Communications Canada

June 1988

Canadian Conservation Institute

Institut canadien de conservation

Newsletter

Symposium 88 *— The Organizing Committee of Symposium 88 is pleased to announce that forty papers on a wide range of topics will be presented at the forthcoming October conference (3rd - 7th) by an international cast of speakers. In addition to laboratory tours and demonstrations at CCI, the National Gallery of Canada and the National Archives of Canada, two panel discussions will take place during the main sessions. The Symposium is already attracting registrants from all over the world and you are urged to register now so as not to miss this truly international event. For more information please write to the Organizing Committee, Symposium 88, at the Canadian Conservation Institute.*

Contents

Kitwanga: An Early Field Conservation Project of the National Museum of Canada

by Philip R. Ward

During the first World War, Canada's second trans-continental rail link, the Grand Trunk Pacific Railway — later to become the Canadian National Railway — was completed. As its western extremity traversed northern British Columbia by way of the Skeena Valley to its Pacific terminus at Prince Rupert, it passed through the territory of the Gitksan: one of the three nations of the Tsimshian tribe. Only one of the Gitksan villages was actually on the line: the Kitwanga ("The Rabbit People"), on the north bank of the Skeena, 150 miles from the sea.

Like other Gitksan villages, Kitwanga possessed an impressive stand of totem poles; but unlike the others, the Kitwanga poles were visible from the railway and could be reached by a short walk from the station. Their potential as tourist attractions was not lost upon the CNR, and when Marius Barbeau and Harlan I. Smith

Photo courtesy of the Canadian Museum of Civilization

Totem pole conservation at Kitwanga in 1925. Gitksan Indians oiling pole No. 4 under the direction of the foreman, W.C. Washburn (right).

Photo courtesy of the Canadian Museum of Civilization

Totem pole conservation at Kitwanga in 1925. Raising pole No. 19 ("Man-Crushing-Log") after treatment. Shear-legs are being positioned to support the pole temporarily while the gantry is moved prior to raising the pole to an upright position. This photograph contains a wealth of interesting detail: the temporary floor on which cement will be mixed is in position beside the foot of the pole and a pile of beach cobbles (right) are ready for use as "fillers" for the base. The man at the left wearing a white hat is thought to be T.B. Campbell, the CNR engineer who provided the technical expertise for the restoration. The last (semi-traditional) "big-house" in Kitwanga, with a smoke-hole in its roof, is seen between the shear-legs. It was the house of Chief Hlengwah (Jim Lachnitz) and burned down about 1949. The totemic figure of a Mountain-Lion on a platform is just visible between the lower rungs of the gantry: it had also been restored in 1925 and moved from its original position on the other side of the track. The unpaved track which enters on the right has now become the main street of the village, along the south (right) side of which all the poles now stand. The poles in this picture face south toward the Skeena where most of the poles originally stood and where (out of this picture) most of them were re-erected in 1925-26. Pole No. 19 fell and was partially burned in the 1940s (although fragments survive); and the Mountain-Lion disappeared. The poles on the south side of the road were turned to face north in 1937, when the others along the river bank were brought to join them, to form the avenue of poles for which Kitwanga is justly famous. In 1969, the pole seen here just to the right of the gantry was also moved across the road to join them.

of the National Museum of Canada proposed that an attempt should be made to restore them, both the CNR and the Department of Indian Affairs agreed: Indian Affairs would fund the project, the CNR would provide materials and transportation, and the Museum would provide expertise and direction.

Barbeau drew up an inventory of all the Gitksan poles during his fieldwork in 1924 and recommended the restoration of 71 totem poles and 400 grave-houses; and, forgetting the commercial motivation of the CNR, he proposed that priority should be given to the poles at Kispiox, 12 miles from the railway. Naturally, the CNR preferred to start with the 18 poles (and two totemic figures) at Kitwanga. Smith was placed in charge and the CNR donated the technical expertise of T.B. Campbell, a most capable bridge engineer.

The people of Kitwanga were co-operative, even telegraphing Smith to invite him to proceed. A work party of local men was recruited and, in July 1925, work commenced.

Campbell devised a huge timber gantry and a well-designed system of blocks and tackle that enabled a relatively small work force to handle large, heavy totem poles with comparative ease. One by one the poles were cut at ground level, lowered onto blocks, and cleaned. Deep channels were then cut in the backs of those which had solid round sections to receive supporting posts. These were straight, round, creosoted cedar posts, to which the poles were attached with one-inch diameter steel bolts, whose heads were countersunk below the surface of the poles. Hollow-backed poles were not channelled, but were attached to their supports by way of short cross-braces.

Any necessary physical repairs were then carried out, and the poles were brushed with copious amounts of linseed oil.

Round pits, about a metre in diameter and 1.5 metre deep were then dug at the new locations where the poles were to be set up. They were filled with alternating layers of beach cobbles and cement. The poles; were lifted again with the gantry and the feet of the new supporting posts were lowered into the pits until the bottoms of the poles were just above ground level. The pits were then filled to ground level with more layers of cobbles and cement and topped off with a slurry of wet cement, which was smoothly trowelled up to the bottom of the pole. The name of the pole's owner (or in some cases, the initials of the foreman) and the year were scratched into the wet cement and all spaces where water could enter between the pole and its supporting post, between the post and the concrete base, or between the foot of the pole and the base, were sealed with a bituminous compound referred to by Smith as "plastic gum."

Finally, the poles were carefully painted with oil paints: a procedure which rightly earned Barbeau's displeasure. Although the Indians evidently approved, Barbeau pointed out that only details such as eyes, lips, teeth and nostrils had originally been painted, and in subdued, "native" colours; whereas now the poles were painted along their whole length, in the gaudiest of hues.

After two seasons, the only two poles that remained unrestored were those owned by a Chief, who refused his permission. One of them was subsequently sold illegally to the Hudson's Bay Company and still stands on the grounds of their store at Kitwanga, while the other, possibly the oldest of them all, rotted away on the ground.

However, the restorers' biggest mistake was to re-erect the poles too close to the river bank. In 1936 there was a major flood, the bank was seriously eroded and some of the poles were once again endangered. The following year, without any outside help, the villagers removed all the poles from the river bank and re-erected them to form a magnificent avenue of fifteen poles along the main highway of the village.

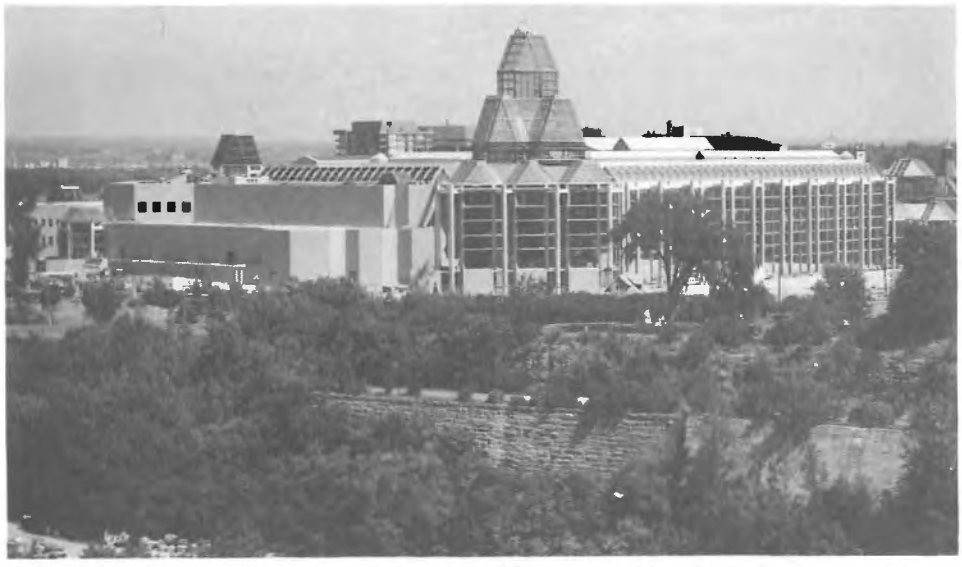
There they stood, until, in the early 1960s, they were again endangered by the rotting of the supporting posts. In 1969, they were restored for a third time by the Skeena Totem Pole Restoration Society. The author played a small part in that restoration and is now engaged in a project which, in a way, will complete the circle. During 1988, CCI will undertake a study of all the totem pole restoration projects on the Skeena to assess the effectiveness of the various methods used; the author intends to publish the results in a book on the conservation of the poles of Kitwanga.•

CCI Contributions to the New National Gallery and Museum of Civilization Buildings

by Stefan Michalski

Two major new buildings have been under construction in the National Capital Region to house the collections of the National Gallery of Canada and the Canadian Museum of Civilization. The first opened its doors in the spring of 1988; the second will open in the summer of 1989. There is a real need for these facilities, as the National Gallery of Canada has been housed in an office building since 1959, and the Canadian Museum of Civilization currently shares quarters with the National Museum of Natural Sciences. The construction of major new museum buildings such as these, however, invariably generates some controversy between architects, curators and conservators.

Years before ground was broken, CCI began a long campaign to keep environmental issues paramount in the design of the new buildings. In cooperation with the conservation departments of each institution, and at the request of the Secretary General of the National Museums of Canada (NMC), CCI prepared and refined an illustrated lecture that was then presented to anyone who mattered. Each of the many players in turn came to listen and discuss: the Board of Trustees, their management committees, Architectural Services of NMC, members of the Canada Museums Construction Corporation (CMCC), the architects, their consultants, the display designers, and finally any staff who were interested. At this stage, it became apparent that (fortunately) no one disputed the fundamental light and humidity specifications for the artifacts. The tenets of preventive conservation had



A view of the new National Gallery of Canada building from behind the Parliamentary Library of the House of Commons on Parliament Hill.

obviously permeated not only the museum community but its specialized consultants as well (if not the architects themselves).

Only implementation remained for discussion. Here of course, differences arose, but conservation has to recognize its grey areas. For example, everyone agreed that the amount of light entering the galleries through the skylights had to be controlled to maintain appropriate lux levels; however, secondary problems associated with this, such as condensation, leakage, and maintenance had to be compromised with equally important functions of the building such as the quality of the space that was being created for the museum visitor. The architectural consultants, for their part, insisted that new technology and correct detailing would solve any technical problems, so objections based on past experience were moot.

Even further afield from the strict concerns of conservation were issues of perception. CCI lobbied strongly against early design proposals in which low skylights would have caused intolerable reflected glare from paintings. In this instance, the design process and all its players were so enamoured with the space itself, that the appearance of the artwork was overlooked. In these projects, as in others, the conservation community seemed responsible not only for the material well-being of collections but, inevitably, for their visibility as well.

The New Canadian Museum of Civilization building under construction and the Alexandra Bridge. Canada Day, July 1, 1986.

Frequently, support for conservation concerns arose inadvertently from unexpected quarters. For example, in both projects reductions in the amount and transmittance of glazing were demanded by the mechanical engineers who balked at the heating and cooling loads, and consequent size and cost of machinery. This led to unexpected complications. The nonchalant acceptance of a heat-insulating glass by the architect early in the project almost backfired years later when the glass arrived on site and was noticeably greener than expected.

CCI was invited by the construction corporation (CMCC) to clarify the perceptual issues, given a heated range of opinions amongst client, architect and consultants. Ironically, looking out for the best interests of the artwork redeemed the glass, since calculation of the spectrum of daylight through the glass showed it to be a class A white light source, imperceptibly different from standard daylight. Perception of the glass itself as slightly green remained an entirely separate dilemma, but one easily avoided by making sure that viewers could not see different glass, or open windows with which to make a comparison. It was the view of the "architect's jewel" outside that suffered the most, when one looked through two layers of the glass against open sky. This, at least, was not CCI's business at all.

After numerous numbing committee meetings, rush reports, and deceptive lulls in activity, the National Gallery is completed and the Canadian Museum of Civilization is nearing completion. The architects imposed powerful visions and strictures on the design process, as well they should have. The conservation community (among others) responded strongly at all stages, through the internal departments, CCI, and concerned conservators across Canada. One can argue about their myriad imperfections but overall, these buildings will house our national heritage well.•

John James Audubon's *The Birds of America*

by David Hanington

On Friday, November 6, 1987, the Honourable Flora MacDonald attended the fifteenth anniversary celebrations of CCI. During her visit, she toured the conservation and research laboratories.

In the Paper laboratory she observed volume 1 of John James Audubon's *The Birds of America* which is being preserved for the Library of Parliament in Ottawa. The deterioration of this volume over the years, had resulted in damage to the plates and the original leather binding.

John James Audubon published the double elephant folio edition between 1826 and 1838. Approximately 200 sets, consisting of 435 prints, were originally printed. Over the years many of these sets have been either divided up and sold separately or destroyed. At the last survey, 134 complete sets are known to exist. Five belong to Canadian institutions.

Audubon travelled through the wilderness of North America studying, drawing and painting the birds in their natural environment. He would shoot and wire up the birds in life-like poses and paint them life-size, in oil or water colours. In 1826, unable to find a publisher in North America willing to undertake the task of publishing the drawings, Audubon travelled to England and Scotland where he commissioned William Lizars of Edinburgh to execute the first ten copper-plate engravings. The drawings were delivered to the engraver, who made a copper plate of each one, printed them and directed his watercolourists to colour them by hand. A strike by Lizars colourists caused him to give up the job. Audubon then turned to Robert Havell, Jr., in London to engrave, print and colour the remaining 425 plates.

The Honourable Flora MacDonald, Minister of Communications, discussing the conservation of John James Audubon's The Birds of America *with book and paper conservator David Hanington during her visit in celebration of CCI's Fifteenth Birthday.*

In order to finance his project, Audubon was forced to sell subscriptions. The plates, as they were published in groups of five, were delivered to the subscribers in tin mailing tubes. The plates were collected and usually bound in four volumes.

In 1847, the Library of Parliament purchased a set that was destroyed by fire in 1849. In 1857, a replacement set owned by the Audubon family was purchased and is now on display at the entrance to the Library. The fact that the volume which has been treated at CCI was in the possession of the Audubon family is clearly evident from the pencilled notations found on many plates throughout the volume, quite often in Audubon's own handwriting. At least one plate we are treating had Audubon's notes to the engraver indicating his wishes for changes to be made in the colouring of the bird on that particular plate.

The plates, measuring 97 X 65 cm, were engraved on handmade linen rag paper, sized with gelatine, hardened with alum and watermarked J. Whatman. Extensive damage had occurred, consisting of tears and missing areas in the plates, ground-in dirt on the paper, as well as disfiguring adhesive stains from previous repair attempts.

Plate 21, "The Mocking Bird," before treatment. The surface of the paper is soiled, with edge tears, paper losses and damage to the binding edge. A large linen tape repair extends along the bottom edge, extending over part of the image.

The first conservation treatment consisted of a surface cleaning of the plates with a combination of eraser compounds. Old repair tapes and adhesive residues were then carefully removed by means of special poulticing techniques. Tears and missing areas were repaired and infilled with a combination of oriental and matching repair papers. Many of these were hand-made on the leaf-caster to obtain proper texture, thickness and a sympathetic colour match. An acid-free paper extension and interleaf were attached to each plate to provide extra support and to allow each plate to lie flat when the volume is opened.

The plates were then bound together into four volumes, each covered with alum-tawed pigskin leather with linen cloth sides and small vellum corners. Finally, titles were stamped onto the spine of each volume in gold leaf with heated lettering tools.

I would like to acknowledge the help of several colleagues, especially Sherry Guild of CCI and Pierre Pilet of the Parliamentary Library, who assisted with this project.•

Analytical Research on the Conservation of Native Skins and Leathers

by Gregory S. Young

Most major museums in Canada have collections of archaeological and ethnographic artifacts of skins and semi-tanned leathers made by Canada's native peoples. In addition to creating colourful and interesting displays, such artifacts provide valuable information for material culture studies. Through study of their design and decoration, curators and scholars, as well as the native peoples themselves, can learn of the different life-styles and technologies that distinguish the various native cultures of the past.

As materials, skins and leathers are resilient and strong, but they remain so for a comparatively short time unless they are treated with abundant care. Native skin artifacts in museums can show a broad range of deterioration. The extent of breakdown of any particular artifact will depend on inherent vice in original manufacture and on past and present environmental factors. One of the problems facing conservators is that often the appearance of an artifact gives a false impression of its present state. A skin can retain its original colour and feel soft and supple when gently handled, and, yet, it can be extremely deteriorated. Few practical methods of evaluation are available. Because of this, decisions on the materials to use in conserving an artifact and on the extent to which conservation can be safely undertaken often must be based entirely on past experience.

To address this problem, CCI has begun analytical research on the physical and chemical properties of

Greg Young examining collagen fibres with microscope thermal microscopy stage and video monitor.

collagen fibres, the basic building blocks of these artifacts. The goals of the research are:

(i) to establish analytical techniques for measuring the deterioration of skin and leather artifacts;

(ii) to evaluate the effects of present and experimental conservation treatments using these techniques; and

(iii) to develop methods for monitoring the state of repair of native skins and leathers in museum storage and display.

One promising method for studying deterioration is the indirect measurement of the thermal stability of collagen fibres. Such fibres shrink to about one-third of their original length when subjected to heating while immersed in water. Untanned, undegraded fibres shrink when the temperature reaches 62 to 68°C. Deteriorated skin fibres shrink at lower temperatures, and, within a limited range of values, lower shrinkage temperatures represent greater deterioration.

Formal research has only begun, but already these measurements have been useful to conservators both inside and outside of CCI. Tests conducted on minute fibre samples from artifacts frequently show little deterioration, and conservators are able to carry out treatments confidently. Less frequently, artifacts are revealed to be severely deteriorated, showing shrinkage of water-soaked test fibres at room temperature. With this information, conservators know that even humidification, for example to reshape a crumpled artifact of this sort, would cause drastic and irreversible damage.

Analytical Research Services is proceeding to establish the connection between deterioration and loss of thermal stability definitively. Once this is done, the study will shift to the effects of conservation treatments, and museum storage and display environments.•

"Ageless" and "Ageless Eye"

by David Grattan

Cheap and simple oxygen-free storage for artifacts has always been regarded as an unlikely prospect. In rare instances, very precious items such as the American Declaration of Independence, for example, are kept in elaborate sealed chambers for display; but the prospect of such treatment for all of the many artifacts stored in museum collections has always seemed quite unrealistic. However, the introduction of the "Ageless" oxygen absorber and the "Ageless Eye" oxygen indicator by Mitsubishi Gas Chemicals of Japan makes such storage a practical possibility. These materials give us hope for:

(i) the first practical preservation technique for rapidly decaying rubber and plastic artifacts;
(ii) a simple non-interventive method for controlling active corrosion of metals; and
(iii) a way of controlling insect pests and fungus without resorting to toxic chemicals, expensive stainless steel fumigation chambers, or freezing.

An important aspect of the method is the use of impermeable, flexible, heat-sealed packages which keep oxygen out for long periods. At present we are not sure just how long this kind of oxygen-free packaging will last, but we hope to be able to find out. The flexibility of the sealed enclosures is what helps make the method work. The removal of air (about 21% oxygen), from a rigid, sealed container would create a partial vacuum; but a flexible enclosure allows the complete removal of oxygen without the development of a pressure difference.

Obviously, the chemical nature of "Ageless" is an important consideration. It would be useful to know, for example, whether it releases gaseous products when it absorbs oxygen; also, whether it affects the relative humidity of the enclosure. According to Mitsubishi, "Ageless" is an oxide of iron which oxidizes rapidly to higher oxides by reacting with, and hence absorbing, oxygen. Although one can imagine that there might be problems in some circumstances, on balance it is probable that this material is benign, and poses little threat of damage to most artifacts, although this is something which must be properly investigated before its use can be recommended.

The "Ageless Eye" oxygen indicator is a dye which turns from pink to blue at oxygen levels in excess of 0.5%. The dye is as yet not particularly stable and Mitsubishi has suggested that it be replaced every two years.

Up to now, Mitsubishi has directed the marketing of its "Ageless" oxygen absorber mainly at the food industry. Experimental data show that packaging with "Ageless" preserves various foods such as bread, salami and cake at normal temperature and humidity. The product is also sold in Japan for the storage of furs.

It was Mark Gilberg (previously with CCI now with the Australian Museum in Sydney) who recognized the potential of these products for museums; he also suggested that CCI should carry out research on them. His interest is primarily in alternatives to fumigation. CCI has contacted Mitsubishi, and found the company to be very interested in carrying out a trial of the product in the museum application. At present we are working toward a joint evaluation to be carried out between Mitsubishi, CCI and the Australian Museum in Sydney. Trials have not yet started.

If you are interested in this project and would like us to consider a specific application, please write to me at CCI and I will try to include your interests and concerns in the research plan and circulate information to you as it develops.•

Thoughts on the Role of the Archaeological Conservator

by Judy Logan

Over the past few months, archaeological conservation has been highlighted in publications such as the *In Situ Archaeological Conservation Proceedings of Meetings*,[1] and Peter Throckmorton's recent popular book on shipwrecks and archaeology[2]. In both of these publications, as well as in earlier work, there is an ongoing effort to explain just what archaeological conservation is and how it fits in with archaeology. Archaeological conservators, more than their colleagues in other specialties, seem to have trouble defining their role. Consider the following statements:

..."given the fundamental instability of excavated marine finds, given their relative stability in the burial state, given the conservator's responsibility for preserving the finds, it should come as no surprise that most conservators are against excavation on principle...at heart there is nothing he would like better than to put himself and his colleagues out of this particular line of work by declaring a permanent end to all excavation."[3]

Such words underscore the conflict that can arise between archaeology and conservation, and are an admission that conservators working with archaeological materials often find themselves in what is almost a schizophrenic situation.

But why should a problem exist? After all, archaeologists go to endless pains to record and save data during excavation. Conservation should complement this activity — the retrieval of information which would otherwise be lost. How does one solve this conundrum? A good starting point may be the place where conservation and archaeology really do work together: that is, in the field.

Although many conservators have had the experience of dealing with natural disasters such as floods and fires, or have had to work to rigid

Judy Logan with the completed block lift of a small iron object.

deadlines (such as exhibition openings), few are regularly subjected to the rigours of an excavation. Indeed, excavation may well be thought of as a controlled disaster. Paradoxically, the role of a conservator in such a situation is to control entropy, yet cooperate with the agents causing it.

Such a role is challenging in any working situation; but it is exacerbated by the conditions prevalent at most archaeological sites. These may include any (or all) of the following: isolation; inclement weather; limited resources, such as water and supplies; total lack of analytical assistance; and very little control over the temperature, humidity, amount of light and ventilation of the work space. Living conditions can also be interesting. In most field situations, the job and associated pressures are not left behind at 5:00 p.m. During the first major season on a well-known excavation, for example, one of the lab crew actually lived under her work table for eight weeks!

Together with the uncertain facilities comes the unpredictable workload. No two seasons at an excavation site are the same in terms of the demands on the conservator. These demands include not only variety in the type and quantity of material being found, but also the complexity of excavation of particular artifacts or features. It is often necessary to make rapid decisions about appropriate conservation techniques with no prior testing and no prior experience with a particular problem. Conservation in a field situation relies heavily on applying extrapolated information and using available resources.

In a field laboratory, a conservator sees all the artifacts as they are brought in for processing. He thus has a role to play in not only the physical aspects of post-excavation care, but also in the interpretation of the material. Conservators have a background in material science that complements the observations an archaeologist makes about a collection of artifacts. By establishing a dialogue and understanding the questions the archaeologist is asking, a conservator can contribute ideas for post-excavation analysis, as well as assist in devising a conservation plan for the material. Such a plan includes not only the conserving and restoring of selected objects, but also assisting the archaeologist in understanding the long-term storage requirements.

All this sounds quite rational and pat; in fact, it rarely occurs along such ideal lines. Although conservators and archaeologists share the same goals in wishing to "study, record, retain and restore the culturally significant qualities of the object with the least possible intervention,"[4] they do not always agree on what is significant and to what degree material should be retained. Why? Often because the archaeologist and the conservator have not discussed their common task: a simple failure to communicate.

Lifting a degraded skeleton from Red Bay, Labrador. The skeleton and surrounding soil have been frozen with dry ice.

Conservation in archaeology requires full knowledge of the research goals of the excavation. It is absolutely essential that a conservator understand what an archaeologist is trying to accomplish within a given field season and what the long-term objectives are. Is it a salvage excavation? Will there be any attempt to interpret the site for tourism during or after the excavation? Who will be the final custodian of the collection, and how accessible will the collection be for further research? What legal restraints are placed on the archaeologist by the permit to excavate? What is the impact on the local community or regional residents? There is no better way to discover the answers to these questions than to work on the site and develop a feel for the nature of the artifact assemblage and the significance of various materials to the interpretation of the site.

You may ask why questions of tourism, development and local impact should be considered by a conservator. Conservation has a very real role in bringing the results of archaeology to the public. There are very few artifacts that can go directly from the ground into an exhibit. In fact, there are few that can be used for publication without some sort of preliminary treatment for the purposes of identification — both for the archaeologist doing the description and the photographer or illustrator producing the visual image. A jumble of potsherds might be of interest to an archaeologist who can recognize form and style even without the aid of restoration, but they will be useless for communication. If there are plans to develop a site, the conservation requirements will be quite different from those for a straight salvage operation. Conservators need to realize this and be able to advise an archaeologist on the costs of full-scale restoration and conservation of material that will be required for display.

Canada has limited resources to spend on archaeological research. It is essential for conservators to have a realistic view of those resources and work to make the most of what is available. Practically speaking, there comes a point when the retention of material becomes not only redundant but obstructive to archaeology. For example, if one is dealing with a few tons of degraded wood from a collapsed Thule house in the Arctic, it is physically possible to excavate the timbers; but if the archaeologists were compelled to remove them for treatment and reassembly, the drain on financial and human resources would be so great that useful research on that particular site as well as others of a similar nature would be hampered. I should note that if the demands of conservation are perceived as obstructing research goals, it is usually the conservation, not the excavation, that will be cut.

Maybe the idea of retrieving and conserving a degraded Thule house appears ludicrous; but how about the excavation and conservation of a shipwreck? Such a project involves the retrieval of tons of degraded wood, years of work and millions of dollars. A lot of people get very excited at the idea of raising ships, or parts of ships; but the general public does not understand the costs of such an enterprise, or to what an extent it drains resources from a very small pool. Again, before the decision is made to conserve, the question must be asked: "Why?" The answer should be sought by examining the reasons for the excavation.

We all know, of course, that conservators are supposed to be inventive. It stands to reason, therefore, that a

conservator working with an archaeologist should be able to arrive at clever decisions that will allow the archaeologist to accomplish the necessary goals without compromising the conservator's professional ethics. Reburial of large quantities of material is a perfectly viable alternative to storing such material under conditions which will result in its destruction or clog up storage areas with millions of fragments which will not be useful for analysis. This course of action has been resorted to for more than one shipwreck, and in fact is used by some archaeologists who have to cope with huge quantities of ceramic material.

Other forms of successful inventiveness usually result in conference presentations and papers in which we tell our colleagues just how clever we were. We have moulded and replicated in epoxy entire portions of sites, sometimes under the most peculiar circumstances; we have done spectacular blocklifts and performed miracles of packing; we have stripped the soil off pit walls to record particularly interesting stratigraphy. Although our conservation colleagues appreciate these achievements, and archaeologists are invariably impressed by them, I sometimes wonder whether some of our most useful accomplishments are also the most underrated.

The fact that through conservation, analysis gets done and questions which may otherwise be overlooked are asked, is taken for granted. The bits of information we glean find their way piece-meal into the archaeologist's data about a site and reappear in the synthesis of that data. Neither the public nor many of our colleagues see this; our role becomes visible only in photographs and displays of restored objects. It is not self-evident that conservation, when practised in the field, becomes an integral part of the entire process of archaeology.

And yet there is something particularly satisfying about coping with a controlled disaster successfully. To do so under the most difficult of circumstances can raise this feeling of satisfaction to euphoria. Having to cope with the variety of situations that arise during an excavation is one of the most challenging aspects of archaeological conservation. There is the thrill of being there when a particularly exciting find is made, and the satisfaction of helping to retrieve it. There is the constant testing of what you are capable of coping with in a fixed period of time with limited resources.

Always aware of what is being accomplished in terms of the research objective, you are constantly adapting your training as a conservator to extract the greatest amount of information without compromising your ethics and without obstructing the progress of the excavation. And above all, as an archaeological conservator, you work with the archaeologist to ensure that the best possible decisions are made at the stage which still allows each of you to make a choice. •

References

1. *In Situ: Archaeological Conservation Proceedings of Meetings, April 6-13, 1986, Mexico*. Henry Hodges, ed. J. Paul Getty Trust. 1987.

2. *The Sea Remembers: Shipwrecks and Archaeology*. Peter Throckmorton, ed. Weildenfeld and Nicolson, New York. 1987.

3. Jenssen, Victoria. "Archaeology and Conservation". *The Sea Remembers: Shipwrecks and Archaeology*. Peter Throckmorton, ed. Weildenfeld and Nicolson, New York. 1987: 104.

4. *Code of Ethics and Guidance for Practice for Those Involved in the Conservation of Cultural Property in Canada*. International Institute for Conservation-Canadian Group and the Canadian Association of Professional Conservators. 1986: 16.

A Question on Acrylics

by Bob Arnold

CCI receives numerous requests for advice and information on conservation-related issues. One recent request dealt with the durability and problems associated with acrylic paintings. The following points were raised in responding to this inquiry.

I would not discourage artists from using acrylic paints. It is true that acrylics can present conservation problems. This, however, is equally true for other paint media as well. The precautions, applications and preventive techniques necessary to ensure the longevity of an acrylic painting may differ somewhat from those needed for an oil painting. Surely the solution is to make artists and custodians of art works aware of the problems particular to acrylics so that necessary precautions can be taken.

Artists should decide on the medium which best suits their form of artistic expression and use it for that reason. Acrylics were never meant to be a solution to the problem of durability in a paint medium. They require special precautions when being employed by the artist, and by the curator when the finished work of art is handled and displayed.

Acrylics should be mixed and applied according to the manufacturer's recommendations and instructions. Like all paintings, acrylics should be properly framed and provided with protective backing boards. They should not be subjected to extremes or rapid fluctuations in temperature or relative humidity and should be displayed under appropriate lighting conditions in accordance with recommended norms for art galleries and museums (maximum 150 lux, 75 micro-Watts per lumen of ultraviolet radiation).

Acrylic paintings do pose special problems with regard to soiling. Unlike oil media, acrylic paint remains relatively soft throughout its life, and has a tendency to be easily scuffed, marred, as well as to imbibe dirt. Furthermore, the paint might become even softer at elevated temperatures such as those caused by exposure to direct sunlight.

One should therefore avoid subjecting acrylic paintings to such conditions and take precautions to protect the paint surface with glazing (glass or plexiglass) if the painting is to be displayed in a location where scuffing or air-borne dirt is a problem. Polyethylene (plastic) or fabric dust covers can be used to protect paintings during storage.

To the best of my knowledge, there have been no experimental studies comparing the resistance to cracking of artist's acrylic paints to artist's oil paints. Under normal temperature conditions, one would expect an acrylic paint film to remain more flexible as it ages. I have, however, seen many acrylic paintings that have suffered mechanical cracking. Cold temperatures increase the brittleness of this paint medium and thus should be avoided. As with all paintings, excessive tautness of the canvas should also be avoided to prevent excessive stressing of paint and ground layers. As well, proper cushioning, packing materials and handling techniques should be employed to reduce mechanical shocks to the painting during transit.

The question of whether or not an acrylic painting should be varnished is a somewhat contentious issue. My personal view is that if one varnishes an acrylic painting, one should be prepared to accept the fact that the varnish may never be safely removed and will, in effect, become a permanent part of the painting. This is because acrylic paints remain soluble in relatively mild organic solvents throughout their lifetime. These same solvents are the ones used to remove a discoloured varnish film.

The problems of acrylic paint are complicated by the wide range of resins and resin combinations that can be employed in their formulation. In 1982 more than 16 different trade resins were used in the twenty-four brands of acrylic paint available in Britain and the United States. Different paint brands will have different ageing and solubility characteristics. Different acrylic resins may vary in their physical properties. Even resins with the same chemical formula may have different molecular weights and hence different properties from one another. Paint formulation and types of additives will also affect properties. Finally, conditions of application and drying can affect the properties of the dried paint film.

The problem is further complicated by the fact that acrylic paint media are sold commercially in at least three different forms:

(i) Acrylic emulsion paints (thinned with water). These are the most common type available.

(ii) Solvent-based paints, in which the acrylic resin is dissolved in an organic solvent or solvents. These must be thinned with an appropriate organic solvent. They are not water-miscible. MAGNA brand is the most common of this type available commercially.

(iii) Systems in which the binder, extender and pigments are sold separately to be mixed by the artist, e.g. SPECTRUM ACRYLIC brand.

Conservation research is just beginning to focus on the problems associated with artist's materials and contemporary paint media such as acrylics. As more research is undertaken, conservators will be able to make more precise recommendations on preventive conservation and provide more information on the problems specific to acrylics and other media.•

CCI Focuses on Complex Treatment Projects

by Raymond Lafontaine

The nature of treatment projects undertaken by Conservation Services at CCI has changed substantially over the last several years. This change has taken place out of necessity. CCI has realized that, given its limited resources, it could not solve every conservation problem in Canada; it could not treat every artifact and work of art; and it could not provide an unlimited number of seminars, workshops and consultations each year. Rather, its resources would have to be used judiciously and effectively. In the area of conservation treatment, a decision was taken to focus on "complex treatments," rather than on minor and routine problems. CCI does continue to accept objects requiring routine treatment specifically in support of its training functions. However, the majority of treatment projects will henceforth be of the complex variety.

When this policy was adopted, the term "complex treatment" was not specifically defined. The standard dictionary definition "hard to ... solve" had to suffice. Over the years it became obvious that many of the treatments that CCI was carrying out were not necessarily covered by this general definition. However, these treatments had some characteristic or peculiarity that justified their being carried out at CCI. It is now possible to clarify the original definition on the basis of our experience. What follows is essentially a list of ten conditions or prerequisites, one or more of which should be met by objects if they are to be accepted for treatment.

CCI will treat an artifact if:

1. No suitable treatment for the condition or problem exists, and a novel approach must be developed. Example: the recent arrival at CCI of a large whalebone carving which continuously exudes an oily substance.

2. The treatment (or parts of the treatment) require complex procedures that are not carried out on a routine basis. Example: the complete transfer of the paint and ground layers from an original wooden panel painting to a more stable rigid support such as aluminum honeycomb panel.

3. The object is of a composite nature which requires an interdisciplinary team of conservators. Example: A large Northwest Coast dance mask recently sent to CCI for conservation. The badly degraded cotton stretched over the outer framework was treated by a textile conservator, while the painted wood structure and decorative elements were repaired and consolidated by an ethnographic conservator.

4. The object represents a unique, unusual or incompatible combination of materials which may lead to unforeseen problems during the object's treatment. That is, the standard treatment of one component will adversely affect other components, so that, again, a new approach or procedure is necessary. Example: the treatment of waterlogged wood containing metal components.

5. The treatment requires substantial analytical and scientific backup only available at CCI. Example: the consolidation of sixtenth-century polychrome altar pieces with a wooden core which has been severely weakened by insect activity. The conservator who will soon be treating these artifacts in our Fine Arts laboratory will require regular monitoring of the extent of consolidant impregnation into the wood by means of densitometry measurements performed by CCI conservation scientists.

6. The treatment requires expertise, skills, time or equipment not generally available elsewhere. Example: Many types of treatment, such as the use of a leafcasting machine to repair damaged documents (only CCI has this equipment in Canada), or the reweaving of a tapestry (a rare skill).

Wojciech Jakobiec and Raymond Lafontaine discuss colour matching of wool and thread for reweaving of a sixteenth-century tapestry from the Winnipeg Art Gallery.

7. The object will be used to evaluate a new conservation procedure developed either by CCI or by some other conservation laboratory in Canada or abroad. Example: the use of synthetic and rigid supports to line a canvas painting. Many of the treatment projects in Fine Arts and Polychromes at CCI are now selected with the specific intent to utilize these new procedures.

8. The treatment involved will provide conservators with the opportunity to test new products or materials which have not been used before in conservation. Example: the recent development by CCI researchers of a new infilling material based on epoxy resins and microballoons, and its subsequent use to replace missing areas of totem poles and West Coast Indian house complexes.

9. The treatment is the logical, practical progression of a CCI research project. Example: The recent conservation of rubber bathing boots after a CCI Research Project studied the problems of degrading rubber and the ways degradation could be slowed down.

10. The treatment has been attempted unsuccessfully by other conservation laboratories or has been referred to CCI by other conservators because of some peculiarity or complexity. Example: a contemporary piece attributed to Tapies consisting of felt and oil on canvas, which was recently referred to CCI because of the unusual and somewhat incompatible combination of materials.

There may be other categories or definitions, but these cover most of the types of projects CCI is capable of undertaking and to which it is now limiting itself. If your museum or art gallery has objects that require conservation treatments which fall into one of the above definitions, please contact CCI to find out whether your project qualifies.•

Research Management in the Public and Private Sectors

by Dr. Kenneth J. Macleod

The management of research in a government setting is beset with frustrations and challenges unlike, and in many ways more complex and difficult, than any encountered in the direction of applied research in industry. This is because in government, the research director is both more tightly regulated and provided with less clearly defined strategic objectives than his counterpart in the private sector.

When it comes to the formulation of methods for the planning and control of financial and human resources, industry is a leader and government a follower. We hasten to add, however, that the larger the corporation, the more like government it has tended to become in the way it carries out these functions and in their rigidity.

Government, because it is so large and diverse, requires very elaborate and rigid planning, budgeting and control procedures to ensure that line departments are indeed doing what Cabinet wants done and has agreed to support. These procedures ensure some uniformity in the reporting of government operations to citizens through Parliament. These "procedures," however, translate into orders of magnitude more paperwork as well as more people — internal auditors, external auditors, evaluators, Ministerial Commissions, Parliamentary Committees, Task Forces, etc. — looking over one's shoulder, than even at the largest corporations. The net result is that in the government laboratory more time is lost from real, productive work and more rigidity is injected into the system. It is a lot easier to change the direction of research in the private sector.

From this rigidity flows the temptation, in government, to "play it safe"

Dr. Kenneth J. Macleod

and undertake only research which is fairly certain to work out in the time period given, so that "goals and objectives are met." Therefore, unless one guards against it, the government system will tend to promote less daring, more pedestrian research than the less rigid and less cumbersome private sector systems do, since it rewards the "goal achievers" rather than those making genuine breakthroughs.

Much more difficult to deal with are the more loosely defined strategic objectives ("mandates") in government research. In the private sector, a business exists to make profits. Without them it will die. Its research director thus has a clear idea of what is expected of his department -- to find ways to increase profits by cutting costs and increasing, or at least maintaining, markets. Moreover, he has a good idea of the area he is expected to concentrate on since, for example, a gold producer is not normally interested in cheaper ways to produce porcelain toilets.

If the *raison d'être* of a business is economic, that of government is to govern. This obvious truism does not provide the clarity of purpose a research director needs to the degree that his counterpart in industry can perceive his. In addition, the government research director is often faced with meagre resources, especially in staff, that negate the grand phraseology in which his mandate is probably couched.

Lacking any specific role definition from above, the research director nevertheless has no end of advice from his staff, each of whom knows with certainty the government's desires...

The research director will probably consult with clients to confirm what the department's research priorities should be and incorporate them into the program undertaken. The motive for these consultations is that the government presumably has established the research program for the benefit of certain clients. If they are satisfied, then the employer will be also. But who are the clients to be satisfied in order to please the employer?

In the specific case of CCI, are they Canadian conservators who will put the findings of Conservation Research Services to use? Are they the museum directors who hire those conservators and also tend to control museum associations? Or, are they the provincial governments that the Minister says must be involved in the setting of priorities?

We used to think, naively, that if we satisfied the conservators, their bosses would be happy, and ultimately, the provinces would rejoice. We have found out, painfully, in the traumatic events of the past couple of years, that this is not so. How does a research director determine priorities to satisfy the majority of a rather nebulous group, not all of whom influence the political process equally, so that ultimately the government that employs him will want to at least maintain the program, if not to expand it? *That* is the greatest challenge in government research management. It is orders of magnitude more difficult than comparable challenges in the private sector.

At CCI we have greatly expanded the consultations involved in setting research priorities. We sent three Research Groups across Canada in late 1986 to interact, not only with conservators, but with curators and museum directors as well. We got a wide range of viewpoints expressed on research priorities. In addition, we publish an annual review of our research activities, distribute it widely, and encourage comments on the projects from people at all levels in the museum community. CCI is represented on Provincial Conservation Committees, whose membership comprises provincial government and provincial museum association representatives, as well as museum directors or their delegates. We expect the Committees to voice any concerns they have with our research projects.

In addition, the Office of the Comptroller General requires a formal consultation in the form of an evaluation of CCI every five years, in which all activities, including research, are assessed and redirected, if necessary. There are also more informal meetings held with museum staff and provincial government officials at which research is discussed. In these many ways we hope we are meeting the challenge. The many letters of support we have received over the past year or so indicate that we are.

Given the nature of government, of which CCI is very much a part, the system for setting priorities will certainly never be perfect and never as simple as in industry. But the system has never, and will never, interfere with the high quality of the research that we undertake.

Because there is another side to being research director, which far outweighs any of the frustrations that go with this job. I have the privilege of working with some very outstanding researchers, who together make up what foreign colleagues have said (in writing) is the finest conservation research laboratory in the world. Let me conclude, then, by stating that I am happy to have been involved in establishing a climate in which the highest quality of research is the norm.•

ICCROM Elects New Director

The International Centre for the Study of the Preservation and the Restoration of Cultural Property (ICCROM) elected Dr. Andrej Tomaszewski as Director at its 15th General Assembly in Rome, 9-10 May 1988. Dr. Tomaszewski replaces Professor Cevat Erder who returns to Turkey to the University of Ankara.

Dr. Tomaszewski was formerly Director of the History of Architecture and Art Program at Warsaw Technical University. He has studied in Poland, France and Italy, and has been on many archaeological investigations and excavations in Europe. Dr. Tomaszewski has lectured in the Soviet Union and many localities in Europe and North America. He has more than 80 publications to his credit and is active in ICOMOS and UNESCO.

Online Access to ARS Records with ICARUS: 1972-1988

by Ian N.M. Wainwright

Synopses of the Analytical Reports produced by the Analytical Research Services (ARS) laboratory between 1972 and 1988 can now be retrieved by CCI staff using ICARUS (Index of Conservation and Analytical Records: Unified System), CCI's computerized information retrieval system. Data entry for approximately 1600 ARS Reports was completed in February. Since some reports deal with more than one object or conservation material, the actual number of ICARUS documents at that time was about 3000 and is steadily growing. An additional 250 documents which pertain to analyses involving questions of authenticity or fraud are held in a file to which access is restricted. ICARUS is also used to index our reference materials. For example, information on the 520 pigments in our set of the Edward Waldo Forbes Collection can now be retrieved by computer. Several thousand x-ray diffraction patterns will also be indexed. ICARUS allows ready cross-reference between analytical results and other records, for example of an object's examination and treatment by Conservation Services.

The ARS ICARUS records reflect the wide diversity of conservation materials, works of art, artifacts and archaeological sites with which the laboratory has been involved since the inception of CCI in 1972. A typical record is made up of 30 to 50 data fields. Most of these are quite straightforward and allow reports to be retrieved on the basis of "what we did, for whom, when, and why." The actual results of analyses are stored as a string of keywords in a field called "Results Indexed." A glance at its alphabetical index is revealing. It ranges from Acer saccharum (sugar maple), akaganeite, algae, alkyl amide, anionic surfactant, argillite, and arsenic through pentimento, phthalate, pigment, poly(vinylchloride) and protein, to rutile, salmon egg, Scheele's green, and silver thread, to verdigris, vermilion, whewellite, wormhole, wrought iron, xylene, zinc oxide, and zirconium.

Clearly, retroactive data entry required the collaboration of many individuals. The ARS laboratory has been particularly fortunate to have had skilled people working on capturing the data from our reports and inputting them to ICARUS. For the last two years this has been the task of Mona Gudjurgis, whose varied and multidisciplinary background proved invaluable when she was faced with analyses involving chemical, physical and biological sciences. Mona graduated from Brock University in 1972 with a B.Sc. in geology and worked for ten years in mining exploration, primarily interpreting airborne geophysical data, at Geoterrex Ltd. in Ottawa. She subsequently performed volunteer work for the Zooarchaeological Identification Centre (ZIC) and the Mineral Sciences Division of the National Museum of Natural Sciences between 1982 and 1985. Other contributors to the project have been Caroline Tom and Brenda Dowling. Brenda, whose background also includes work at ZIC as well as at the Archaeological Survey of Canada, has a degree in Anthropology and Archaeology from St. Mary's University in Halifax. Brenda now acts as a consultant to museum and heritage organizations including ZIC and the Gloucester Historical Society where she is Curator. Caroline is completing a degree in Electrical Engineering at Carleton University and has continued to work part-time at CCI where she undertook data entry for the Materials Database (MCIN) of the Conservation Information Network before accepting a position recently with the Department of National Defence. Without the patience and perseverance of Caroline, Brenda, and Mona, it would not have been possible for ARS to complete the large backlog of data entry while maintaining an accurate and consistent terminology.

Mona Gudjurgis

ICARUS is supported by BASIS, a data management system developed by Information Dimensions Inc. (a subsidiary of Battelle), which runs in a Control Data Cyber 180-835 computer managed by the Canadian Heritage Information Network (CHIN) in downtown Ottawa. The staff of CHIN have been instrumental in our transition to ICARUS. With their help, we now have fast and ready access to past reports for comparative and statistical purposes. Although ICARUS is not, at this time, accessible by outside users, CCI staff can now more efficiently answer certain questions from our clients in the museum and archaeological communities on the basis of related previous analyses.•

Who's Who at CCI

John Egan
Clerk, Central Registry

by Cliff McCawley

At the Canadian Conservation Institute, as at every organization, there are those people who remain in the background but who are, nevertheless, essential to its smooth running and success. In this and future Newsletters we will introduce you to some of those people at CCI.

On the afternoon I talked with him about his job, representations of brightly coloured animals, profiles of reigning monarchs, and Canada's Parliament Buildings were spread out on John Egan's desk. Before our conversation was finished they had been snapped up by CCI's stamp collectors. Stamps are just one of the many kinds of things that John handles on a normal working day.

John, who has been with CCI since 1979, runs the Central Registry and manages to create order out of the mass of written material CCI produces and receives. More than ten thousand pieces of mail are received each year; approximately ten thousand files have to be stored and maintained.

Mail is delivered twice a day. As soon as the pile of letters and packages arrives, John gets to work. Each letter must be quickly scanned so that he can ensure that it gets to the right person. Many are not addressed to a specific individual, and in these cases John's extensive knowledge of CCI and its activities is essential. File numbers are assigned and correspondence numbers given before letters are placed in the green, yellow, or red files stacked on his desk. These are then sorted and circulated.

As this process goes on, there are constant interruptions as people ask John for files they need urgently, arrange for material to be brought forward at a particular date, and request mail to be sent by courier before he leaves for the day. Regardless, the mail still gets sorted, the files are maintained, and John always remains pleasant and cheerful. Always popular with the staff, John is especially so when he distributes the pay, travel and overtime cheques, another of his responsibilities.

Before coming to CCI, John Egan spent ten years with Statistics Canada working on law enforcement statistics. Despite suggestions to the contrary, this in no way prepared him, he claims with tongue in cheek, for the work he does at CCI, which requires an orderly mind, patience, tact and a good memory. The latter is a very real necessity: John can often take the flimsiest bit of information and match it to the vague memory of a conservator or conservation scientist, to produce a letter that arrived several years ago.

Unfortunately, the function that John performs is only truly appreciated when it isn't available. At CCI we are lucky to have a well-run central registry. Keep up the good work, John.•

Bob McRae
Preparator

by Charlotte Newton

The CCI preparator has to be a person of many talents — packing and unpacking artifacts, building storage and display supports, giving advice about packing and transportation, building specialized apparatus for treatments and research. We are fortunate to have Bob McRae to do the job.

In general, he is responsible for the packing and unpacking of all objects arriving at CCI for treatment and examination. Some require custom-built crates or support systems, while others can be returned in their original containers.

Bob is frequently asked by the conservators to build apparatus to assist in the treatment process: easels to support large paintings or textiles in vertical positions during treatment; new stretchers or altered frames for some older paintings; a special canvas humidification chamber for the Fine Arts laboratory. He has also made

support mounts or base stands to stabilize irregularly shaped objects during their stay and later in storage. These can range from pedestal uprights for textile mannequins to feathered headdress supports, and a wooden frame support for a life-size fibreglass replica of an oven complex at Red Bay (not to mention the crates to ship it in). Finally, Bob also organizes the containers and shipping details for the conservators' professional field program and seminar workshops across the country.

He works in close harmony with the Director of Conservation Services and the Registrar's office, keeping them informed when objects have been called in for treatment and when they are ready to be returned. He also advises the various institutions on how best to transport their artifacts.

In addition to his duties in the conservation sector, Bob provides assistance to the conservation scientists. Equipment loans and pieces needing repair are shipped on a regular basis. Sometimes custom-built containers are needed for this purpose. Large units to hold samples during long-range testing have to be constructed according to plans drawn up by the scientists, and in some cases, temporary supports for short-term experiments. Bob has built chambers for light testing of adhesives, racks for outdoor exposure of mild steel plates before and after treatment with commercial rust stabilizers, and shelters for outdoor freeze-drying of wood — to name only a few examples.

Bob's time is primarily divided between Conservation Services and Conservation Research Services. He has also been assigned the responsibilities of inventory control, vehicle maintenance, and assisting the accommodation chief with general service requests inside the building, such as relocation or installation of laboratory equipment, office furniture, and inventory items.•

Comings and Goings

France Bertrand has been contracted by the Canadian Council of Archives to carry out studies on the alkaline sensitivity of paper in the Conservation Processes Research laboratory. The work will be supervised by Helen Burgess.

Tom Strang, formerly Acting Chief Conservator with the Provincial Museum of Alberta, Edmonton, assumed the position of Senior Assistant Conservation Scientist, Environment and Deterioration Research, in January 1988. He will be responsible for CCI activities in the area of biological deterioration.

Dr. Marie-Claude Corbeil, after recently obtaining her doctorate from the *Université de Montréal* in Inorganic Chemistry, has joined Analytical Research Services as a Conservation Scientist.

Judi Miller, Analytical Research Services and Jan Vuori, Textiles Section, returned from maternity leave to work on a part-time basis as of March, 1988.

Marsha Selick, formerly Object Conservator at the Glenbow Museum, Calgary for three years, recently completed a four-month internship in the Furniture laboratory at the Winterthur Museum, Delaware and accepted a term position in CCI's Furniture and Wooden Object Section until December, 1988.

Nicholas Eastaugh completed a six-month fellowship at Analytical Research Services, working on the pigment lead-tin yellow as part of his Ph.D. thesis for the Courtauld Institute.

Li Zui Xiong, Vice-Director of the Preservation Research Institute of the Dunhuang Research Academy, will be working at CCI for several months. Professor Li is also an associate professor of chemistry at Lanzhou University. During his time here, he will be analyzing materials used in the murals of the Mogao Caves at Dunhuang, Gansu Province, People's Republic of China.

As a result of transferring the museology collection to the CCI Library, the library has gained two new staff members: Alicia Prata and Minda Bojin.

Alicia Prata now heads the Library. She has been Chief of Technical Services at National Museums of Canada Library Services since 1980. She brings a background in systems development, cataloguing and acquisitions, all of which are needed greatly as the CCI Library takes on its own cataloguing and acquisitions this fiscal year.

Minda Bojin is the museology librarian. She has worked in that capacity at NMC Library Services for two years. Minda was formerly the librarian for the National Museum of Science and Technology.

Courses and Educational Leave

Valerie Dorge is on a one-year Mellon Fellowship with the Detroit Institute of Fine Arts.

Colette Naud is taking a course on Conservation of Wall Paintings at ICCROM, Rome, Italy.

Internships

In response to the diverse training requirements of the conservation community in Canada and abroad, the Canadian Conservation Institute offers internship programs. The following individuals, all from Sir Sandford Fleming College, completed a curriculum internship at CCI during the 1987-88 academic year:

Gary Lowderman (Paper laboratory)
Barbara Tose (Archaeology laboratory)
Phil White (Ethnology laboratory).•

CCI Services: Seminars, Lectures, Workshops and Visits

To respond to specific needs within the museum community, CCI offers, in cooperation with regional and provincial museum and art gallery associations, a comprehensive series of workshops, seminars and lectures 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.

October 1987

Valerie Dorge of the Furniture and Wooden Objects Section gave a lecture at the Queensland Museum, Brisbane, Australia. More than 40 ICCM conservators, museum curators and members from Brisbane woodworking groups attended.

Debra Daly, Amanda Gray, Anik Morrow, Gordon Fairbairn and Laura Nagora visited the Hastings County Museum, Belleville, to give advice on the care and preventive conservation of furniture and paintings in the collection. A slide lecture was given to museum staff and volunteers.

Debra Daly, Amanda Gray and Anik Morrow assisted in the examination and condition reports of paintings in the Canadian collection of National Gallery of Canada, in preparation for the move to the new building.

November 1987

Ela Keyserlingk attended the conference on "Practical Application of Synthetics" in Interlaken, Switzerland. She presented a paper entitled "Conservation of Weighted Silk," which was well received.

Tom Stone attended the Native Art Studies Association Conference in Halifax, Nova Scotia. He presented a paper entitled "The Artist as an Individual: Dilemma for Conservators."

Chris Paulocik attended a course on "The Identification of Early Synthetic Dyes on Historic Textiles and the Preparation of Standard Dyeing of Early Synthetics," at the Smithsonian Institute in Washington, D.C.

Debra Daly presented a lecture on the CCI Lining Project to students in the Master of Art Conservation Program at Queen's University, Kingston, Ontario.

SEMINARS

"Environmental Control in Small Museums"
Paul Marcon and Carole Dignard
Chatham, New Brunswick

"Care of Archaeological Collections"
Judy Logan and Charlotte Newton
Brandon, Manitoba

"Care and Cleaning of Metal Objects"
Bob Barclay and Lynn Grant
Grand Bank, Newfoundland

"The Care of Ethnographic Collections"
Tom Stone and Carl Schlichting
St. John, New Brunswick

December 1987

Joe Dorning met with the Community Museum Association of Prince Edward Island in Charlottetown, and the Museum Association of Newfoundland and Labrador in St. John's. In meetings with the training co-ordinators and other members of these associations, he discussed their long-term training needs and how the CCI seminar program could meet their needs more effectively.

Cliff McCawley attended meetings of the ICOM Conservation Committee Directory Board in Paris.

Jeremy Powell attended the Conservation Photography course held at the Getty Conservation Institute in Los Angeles.

SEMINAR

"Introduction to the Conservation Information Network"
John Perkins (Getty Conservation Institute), Jane Down, Charles Costain and Vicky Davis (Canadian Conservation Institute)

January 1988

Charlotte Newton attended the conference of the Society for Historical Archaeology/Council on Underwater Archaeology in Reno, Nevada.

The CCI participated in the Conservation Information Network (CIN) Content Review Board (CRB) meetings hosted by the Getty Conservation Institute (GCI) in Los Angeles. Raymond Lafontaine, Ela Keyserlingk and Jane Down attended the Materials Database (MCIN) CRB meeting while Charles Costain, Vicki Davis and Jane Down attended the Bibliographic Database (BCIN) CRB meeting. Other participants included representatives from ICCROM, CAL and GCI. Many issues and improvements to the databases were discussed. The two most notable were the upcoming publication of the MCIN Data Dictionary and the elimination of duplicate records from BCIN. The next CRB meetings will be hosted in Ottawa by CCI.

SEMINAR

"Basic Care of Books and Archival Materials"
Sherry Guild and Wanda McWilliams
Miscouche, Prince Edward Island

February 1988

Chris Paulocik presented a workshop for Heritage Ottawa on "The Making of a Period Costume."

SEMINARS

"Care of Furniture and Wooden Objects"
Gordon Fairbairn and Laura Nagora
St. John's, Newfoundland

"Basic Care of Books and Archival Materials"
David Hanington and Wanda McWilliams
Regina, Saskatchewan

March 1988

Bob Barclay, Ethnology Section, taught a two-week course on Materials of Animal Origin at ICCROM in Rome. This was a section of the 11-month PREMA conservation course for students from sub-Saharan African countries.

Gordon Fairbairn visited the Conservation Analytical Laboratory of the Smithsonian Institute in Washington, D.C., to lecture on methods of replacing missing areas of textured surfaces on furniture to students of the conservation program. He also attended a meeting at AIC headquarters of a committee to select papers from abstracts for presentation at the Gilding Conservation Symposium to be held at the Museum of Fine Arts in Philadelphia in October, 1988.

Stefan Michalski presented a paper on environmental control to the OAAG (Ontario Association of Art Galleries) conference in Kingston.

Scott Williams presented lectures on "Polymers, Plastics and Rubbers in Conservation" at the Care of Collections Pilot Training Program courses organized by the National Institute for Conservation courses held in Los Angeles and Tuscon.

Ian Wainwright and Carl Bigras, together with Tom Sawyer of Heritage Recording Services, Environment Canada, completed the photographic and stereophotogrammetric recording of three pictograph sites on the Churchill River near Leaf Rapids, Manitoba for the Historic Resources Branch, Manitoba Culture, Heritage and Recreation. The work was sponsored by Manitoba Hydro.

VISIT

After a successful trial of Parylene with fragile fossils from Fossil Forest Site, Axel Heiberg Island, Dr. Terry Austin, Union Carbide Corporation and Mr. Bruce Humphrey, Nova Tran, visited CCI to give a presentation on applications of Parylene to museum objects and specimens. As a result of this meeting, CCI is to conduct its own evaluation and will shortly be receiving a Parylene coater from Union Carbide.

April 1988

Bob Barclay, Ethnology Section, attended the conference of ICOM's International Committee of Musical Instrument Collections (CIMCIM), as a member of the provisional working group on computerization of musical instrument collections. He also established a working group to explore the problems inherent in the restoration of musical instruments in public collections. While in Germany, he participated in demonstrations of the CIN network held in West Berlin, East Berlin and at the Fachhochschule, Cologne. He then visited the Musikmuseet in Stockholm.

Cliff McCawley again attended meetings of the ICOM Conservation Committee in Paris, as well as those of the Council of the International Institute for Conservation in London.

Chuck Gruchy attended a symposium sponsored by ICCROM on PREVENTION IN MUSEUMS IN AFRICA (PREMA). Its purpose was to evaluate the achievements of the program, and to discuss its future. Twenty-eight agencies participated and affirmed the need to continue the program.

Scott Williams and David Grattan attended the Modern Organic Materials meeting in Edinburgh, Scotland.

Ian Wainwright presented a lecture entitled "An Analytical Potpourri" to the Ottawa Regional Group of the IIC-CG.

At the request of the Conservation Analytical Laboratory, Smithsonian Institution, the CCI Furniture Section hosted a one- week "Perspectives in Conservation Workshop." Ten participants (five from Canada and five from the United States) took part in the sessions, which ranged from a demonstration of veneer relaying techniques and gilding to the manufacture of a forge and the making of tools.

SEMINARS

Care of Works of Art on Paper"
David Tremain and
Wanda McWilliams
Stephenville, Newfoundland

"Care of Textiles and Historic Costumes" and survey of textile collections for the Province of New Brunswick
Eva Burnham
Fredericton, New Brunswick

"The Treatment of Wet Archaeological Wood, Skin, Leather and Textiles"
Judy Logan and Charlotte Newton
Toronto, Ontario (ROM)

"The Use of Enzymes in Conservation"
Helen Burgess and Season Tse
Kingston, Ontario•

CCI Conservation Fellowship Program

As an additional service to the museum community, CCI offers selected individuals the opportunity to acquire additional training and experience for up to two years through its Conservation Fellowship Program. The following have been selected for the second year of the two-year Program:

Carole Dignard (Ethnology)
Amanda Gray (Fine Arts and Polychromes)
Wanda McWilliams (Works on Paper)
Anik Morrow (Fine Arts and Polychromes)
Laura Nagora (Furniture and Wooden Objects)

New to this year's Program is:
Debbie Juchem (Textiles)•

CCI Library: New Acquisitions

Atmospheric corrosion. Edited by W.H. Ailor. Sponsored by the Electrochemical Society. New York : Wiley, c1982.

Browning, Chris. *Care and repair of antique metalware*. London : Ebury Press : Swallow Publishing. c1987.

Clapp, Anne F. *Curatorial care of works of art on paper : basic procedures for paper preservation*. [New ed.] New York, NY : Nick Lyons Book, c1987.

Conference on Cultural Preservation (1984 : Washington, D.C.). "The challenge to our cultural heritage : why preserve the past?" : proceedings of a Conference on Cultural Preservation, Washington, D.C., 8-10 April, 1984 / edited by Yudhishthir Raj Isar ; co-sponsored by the United Nations Educational, Scientific, and Cultural Organization (UNESCO) and the Smithsonian Institution in cooperation with the United States Committee of the International Council on Monuments and Sites (US/ICOMOS) and the National Trust for Historic Preservation. Washington, D.C. : Smithsonian Institution Press, 1986.

Conservation Training Programs (12th : 1986 : New York City). Student papers : conservation training programs, twelfth annual conference, New York City, 30 April - 2 May, 1986. New York, N.Y. : Conservation Center of the Institute of Fine Arts, New York University and the Conservation Programs, School of Library Service, Columbia University, 1986.

Cooke, Roderic C. *Fungi, man, and his environment*. London ; New York : Longman, 1977.

Great Britain. National Gallery Laboratory. *From the National Gallery Laboratory*, with a preface by Sir William Bragg and an introduction and notes by Ian Rawlins. London : printed for the Trustees by Harrison and Sons, 1940.

Library Move

The library is being relocated to the first floor, in the northeast corner of the building. The new premises are roughly twice the size of the former. The main reason for the move to a larger space was the transfer of the Library Services museology collection to CCI as a result of the devolution of the National Museums of Canada. The museology collection is the oldest, most comprehensive collection of museological literature assembled in one location in Canada. It has the greatest potential for disseminating information through electronic means in an enhanced service. The conservation collection, although primarily technical in nature, is in itself a valuable museological resource. The two collections naturally complement each other; their users are also similar — museum professionals from across Canada and abroad. Both collections will benefit from the improved and enlarged location.

IIC Congrès International (X : 1984 : Paris). *Adhésifs et consolidants* : Institut international de conservation des œuvres historiques et artistiques, X^{e} Congrès international, Paris, 2-7 septembre 1984. Édition française des communications. Paris : Section française de l'ICC, [1984?].

Koobatian, James. *Faking it : an international bibliography of art and literary forgeries, 1949-1986*. 1st ed. Washington, D.C.: Special Libraries Association, c1987.

Morrow, Carolyn Clark. *Conservation treatment procedures : a manual of step-by-step procedures for the maintenance and repair of library materials*. 2nd ed. Littleton, Colo. : Libraries Unlimited, 1986.

National Research Council. *Preservation of historical records*. Committee on Preservation of Historical Records, National Materials Advisory Board, Commission on Engineering and Technical Systems, National Research Council. Washington, D.C. : National Academy Press, 1986.

Reilly, James, M. *Care and identification of 19th-century photographic prints*. [Rochester, N.Y.] : Eastman Kodak Company, 1986.

Ward, Philip R. *La conservation du patrimoine culturel : une course contre le temps*. Marina del Rey, Calif. : Getty Conservation Institute, c1986.

Ward, Philip R. *The nature of conservation : a race against time*. Marina del Rey, Calif. : Getty Conservation Institute, c1986.•