

Our E-mail address is cci-icc_publications@pch.gc.ca for publications inquiries.

Client Survey

by Jane Sirois, Conservation Scientist, Analytical Research Laboratory and Deborah Robichaud, Director, Information and Extension Services

CCI retained consultant David Parry of Edmonton, Alberta, to conduct a client satisfaction survey earlier this year. In addition to gauging our clients' satisfaction with our services, we hoped to solicit comments on five aspects of quality: reliability, quantity, timeliness, usefulness and the attitude of CCI staff.

Two hundred and twenty-two respondents from three distinct groups were consulted: (1) managers in institutions, (2) conservators in institutions and (3) private conservators and institutions without conservators. The response rates were 49%, 76% and 70% respectively.

Overall, CCI fared very well. Over 80% of respondents were very satisfied or fairly satisfied with each of our specific services. One of the survey questions asked for a rating of CCI's services overall, and the satisfaction level was 98%.

The most frequently used services (with satisfaction ratings in parentheses) were *CCI Notes* (99%), evaluation of commercial products (98%), workshops, seminars and presentations (98%), conservation research (95%), *CCI Newsletter* (90%) and *CCI Technical Bulletins* (85%). The comments on usefulness, reliability, quantity and attitude were largely positive (over 85% were positive).

One trend identified through this survey was that institutions with conservators use a much larger range of services than institutions without conservators. Institutions without conservation staff indicated that most of their contact with CCI was through CCI publications (*Newsletter, Notes, Technical Bulletins*) and conservation research services. This information will assist us in tailoring our services for the appropriate audiences.

The main area identified for improvement was the timeliness of service delivery. About 10% of the respondents reported that they found it difficult to gain access to CCI information by telephone, and about 20% of the respondents requested more services, most often additional training, seminars and workshops.

In addition to the statistical information, many respondents took the time to write thoughtful and lengthy comments about CCI services and to make suggestions for new and improved services. CCI would like to thank all of you who took time from your busy schedules to help us understand your needs and your reactions to our services. We hope to repeat this exercise every two to three years to monitor the satisfaction of the heritage community with our services. ◊

Upcoming Training Presentations

Please contact the provincial museums association listed to confirm details or to register for any of these CCI training presentations. Times and places are subject to change.

October 1996

Saskatchewan
(Museum Association of Saskatchewan)
"Care of Historic Furniture Collections"
Dates: October 3-4, 1996
Place: Government House, Regina

Yukon
(Government of Yukon)
"Collections Preservation Assessments for Museums"
Dates: October 6-7, 1996
Place: MacBride Museum, Whitehorse

November 1996

Alberta
(Alberta Museums Association)
"Emergency and Disaster Planning"
Dates: November 29-30, 1996
Place: Museum of the Regiments, Calgary

January 1997

Newfoundland
(Museum Association of Newfoundland and Labrador)
"Emergency and Disaster Planning"
Dates: January 30-31, 1997
Place: St. John's

March 1997

Quebec
(Société des musées québécois)
"Cadre d'intervention pour la conservation préventive"
Dates: March 21, 1997
Place: Montreal

Intern News

Annaïg Gautier, an applied physics student from France's Université de Bordeaux and an intern for the past year in CCI's Analytical Research Laboratory, begins her doctoral studies in October 1996 at Oxford University in England. She will be associated with the university's Research Laboratory for Archaeology and the History of Art, where her research will focus on the use of thermoluminescence for dating metallurgical slags.

Daniela Kolbach, a former intern and CCI Fellow, and current contract employee, is the recipient of a one-year Getty Conservation Internship in sculpture and decorative arts beginning in October 1996. The internship is tenable at the National Gallery of Canada.

The following individuals have recently finished or are currently participating in an internship at CCI:

Joseph Barocsi, a conservation student at Queen's University, Kingston, Ontario. May - July 1996. (Curriculum Internship - Fine Arts & Works on Paper Section).

Lisa Bengston, a conservation student at Queen's University, Kingston, Ontario. June - August 1996. (Curriculum Internship - Ethnology Section).

Philippa Cruickshank, recipient of a 1996 Winston Churchill Travelling Fellowship and a senior conservator in the Organics Conservation Section at the British Museum in London, England. April - June 1996. (Professional Development Internship - Textiles and Ethnology Sections).

Alison Earp, a conservation student at Sir Sandford Fleming College in Peterborough, Ontario. September 1996 - April 1997. (Curriculum Internship - Archaeology Section).

Robin Hanson, a conservation student at the Winterthur Museum/University of Delaware program in Winterthur, Delaware, USA. September 1996 - February 1997. (Curriculum Internship - Textiles Section).

Kathrin Kessler, a conservation student at the Fachhochschule, Cologne, Germany. June - August 1996. (Curriculum Internship - Furniture and Wooden Objects Section).

Andrew Lamb, a conservation student in the Royal College of Art/Victoria & Albert Museum course, London, England. June - August 1996. (Curriculum Internship - Ethnology Section).

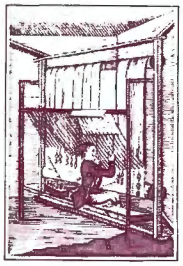
Bonnie McLean, a conservation graduate of Queen's University, Kingston, Ontario. September 1996 - June 1997, Conservation Processes and Materials Research Division. Bonnie will be working with Dr. Leslie Carlyle on a project dealing with historical oil painters' materials and techniques. Her internship was made possible through a grant from the IIC-CG/Conservation Working Group, with funding from the Cultural Human Resources Council.

Lisa Nilsen, a conservation student at the Institute of Conservation, University of Göteborg , Göteborg, Sweden. September 1996 - January 1997. (Curriculum Internship - Conservation Processes and Materials Research Section).

William O'Neill, a conservation student at Sir Sandford Fleming College in Peterborough, Ontario. September 1996 - April 1997. (Curriculum Internship - Furniture and Wooden Objects Section).

Research Associate

Mary Piper Hough, a graduate student at Queen's University in Kingston, Ontario. August 1996 -December 1996. Mary is working with Stefan Michalski on a research project concerning the local treatment of cracks in oil paintings on acrylic grounds. The work is being done in the context of her M.A.C. (Research stream) degree requirements. Mary is also the recipient of the Gerry Hedley Scholarship for the 96-97 academic year. Administered through the Courtauld Institute in London, England, the award is made to one student each year to carry out research in painting conservation.



Textile Symposium 97 sur les textiles

Fabric of an Exhibition: An Interdisciplinary Approach
L'étoffe d'une exposition : une approche pluridisciplinaire

September 22 to 25, 1997 - Du 22 au 25 septembre 1997

The first North American Textile Conservation Conference, **Textile Symposium 97**, *Fabric of an Exhibition: An Interdisciplinary Approach*, will be hosted by the Canadian Conservation Institute, Department of Canadian Heritage, in Ottawa, Canada, September 22-25, 1997. Subsequent symposia, with varying themes, will be hosted by major institutions in North America on a biennial basis. At Symposium 97, curators, designers, conservators and other museum professionals will address issues related to the successful exhibition of textiles.

Symposium papers will be presented in the auditorium of the National Gallery of Canada, with simultaneous translation to English or French as required. In addition to the formal presentations and poster sessions, demonstrations will be offered of practical and innovative techniques, equipment and materials used for the conservation and exhibition of textiles. Tours of the collection holdings and conservation facilities at the Canadian Museum of Civilization, the treatment and research facilities at the Canadian Conservation Institute, and Laurier House, an historic site operated by Parks Canada, will be available.

Preprints of the papers will be included in the symposium package. The papers will be published in the language in which they were presented with abstracts in both English and French. Abstracts of the posters, demonstrations and videos will also be published in the preprints. The deadline for submitting abstracts is now past, and the overwhelming number of submissions received promises a varied and interesting program.

Please note that the Institute of Textile Science will be holding its semiannual meeting on Friday, September 26, 1997, in Ottawa to coincide with Symposium 97. The ITS is a Canadian organization of textile scientists, technologists, researchers, academics and those involved in the textile industry. The theme of the meeting will be "Ageing and Degradation of Textiles"; registration will be available at the door. Contact Peter Aspley, c/o P.O. Box 2100, 455 Front Road, Kingston, Ontario, K7L 4Z6, Tel. (613) 548-5220, FAX (613) 548-5708.

Accommodations are plentiful in the central core of Ottawa-Hull and range from the magnificient copper-roofed Chateau Laurier Hotel to local B&Bs. Block bookings at special conference rates have been arranged at the Chateau Laurier and the Market Square Inn. A list of accommodations, with prices, will be available in the registration package. Participants will be expected to make their own reservations.

Register early for Symposium 97 and pay just US$225 or C$275 (early bird fee available up to June 30, 1997). Registration fees after June 30 are US$250 or C$300. Registration at the conference will be US $275 or C$325. Full-time students who register before June 30, 1997, will pay a reduced fee of US$150 or C$175; all students must supply appropriate identification. There will be no one-day registrations.

The registration package will be available in March 1997. If you are interested in receiving this package, please contact Tara Grant, Registration Coordinator, Symposium 97, in writing at CCI or by Internet: (tara_grant@pch.gc.ca). Information concerning the symposium is available through the CCI Web site at: (http://www.pch.gc.ca/cci-icc).

CCI Services: Seminars, Lectures, Workshops and Visits

March 1996

Stefan Michalski taught at a museum exhibit lighting seminar in Washington, DC. The seminar, organized by the Washington Conservation Guild, covered several topics: light sources and their characteristics, assessing artifact vulnerabilities to light, lighting decisions and display case lighting. Later in the month, Stefan lectured at a workshop titled "The New Museum Climate: Standards and Technologies" in Boston, Massachusetts, organized by the Northeast Document Conservation Center and the Boston Museum of Fine Arts. At the same event, he also participated in a panel discussion about changing standards for environmental control.

Tara Grant and **Judy Logan** gave a seminar on the "Conservation of Organic Archaeological Material" in Winnipeg for the Association of Manitoba Museums and the Manitoba Heritage Conservation Service.

Jan Vuori and **Siegfried Rempel** carried out a survey of the collections and the museum building at the Dugald Costume Museum, Dugald, Manitoba.

Ela Keyserlingk and **Janet Wagner** did a one-week survey of the textile collection at the Vancouver Museum.

Wayne Kelly conducted a security survey of sample facilities at Fortress Louisbourg, Nova Scotia, to assist Parks Canada in the development of improved security measures.

Judy Logan and Doug Beaton, Parks Canada Historic Resource Conservation Branch, gave a two-day seminar on the "Care of Ceramics and Glass" in Fredericton for the Association Museums New Brunswick.

Paul Baril cohosted (with Craigdarroch Castle) the semi-annual working group meeting of the Museums, Heritage and Cultural Facilities subcommittee of the National Fire Protection Association (NFPA), held at Craigdarroch Castle in Victoria, British Columbia.

April

In a tour through southwestern Ontario, **Michael Harrington** and **Paul Heinrichs** visited the Jordan Museum, the St. Catharines Museum, the Art Gallery of Hamilton and the Welland-Crowland War Memorial (Welland) to provide treatment-related consultations. They returned to Welland in May to remove paint graffiti from the Welland-Crowland War Memorial.

Jim Bourdeau examined several wall paintings in the office of the Leader of the Opposition in the Parliament Buildings. The Heritage Conservation Programme of the Department of Public Works had asked CCI to serve as an external consultant to oversee the conservation work on these murals. That same month, the Arts East group of Gloucester, Ontario, asked Jim to present a slide-illustrated talk on preventive conservation as it relates to artists' materials and methods.

Bob Barclay taught a one-week section on wood in ICCROM's "Scientific Principles of Conservation" course in Rome, Italy.

Debra Daly Hartin and **Helen McKay** examined several paintings by the artist John William Hurrell Watts in St. Margaret's Church in Vanier, Ontario.

May

Tara Grant and **Judy Logan** attended the Canadian Archaeological Association conference in Halifax. Judy presented a paper co-written with Steve Powell of the Nova Scotia Museum and Ted D'Eon of the West Pubnico Historical Society: "The West Pubnico Aboiteau: A Community Conserving Its Heritage". Judy and Tara also did a site visit to West Pubnico and gave a presentation to the Atlantic Regional Conservation Group.

Brian Laurie-Beaumont and **Fiona Graham** made two visits to the Musée Marsil, St. Lambert, Quebec, to advise on designing a plan to deal with a severe shortage of space through a review of space needs and site options.

Daniela Kolbach presented a workshop entitled "Identification of Gold Surfaces" at Spectrum '96, a trade show in Toronto organized by the Professional Picture Framers Association and the National Art Materials Association.

As part of the activities for International Museums Day, **Jim Bourdeau**, **Michael Harrington** and **Renée Dancause** staffed the CCI information booth at the Department of Canadian Heritage headquarters building in Hull, Quebec to answer questions from employees and the general public about conservation.

Peter Vogel, **David Tremain** and **Jim Bourdeau** responded to a request to survey flood damage at the Canada Council Art Bank, Ottawa, and to stabilize the paintings, works on paper and mixed media objects affected by the flood.

Gregory Young presented the poster "Thermal Analysis and Fourier Transform Infrared Microspectroscopy of Fibrous Collagen" at the International Symposium on Archaeometry, University of Illinois, Champaign/Urbana.

Several CCI staff members participated in the conference of the International Institute for Conservation-Canadian Group (IIC-CG) held in Montréal. **Jane Sirois**, in collaboration with **Annaïg Gautier**, **David Miller**, **Elizabeth A. Moffatt** and **Jeremy Powell**, presented the poster "A Scientific Investigation of the Paintboxes of Paul Kane and David Milne". **Daniela Kolbach** spoke on "The Use of Vacuum Clamping to Treat the Damaged Parquetry on a Bombé Writing Desk". **Renée Dancause** gave the paper "Rehousing Mother Bruyère's Veil". **Season Tse**, in collaboration with **Sherry Guild**, presented "The Development of Enzyme Treatment Strategy at the Canadian Conservation Institute". **Carole Dignard** co-presented the paper "Glass and Fur Challenges: The Treatment of a Late 19th-Century Velvet Cape"; co-authors were **Gaelen Gordon** and **Jane Sirois**. Carole also presented a poster session on the use of the nebulizer. **Marie-Claude Corbeil**, in collaboration with **Elizabeth Moffat** and **David Miller**, presented a paper entitled "A Study of the Materials and Techniques of Alfred Pellan".

George Prytulak and intern **Kevin Machan** visited the Brome County Historical Society Museum, Knowlton, Quebec, to inspect the fabric covering on a WWI German Fokker D7 fighter aircraft.

June

Janet Wagner attended the Textile Group session of the American Institute for Conservation conference in Norfolk, Virginia, to talk about the symposium CCI is hosting in September 1997: "Fabric of an Exhibition: An Interdisciplinary Approach".

Judy Logan spent six weeks in Jordan (mid-June through July) as the conservator for the Humeima Project, directed by Professor John Peter Oleson, University of Victoria, British Columbia.

David Tremain attended the "Symposium on the Conservation and Preservation of Cultural Properties, Lecture Series on Emergency and Disaster Planning for Cultural Properties", in Taipei, Taiwan, where he presented the paper "Developing an Emergency Response Plan". David also travelled to Kraków, Poland, later that month where he attended the NATO/Partnership for Peace Conference on "Cultural Heritage Protection in Wartime and in State of Emergency" and co-presented the paper "Protection of Cultural Heritage in Peacetime Emergencies" with Ann de Beaupré of Emergency Preparedness Canada.

Stefan Michalski lectured on the preservation of collections in historic buildings for the Ontario Museum Association's certificate course "Museums in Historic Buildings" held at the Cumberland Museum, Cumberland, Ontario. Stefan also attended the American Institute for Conservation conference in Norfolk, Virginia, where he presented a pre-session workshop paper ("Environmental Guidelines: Defining Norms for Large and Varied Collections") as well as a general session paper ("Current Lighting Guidelines from CCI: An Explicit Balance of Visibility vs Vulnerability") and a textile specialty group paper ("Design and Operating Characteristics of a Large, Low-Cost Suction Washing Table for Flat Textiles"). **Paul Marcon** also presented a presession workshop paper: "Mitigating the Effects of Shock and Vibration".

Brian Laurie-Beaumont visited the Stephen Leacock Memorial Home in Orillia, Ontario, to advise the staff about designing a plan to deal with fiscal restraint pressures and revenue-generation ideas such as market development.

Tom Strang gave a presentation on CCI's involvement at the fossil forest site on Axel Heiberg Island, NWT, entitled "Long Ago and Far Away", at the Society for the Preservation of Natural History Collections conference in Philadelphia, Pennsylvania.

July

Bob Barclay travelled to Oslo, Norway, to give a series of lectures on the conservation of ethnographic wooden objects for the ICOMOS International Course on Wood Conservation.

George Prytulak conducted a conservation survey of the railway engines belonging to the Dawson City Museum, Dawson City, Yukon.

Tara Grant spent four weeks (mid-July to mid-August) as the on-site conservator at an excavation near Iqaluit, Northwest Territories.

Tom Strang, Malcolm Bilz and **Carl Bigras** used the Global Positioning System (GPS) to obtain an accurate map of the fossil forest site on Axel Heiberg Island, NWT, during a three-week visit in June and July. Carl also did ground, low aerial and stereo pair photo documentation.

August

Deborah Stewart presented a talk about CCI services and programs at the Organization of Military Museums of Canada workshop in Arnprior, Ontario.

CCI sponsored an open house for members of the Organization of Military Museums of Canada as part of their annual conference held in Ottawa.

Conservation Video Wins Award

One of the 19 videos in the "Preventive Conservation in Museums" series has won an award. The video entitled "Light and Lighting" was given the Bronze Apple prize by the National Educational Media Network in Oakland, California. The video series, which was produced jointly by CCI, the Centre de conservation du Québec and the Université du Québec à Montréal, has also been pre-selected for upcoming video festivals in the Czech Republic and Germany.

Canada