



# BULLETIN

JANUARY 1982

Association of Canadian Archivists

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Thanks  
Chao.

## Archives Congress

The report of the Public Archives of Canada for 1976-77 called for "a national archives congress as a stage in the development of a national plan or strategy." That report commented, "It is a challenge for archives to promote a better understanding of their role by governments and the general public, and to make the most effective use of the resources at their disposal." In answer to this challenge, planning for a Congress partially funded by a \$15,000 grant from the federal Department of Communications Special Program of Cultural Initiatives, is being undertaken by the Association of Canadian Archivists, in collaboration with the Association des Archivistes du Québec. The Congress Planning Committee consists of Marcel Caya, McGill; Carol Couture, Université de Montreal; Guy Diné, Archives Nationales du Québec; Anne MacDermaid, Queen's; Jane Nokes, Bank of Nova Scotia; Dr. W. Smith, P.A.C.; Dr. B. Weilbrenner, P.A.C.; and Ian E. Wilson, Provincial Archives of Saskatchewan. This Congress will be held in the Donald Gordon Centre at Kingston, June 3-4, 1982, following immediately after the ACA annual meeting in Ottawa.

The Congress theme will be "Planning for Canadian Archives." This theme will look at cooperative planning for the future in the context of contemporary SSHRCC and federal Department of Communications task forces which have addressed the concerns and needs of archival institutions and archivists. Sessions will deal with expectations of researchers, the relationship of archives and government, archives and granting agencies, the current state of archival structure, and archival cooperative structures.

Participants at the Congress will be drawn from the ACA, AAQ, a variety of archival institutions, and from the federal, provincial and territorial archives. Regional archival associations will be especially asked to ensure that members from their associations are able to attend, so that regional and institutional views may be well represented. Some 60 archivists and 10 panelists, discussion leaders and speakers will be accommodated for the Congress. The registration fee of \$125.00 will cover all room and board expenses, simultaneous translation costs, and transportation by bus to and from Ottawa.

Anne MacDermaid

## Job Market

The Archives of the Canadian Rockies in Banff in seeking a qualified applicant to fill the position of Archivist II (Assistant Heat Archivist). The successful applicant must have a university degree preferably in Canadian history or historical geography, several years of archival experience and successful completion of an archival administration course.

Assistance in finding suitable accommodation will be provided.

Salary range: \$20,390 - \$25,718 (1982) plus a full range of benefits.

Reply to:

Mr. E.J. Hart  
Administrator  
Peter and Catharine  
Whyte Foundation  
Box 160  
Banff, Alta.  
T0L 0C0

## Nominations to ACA Executive

Written nominations for the position of Vice-President, Treasurer, Secretary and Director-at-Large of the Association of Canadian Archivists are to be submitted to:

Mr. Lee Brebner,  
Chairman, ACA  
Nominations Committee,  
10 Peel Centre Drive,  
Brampton, Ont.,  
L6P 4B9

Professional members in good standing are eligible for nomination by any ACA member.

The written nomination must be accompanied by a signed statement of the nominee's willingness to stand for office, the signatures of the nominator and five additional ACA members as co-

sponsors and an outline of the nominee's qualifications.

The chairman respectfully requests that nominators and nominees print their names with their signatures.

Deadline for nominations is Friday, March 26, 1982.



# CONSERVATION . . .

## A BULLETIN REPORT

### Conservation at PAC

Records Conservation of the Public Archives provides conservation and restoration services to Public Archives and the National Library of Canada. With the largest book and paper conservation staff in Canada (staff of 24) Records Conservation is engaged in treatment of rare books, manuscripts, cartographic material such as maps, charts, drawings, posters and other archival and library material.

The organization of Records Conservation includes; two Book Restoration Units, Map and Document Restoration Unit, Mass Deacidification Unit and Paper Testing Laboratory.

Activities of the two Book Restoration Units are, restoration, conservation of rare books for National Library and the Public Archives, this also includes execution of fine leather binding and the de-Luxe presentation bindings.

Map and Document Unit processes rare maps, charts, posters, manuscripts and parchment documents by physical restoration of paper, chemical treatment for preservation, encapsulation and lamination.

Deacidification Unit treats books for preservation by deacidification in Nonaqueous Book Deacidification System. Paper testing and quality control laboratory forms part of the Deacidification Unit.

In addition to the above services Records Conservation provides book and paper conservation internship training programs geared to the in-house needs.

Jan Pidek

### Restoration and Conservation Laboratory National Gallery of Canada National Museums of Canada

The concept of museums assuming full responsibility for the physical well-being of works in their collection and thereby engaging in active care has become widely accepted in recent years. This has not always been the case, and indeed a number of large institutions still lack this important component. The National Gallery of Canada, however, has pursued an active programme of conservation in over half of its lifetime, thanks to a number of farsighted directors.

The Restoration and Conservation Laboratory (R.C.L.) of the National Gallery of Canada occupies 567m<sup>2</sup> on the 7th floor of the Lorne Building in Ottawa. This area is divided into a large general workroom, a paper laboratory, an examination and photography studio, a radiography room with darkroom, a microscopy room and a chemical laboratory. A general office and library, and four offices for the head of the laboratory, and conservators, complete the suite.

Staff at the RCL consists of a head, one conservation scientist, four conservators (including a paper conservator), and a secretary. While this number may appear generous from the point of view of a small museum without any conservation staff, a team of this size is just adequate to cope with the various demands generated by a very active exhibition and loan program and by a sizeable, constantly growing collection. Regular internships of conservation students and graduates provide a valuable addition to the staff, which enables the laboratory to engage in major projects which would otherwise be beyond its capability.

The complex activities of the modern conservator require specialized tools. Equipment of the laboratory includes:

- a 2.50 x 3m and a 1.50 x 2.50m hot table;
- a 1.20 x 1.80m suction table;
- a DeVilbiss spray booth;
- a fume hood;
- Zeiss, Leitz, Wild and Bausch & Lomb binocular microscope;
- Schott fibrelight illuminators;
- 150kV and 300kV x-ray tubes;
- an infra-red vidicon system;
- a Find-R-Scope IR viewer;
- UV illuminators;
- a Cambo 5x7 inch view camera and a 35mm SLR camera; and
- a Leitz polarizing microscope.

Environmental monitoring equipment such as thermo-hygrographs, Bendix and Humi-check hygrometers, Gossen Panlux light meters and a Crawford UV monitor permit an accurate assessment of conditions during exhibition, travel and storage.

The paper laboratory is equipped with a 1.30 x 1.90m sink on castors; a .71 x 2.18m double sink with Barnstead water de-ionizers; a .91 x .96m light table; 1.00 x 1.35m steel storage cabinets; a fume hood; and a 1.52 x 2.33m drying rack.

The work of the department is, to some extent, governed by the exhibition program of the National Gallery and by loan requests from other galleries.

Before the gallery agrees to the loan of a work, and before any work travels, the object is examined by a conservator, and the director and respective curator are apprised of any shortcomings in its condition. Attention is paid to such details as back protections, missing keys and proper framing, and recommendations for any necessary treatment are made at this time. Frequently major conservation projects are initiated by the requirements of the exhibition



program. Two other sources of work are the acquisition activity and a standing priority list.

Proposed acquisitions are examined closely to confirm their authenticity and assess their condition. The priority list is compiled in co-operation with the curators and forms the basis of the operational plan of the laboratory. Before a major treatment is started, the conservator's treatment proposals are discussed in a committee of conservators and curators. At that time, any relevant findings resulting from the detailed examination which precedes all treatments, and their implications, are discussed. Extensive records of all examinations and treatments are kept in dossiers containing the technical history of each work.

Among the most important projects completed in recent years are an extensive cleavage treatment of the triptych *Pavane* by J.-P. Riopelle; lining and varnish removal of *The Castellated Cliff* by Homer Watson; and of *Study for El Ingles* and *Adagio* by G.A. Reid; all recent acquisitions. Other major conservation projects were paintings by F.N. Loveroff, Serge Tournant, Jan van de Capelle, Bernardo Bellotto, Gustave Courbet, L.E. Boudin and James Ensor.

For the centenary show of the National Gallery, the large cartoon for the destroyed painting *The Fathers of Confederation* by Robert Harris, was cleaned and remounted while the major exhibition *La Pierre Parle - Lithography in France 1848-1900* necessitated extensive treatment of numerous works, including some very large posters.

Housekeeping activities such as weekly inspections of the collection on public view, and monitoring of environmental conditions continue throughout the year on a regular basis. Every month the laboratory holds a clinic to which the public can bring paintings and works on paper to receive an assessment of their condition and advice on proper matting, framing, display and storage. A publication on the care of works on paper is available on request in both official languages.

An important function of an established conservation facility must be the dissemination of knowledge. The expanding field of art

conservation has, in recent years, attracted many talented candidates who have been able to avail themselves of excellent training opportunities at various levels in Canada. By providing places for con-

## Paper Conservation at Parks Canada

At our facilities, at National Historic Parks and Sites Conservaton Division in Ottawa, we have one studio devoted to the conservation of art on paper while another studio handles archival material.

I am responsible for the conservation of prints, drawings and watercolours for Historic Parks all across Canada.

Under usual conditions I have an assistant as well as I am able to train two interns for periods ranging from 3 to 6 months, from the Conservation Programmes of Queen's University and Sir Sanford Fleming and Algonquin Colleges.

The conservation studio for art on paper comprises approx. 800 square feet of work area with natural light and 200 square feet of general storage and bleaching fumigating area. The studio is outfitted with two four feet by four feet stainless steel sinks, de-ionized water, fume hood, compressed air, Arborite covered counters and metal drawers for the storage of prints and drawings. Illumination is provided by two types of fluorescent tubes. A larger general work area is lighted by Verd-A-Ray Criticolor tubes with Fadex, which produces a nearly U.V. free light. A smaller area used mainly for inpainting and colour matching is illuminated by Duro-Test Vita-Lite tubes outfitted with 1/8" U.F 1. Plexi filters, which gives a light nearly matching that of daylight. We decided on such a combination after comparing a number of tubes of different manufacture with each other and with daylight as well as looking for minimum U.V. output. I have facilities for fiber microscopy, stereo microscope and a pH/ion meter. The latter can be used for surface pH measurement as well as the detection of chloride ions in solutions and thus it is useful in monitoring washing water after bleaching. In addition, I can have analysis performed by our Analytical Department, with facilities for scanning electron microscopy.

Since I am working a great deal with coloured materials, watercolours and

conservation interns, the National Gallery continues a tradition of great museums: that of advancing the profession of conservation.

Ursus Dix

hand coloured prints sometimes on badly stained and fragile supports, I experiment with non aqueous bleaching methods, mainly with chlorine dioxide vapour followed by spray deacidification. Chlorine dioxide bleaching shows a good promise for watercolours where aqueous methods would be too dangerous. There is a study on the effects of this method on the paper presently carried out by our Analytical Dept. We have designed a chlorine dioxide vapour bleaching facility, which incorporates many safety features such as an airtight bleaching chamber with a Plexi window surrounded by another closed chamber, which is thoroughly ventilated.

Joseph Halmly

## Course in Paper Conservation

Mr. Charles Brandt, Chief Conservator of Artistic and Historic Works on Paper for the Manitoba Provincial Archives, was enthusiastically received as the instructor of a course in paper conservation at the University of Victoria in November. The seven day program consisted of lectures, slide presentations demonstrations, and hands-on laboratory sessions in the University Museum. The professional development course, offered by the University of Victoria Extension's Cultural Conservation Program drew 16 participants from New Mexico, Iowa, Manitoba, Alberta and Saskatchewan interested in learning more about conserving works of art on paper, rare books, and manuscripts.

## Disaster Preparedness Workshop

This workshop will be held in Kingston on Friday, April 16, 1982. Co-sponsored by Queen's University Archives and the Toronto Area Archivists Group.

For information contact:

Mrs. Anne MacDermaid,  
Kathleen Ryan Hall,  
Queen's University,  
Kingston, Ont. K7L 5C4



## Queen's Has New Conservation Facility

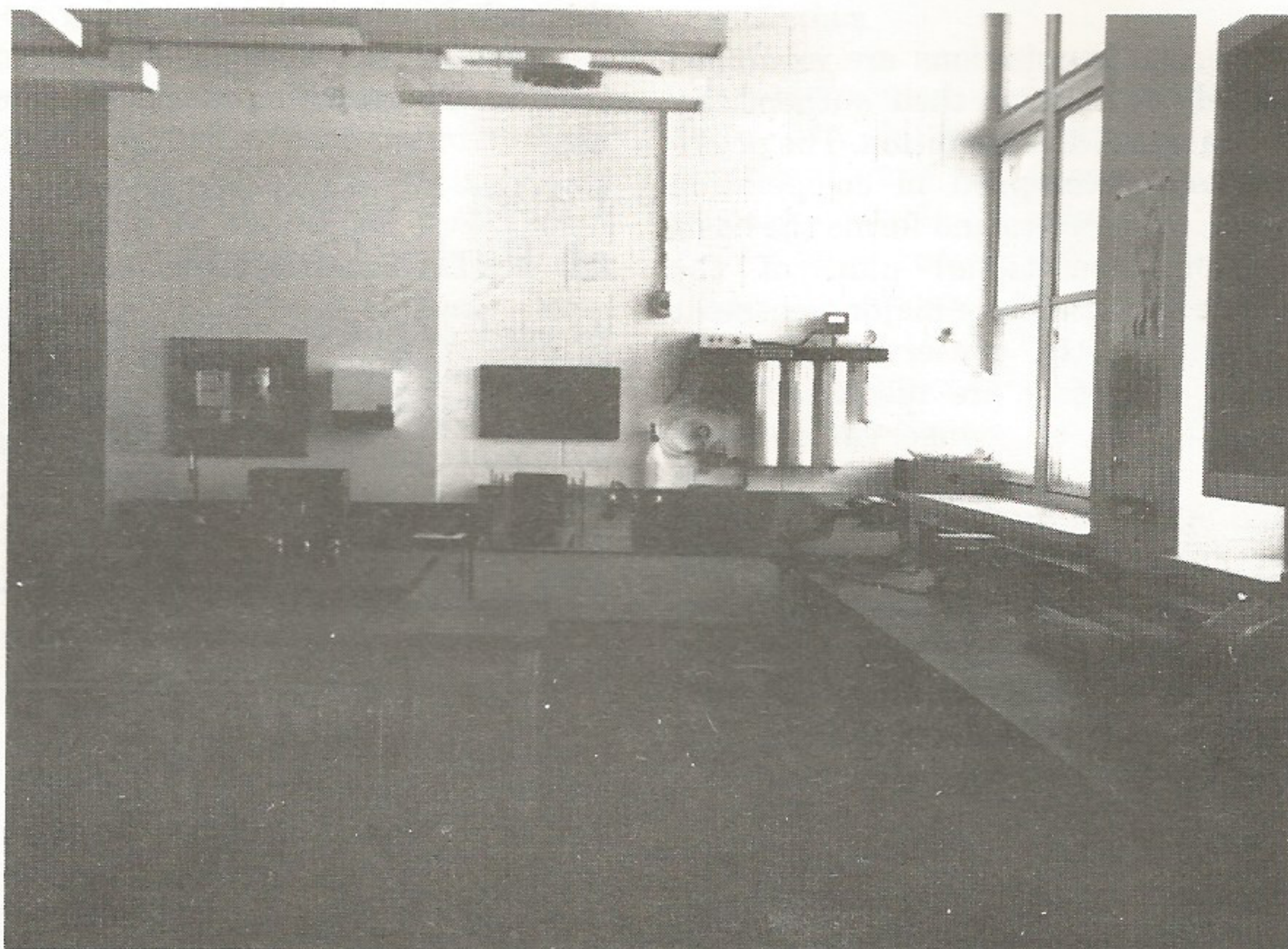
The conservation laboratory of the Queen's University Archives is situated on the third floor of Kathleen Ryan Hall, in a rectangular corner room occupying over 500 square feet. Numerous large windows face north and east supplying the room with excellent illumination.

The laboratory is staffed at present by one full-time conservator and one half-time conservator, both employed on externally funded short-term contracts. They are assisted by a permanently employed half-time conservation technician.

Initial provision for a conservation laboratory was included in the planning for the renovation of the New 1907 Medical Building, now Kathleen Ryan Hall, by the Building Committee which included Professor Henry Hodges, director of the Art Conservation Program at Queen's University.

A basic reference library of books and periodical literature is being gathered in the conservation laboratory as is a "library" of historical paper samples which will be used in comparative analytical studies and as matching inserts to replace losses to old documents and books.

Within limitations imposed by the fact that the laboratory furnishings and much equipment had been obtained but not installed prior to the hiring of the conservators, the arrangement of the laboratory has been guided by the desire to use space efficiently, to maximize work space, to keep this free of clutter, and to achieve mobility of furnishings and equipment where possible. Electrical outlets spaced around the walls of the room facilitate the shifting of instrumentation, open shelves along the window side of the laboratory above the counter allow small items to be kept above work surfaces but within easy reach. Abundant closed and open vertical and horizontal storage arrangements throughout the room permit tools and supplies to be kept near at hand but off the work surfaces. A bench of small drawers and a large map cabinet allow all objects undergoing examination and/or treatment to be stored safely except when they are actually being worked on.



The laboratory is well equipped with basic furniture: besides shelving and benches with drawers and cupboards, this includes two large stainless steel sinks, one (72" x 30" x 7"), placed against the wall, the other, (slightly wider), set out so that it is accessible from all sides (the latter is provided with a solid but easily removable cover to add to the number of work surfaces when the sink is not in use); a chemical storage safety cabinet; a refrigerator for the storage of unexposed photographic films and other items that must be kept cool; a light box; a deionized water system to provide pure water; electric ovens; and a large fume hood. The room is also equipped with various laboratory/analytical instruments and apparatus including balances, hot plate/magnetic stirrer, a low power stereo-binocular microscope, various types of lights for use in examination procedures, including an ultraviolet light, and a pH meter. Safety equipment such as an eyewash station, fire blanket, and first aid supplies have also been provided. A large fumigation chamber, ventilated to the exterior of the building, is located in the receiving/initial sorting area on the first floor.

It is hoped to obtain funds to purchase or build a cold suction table; this would be used, primarily in the treatment of works on paper which could not be immersed.

Polyester encapsulation of single-sheet items following Library of Congress specifications is an ongoing process. For example, the William Newlands and Kingston Architectural Drawings Collections, which are heavily used by Queen's University students, may now be handled safely. Matting according to museum specifications and specialized boxing of items of particular value of fragility are done as required.

Objects in the collection are not exhibited at present, but it is expected that the conservation contribution to the future development of any exhibition policy will be significant.

A major focus of research during the past six months has been an in-depth examination of problems encountered in the care of specific types of objects found in archives. The aim of this work has been to review the most current conservation research in the selected areas, to expand upon it where possible, and to present it to archivists to whom it might not otherwise be readily accessible. This is not done so that archivists may double as conservators but in the belief that archivists, as custodians, have the ultimate responsibility for the care of their collections and therefore must have a critical awareness of the nature and consequences of conservation treatments.

Thea Jirat-Wasiutynski,



## Conservation Laboratory Provincial Archives of Manitoba

Our new conservation laboratory is progressing without haste yet without rest. GBR Associates, our architects, have done a tremendous job in planning the lab. and designing certain pieces of equipment. Government Services is doing the renovation and installation. There have been several understandable delays.

Of note are the large work tables in the centre of the 2000 sq. ft. lab., each 6' x 10', one being a light table and together forming a working surface of 120 sq. ft., large enough to back our largest maps. We have a sophisticated water supply system which feeds the sink in the fume hood, the large free standing sink (7½' x 4') and the series of stainless steel book-leaf washing sinks with ordinary hot and cold tap water. In addition a separate supply of demineralized-distilled and then calcified water (hot and cold) will enter the same sinks through separate non-metal conduits.

Next to the large fume hood is the paper vacuum table useful for solvent application in stain removal which evacuates into the fume hood. The Ademco laminator is to be used for photographic drymounting. We feel that lamination per se has little use in a conservation lab.

One corner of the lab. is devoted to the bindery which is fully equipped with a 60" board shears, presses, gold stamping machine, finishing stove, job backer, handle letters, rolls, fillets, and even a small amount of gold.

A small adjacent room will be utilized for dusting books and thinning leather and includes a vacuum mechanism that will pull dust and particles into a dust-arrester.

We have two drying racks, one designed after the Philadelphia Conservation Centre (Weidner) with sliding trays whose support is a diamond-mesh monofilament.

The south wall (50') is installed with CanLab furniture with three desk areas. This area will also support the Zeiss Stereomicroscope, pH meter, etc. The Polaroid Land Camera will occupy a free standing table.

The lab. will provide an ample work area for the conservator, the coming assistant conservator, and hopefully in the new year a conservation technician, as well as interns that will be working with us from time to time.

Slack Associates, Inc., 540 S. Longwood St., Baltimore, Md. is designing and executing our Fumigation/Freeze Drying Chamber, with a capacity of 250 cu. ft. The fumigant used will be 10% ethylene oxide, 90% carbon dioxide. The control station will be isolated from the chamber and loading room. Once the chamber has been loaded the entire cycle can be operated remotely. The chamber will have humidity control and forced circulation during fumigation. With the same unit we will be able to freeze dry frozen water damaged documents and it will operate at a pressure of 100 milliTorrs and have a pumping capacity for water vapour of 20 pounds/hour. There is a provision for controlled heating during freeze-drying. The advantage of freeze-drying over vacuum drying is that there is no bleeding of inks or colours.

A final feature which we are very excited about and also places us 20 years ahead of any other fumigation system in North America is the fumigant disposal capability. Slack will be providing us catalytic oxidation equipment capable of mixing waste fumigation gases with air and converting the ethylene oxide to carbon-dioxide and water vapour. Certainly environmentalists will bless us as well our Fire Marshall as safety and health requirements in Winnipeg are very stringent indeed.

Also in the planning stages are the new overall climate controls for the Archives stack and storage areas. We are working with our engineers and architects to provide us with a stack temperature of 60°F ± 3% and a Relative Humidity of 50% ± 2%. This is, of course, the heart of our whole preventive conservation planning, a temperature and humidity that will best preserve our paper artifacts by slowing down the process of degradation. For films we are planning storage vaults each with a separately controlled environment. The 35°F, 35% R.H. vault will house colour preprints. A 50°F, 40% humidity section will provide optimum storage conditions for black and white preprints.

Charles A.E. Brandt

## City of Toronto Conservation

Since 1974 the City Archives has employed a professional conservator who is responsible for the implementation and maintenance of a comprehensive conservation and restoration programme for all divisional holdings, including works of art on paper.

Laboratory facilities are maintained in the Archives at City Hall and at the Market Gallery, where the City's fine art collection is housed.

The primary concern of the programme is preventative conservation in terms of environment, general care and handling, storage practices, security, fire prevention and contingency disaster planning. Intensive efforts have been made toward the education of collection users and in-house conservation orientation sessions have been established for staff members.

Stabilization and restoration treatments are carried out including procedures such as flattening, drying, cleaning, washing and deacidification, stain removal, bleaching, lamination, backing, infilling, inpainting and encapsulation. Mounting, matting and framing of a wide variety of materials is done for exhibition purposes.

Johanna Wellheiser

## Conservation Facility at PANS

The conservation facility of the Public Archives of Nova Scotia has been planned with an eye to that institution's future expansion.

The conservation lab. is shared with the bindery and the lab space is 42' x 18' or 516 square feet. At present there is a fume hood, sink for deacidification, drying racks, laminator, hot table, guillotine and fumigator. There is no conservator as yet, but application has been made under the Museum Assistance Programmes (Conservation Assistance Programme) for funds to help make the conservation facility operational.

Hugh A. Taylor





Charles Brandt

## Conservation: The American Scene

From May 27 to June 6th, 1981 I did a study-tour of various Archives, Museums, Galleries, vacuum chambers, and conservation laboratories in the Philadelphia and Washington areas. This tour was funded in part by a CMA grant and by assistance from the Provincial Archives of Manitoba where as Chief Conservator I am currently setting up a paper conservation laboratory to care for archival materials, books, and works of art on paper. The purpose of the study-tour was to examine existing conservation laboratories, to study current facilities for fumigating paper artifacts and to dry them in the case of an emergency (flood, fire, etc.); to discuss with various professionals the matter of brittle paper and the best means of preserving it (silking, lamination, encapsulation, microfilming, cold storage); to observe methods of storing maps and works on paper; and finally to examine existing climate controls in various institutions. It was felt that such a study-tour would benefit us in our town building renovations and laboratory planning and that a written account of such a study would assist others in their planning.

Since part of this report will be concerned with mass deacidification of paper materials, I will preface it by pointing out that in North America there have been three major efforts to develop mass-deacidification systems: 1) The Morpholine process developed by the Barrow Institute, Richmond, Virginia which we understand is at present not proceeding; 2) The Wei T'o Process developed by Dr. Richard Smith at the Public Archives of Canada, Ottawa; 3) The Diethyl Zinc Process currently being developed by the Library of Congress and directed by George Kelley, one of their conservation scientists.

*The General Electric Company, Valley Forge Space Centre, Valley Forge, Penna.*

Richard G. Shoulberg is the Project Manager at G.E. and was my main contact.

In 1972, a fire in Temple University's Klein Law Library, Philadelphia, was quenched by tons of water from fire hoses, soaking nearly 60,000 books. The Library of Congress suggested that they be frozen and stored at low temperatures. (-20°F or -28.8°C). While not killing bacterial spores or

vegetative cells, the low temperature does retard the active growth of most micro-organisms. A search then began to determine the means to dry out the damaged books and return them to use. Shoulberg pointed out the amount of water that can be absorbed by paper. Books printed prior to 1840, for example, can absorb up to 80% of their original weight in water; more recent ones, an average of 60%. The normal water content of paper is between 5 and 7% by weight. Shoulberg felt that one of the G.E. company's thermal-vacuum space simulation chambers would make an idea "drying-out" tank, and that many of the techniques developed in spacecraft testing and sterilization could be applied to this problem. Four-wheeled carts were adapted for the handling of the materials with metal shelving and each shelf was equipped with an electric heater (thin sheets of silicone embedded with wire mesh which had been manufactured for waterbeds). In the drying process frozen or wet items are placed on the shelves and the loaded carts are raised to the chamber door by an elevator and then rolled into the 3,000 cu. ft. cylindrical chamber. The chamber will hold from 3-4,000 volumes of books. Once the books are in the chamber the pressure is lowered to achieve a vacuum of a few (5-10)mm Hg. This promotes evaporation of water. To speed up the defrosting of frozen materials and the evaporation of water from these materials, both the chamber and the load are preheated to 125°F. As the water evaporates, the cryogenic panel on the bottom of the chamber recondenses and freezes the moisture. After 24 hours, the vacuum is broken, and heated freon is pumped through the fins inside the chamber in cryo-panel.

This melts the ice which has been collecting on the panel. This procedure is repeated at 24 hour intervals until the desired degree of dryness is obtained. Next, the materials are fumigated by the use of 12% ethylene oxide, 88% freon and finally the materials are impregnated with thymo to provide a residual anti-fungal chemical to serve as a buffer. The current cost of drying one chamber is \$9,500. The Klein Law Library books were but one of the many collections dried and sterilized by the G.E. Chamber. They have dried a valuable collection of stamps that had been stuck together and on one occasion 300 file drawers containing blueprints, etc. which had been under water for 14 hours.



Current work includes exploration of other chemicals to augment the treatment by de-acidifying the paper in books and records. The G.E. Centre has been working with the Library of Congress in their development of Diethyl Zinc as a mass deacidifier. The results have been very favourable. George Kelley told me later that the cost would be approximately \$5.00 per book. Unfortunately, the use of the chamber at Valley Forge has been curtailed. This is unfortunate in that they have done a good service to many institutions in reclaiming their water-damaged documents. The Library of Congress will continue their experimental deacidification work, hopefully using a NASA chambers. One last point concerning G. Electric's drying process. They are doing vacuum-drying, not freeze drying.

*Conservation Centre (For Artistic & Historic Conservaton)*, 260 South Broad St., Philadelphia, Penna. 19102  
Tel. (215) 962-5474  
The Director is Marilyn Weidner;  
Lois Price

This is a private institution that has recently been established. At present the staff consists of approximately 6 members which will gradually increase as their laboratory is completed. Of interest to me was the quality of their water supply used for washing and treating paper materials. There has been concern recently among conservators about the quality of water used in paper treatment. Several years ago the Library of Congress reported that their tap water was more beneficial in the treatment of paper artifacts than the use of high-quality deionized water and they discovered that if they added an amount of calcium to the water after it had gone through the deionizer this would rectify the situation. At the Centre in Philadelphia and in several labs in the Washington area Culligan is supplying the apparatus to provide water that is more beneficial to the paper. After the tap water has gone through the deionizing system it is then passed through a calcifier (cartridge calcium carbonate bed) or a bed of marble chips. Both George Kelley and Dr. Bob McComb of the Library of Congress told me that if one uses deionized water for washing paper documents and then deacidifies them afterwards then the calcifying system is not necessary. Katherin Eirk at the American Museum of Art

simply adds an amount of Calcium Hydroxide to her wash water when treating paper.

Another point of interest at the Conservation Centre was the drying rack which they designed. It was on rollers and in construction similar to the type of cart used in restaurants and cafeterias for loading trays. The drying frames themselves utilized a nylon webbing material which is stretched on a wooden frame. The mesh is small enough to support the documents easily and to permit drainage. It is truly a super idea.

*American Institute of Conservation*: was holding their annual convention in Philadelphia. On demonstration were two Paper Suction Tables manufactured by competing firms.

These tables are of great use to the paper conservator in removing stains from paper artifacts. The vacuum created by the table draws the solvent being used to remove the stain down through the table rapidly and prevents the forming of stain rings which disfigure the artifact. These tables are useful in removing residual stains caused by pressure sensitive tape and they have a certain application in flattening documents and in lining documents and works of art on paper. The two tables on display were:

- a) One developed by Nascor Technical Services, Inc. P.O. Box 706 Sag Harbor, New York 11963 (516) 725-0153 Bill Maxwell.
- b) One developed by Process Materials. Corporation 301 Veterans Boulevard Rutherford, N.J. 07071 (201) 935-2900 Ned L. Miller, Sales Manager.

Ric Haynes. Photographic Archives of the University Museum of the University of Pennsylvania described a temporary storage method of retard deterioration of cellulose nitrate by freezing. His work draws upon the work of Henry Wilhelm, Klaus Hendricks and Walter Eldridge. The nitrate film is placed in the Kodak envelopes which forms a heat sealable pouch. Approx. 25 negatives can be placed in each envelope. All residual air is forced out. The envelope's ends are then rolled up and taped (or heat sealed) shut with a commercial freezer tape. They are then placed in an acid free box. The entire package of each box containing twenty to fifty envelopes, are then housed in a com-

mercial freezer operating in a relative humidity of close to 45% at 9°F.

*Library of Congress: Geography and Map Division*: Richard Stephenson

The collection consists of some 3,500,000 maps, 43,000 atlases, the Sanborn Fire Insurance Vols. The Map Division utilizes 2" deep map drawers for storage, either 47 or 54 inches in width. They prefer the 54" width to allow for side by side storage. Documents are placed in acid-free tan bristol board folders the size of the drawers. They are inserted in the drawers with the open end to the back of the drawer and with the identification label on the front right corner, labels that are printed from the computer. There were some oversized 72" drawers for some of the larger maps. They prefer the Hamilton Map Cabinet. They have only a few large rolled maps. In the past maps (large ones) were cut up into small sections to fit into the drawers. No maps are laminated today, instead all maps are encapsulated in Type D, super clear Mylar.

*Library of Congress: Research Laboratory*: Dr. Bob McComb and George Kelley.

I spent an afternoon with these two scientists. George Kelley is proceeding with his experimentation with Diethyl Zinc for mass-deacidification purposes. With the closing of the chamber at Valley Forge they will approach NASA for the use of one of their chambers to continue their testing. George Kelley discussed such things as high quality water supply; titration procedures; aging of paper materials. They have a climate controlled room where they do their paper testing. Dr. McComb gave me additional advice on the fumigation - freeze - drying chamber we will be installing at the Provincial Archives of Manitoba. He stressed the importance of freeze-drying over vacuum-drying to prevent bleeding of inks.

*Library of Congress: Restoration Office*. Peter Waters, Restoration Officer

The collections of the Library of Con-



gress now include approximately six million volumes so brittle that they can only be preserved through microfilming. Some 60,000 of these have been specifically identified and are being filmed at the rate of 20,000 volumes per year. Peter Waters stated that they are not able to keep ahead. At the present time, there is no fully tested, feasible method for mass conservation treatment. Even if such a process did exist it would benefit no more than 65% of the brittle books in library collections, since deacidification does not restore strength to paper already embrittled. There appears to be only two feasible preservation procedures for such brittle documents:

- 1) low temperature storage, and
- 2) microfilming to preserve the intellectual content.

*Low Temperature Storage:* They are thinking of storage at low temperature in warehouse-type structures or in underground caves where optimum temperature and humidity can be maintained. Paper scientists generally agree that for every 10 degrees C. the storage temperature can be reduced, the life of the paper can be approximately doubled.

*Microfilming to preserve the intellectual content:* Microfilming is far less expensive than restoring a book. Microfilming is more expensive than low temperature storage. There is, as I shall discuss later under National Archives, the question of the life expectancy of microfilm. Our experience with microfilm is limited to some fifty years or less, while our experience with paper goes back nearly 2,000 years. Ideally, then, the solution to the problem of preserving brittle and deteriorating books and documents would be to provide low temperature storage for all such materials. The Newberry Research Library's new storage facility will be at a temperature between 55-60°F. PAM is considering a temperature of 60°F for archival storage in its present renovation planning.

*Flatpaper Division of the L.C. Restoration Division:* Marion Peck Dirda was my guide. Of interest to me was their *Humidifier*. This consisted of a stainless steel tray (about 3x5 feet). A sheet of egg-crate was placed on the bottom and water was added to a shallow depth. Blotters were placed on top of the egg-crate and the document to be humidified on

top of the blotters. A sheet of plexiglass is placed over the top of the tray. It is a very effective system.

*Ultrasonic Welder:* This is used for mylar encapsulation and was developed by Bill Minter and Malosh. One can quickly and effectively seal the edges of the mylar sheets with this device, and in addition one can work closely around a small document or documents encapsulated in larger mylar to hold them in place. The welder is expensive, costing c.\$10,000.

*Wool Felts for Flattening Documents:* They use pure wool papermaker's felt for flattening documents after washing. The felts are expensive but effective.

*Calcified Water:* They also use the Culligan calcified water system.

*Book Section of the Preservation Division of L.C.* Tom Albro is the head of the book section. They utilize the accordion fold in sewing books so that no adhesive touches the backbone of the book. Tom likes to glue up to the backbone with starch paste and Robert Espinosa likes methylcellulose. They prefer alum-tawed leather, especially pig. They are using some sorroco leather (English tanned). The section will be doing less training in the future and more production.

**NATIONAL GALLERY OF ART:** 6th Street & Constitution Ave., N.W. Wash. D.C. Tel (202) 737-4215. Victor Covey, Chief Conservator; Ross Merrill, paintings; Shelly Fletcher and Kitty Nicholson, paper.

*Storage and Matting Framing:* Their paper conservation laboratory is nicely set up. I was interested in the storage of their works on paper. They mat in standard sizes, store in standard size solander boxes and frame in standard size frames. So there is a direct transfer from the solander box to the frame and back to storage in the solander box. Of particular interest was their method of matting. To lessen the degree of handling of prints and drawings and watercolours, they hang the work of art on a mounting material larger than the work of art and then hang this mounting material to the back of the mat. In this way the work of art remains permanently on the original mounting material, but this mounting material can be removed and then hung again on another mat without touching the hinging on the work of

art itself. In their storage areas they have visual, heat and smoke monitoring and have a halon fire-extinguisher installation.

*Air-Conditioning and Moisture Controls:* Mr. Michaels, one of their engineers gave me a tour of their climate controls. It was a series of rather large rooms with particulate filters and air-wash rooms where the air is passed through a room with a system of sprays. This removes some gasses from the air, but its principle purpose is to humidify the air. They have 40 of these systems in the two sections of the National Gallery.

*The Freer Gallery of Art:* A museum of the Smithsonian Institution, National Mall at Jefferson Drive & 12th Street, S.W. Wash. D.C. Tel. (202) 357-2104. Tom Chase, Chief Conservator; Martha Smith, paper.

Here I had the privilege of visiting their oriental conservation studio. The famous Takashi Sugiura has retired and Ryo Nishiumi, a young Japanese, has replaced him. Since I use some of the oriental techniques learned from David Dudley and Bob McCarroll it was of interest to me to observe his work and techniques. He often leaves materials on the drying board to cure from 1 1/2 to 3 months. He works with a series of bamboo spatulas and oriental paste brushes. Their tables are quite low (c. 1 1/2 ft.) so that they work in a kneeling position.

*The National Archives,* Washington, D.C. Tel. (202) 523-3300. Dr. Shahani: Director of their Conservation Laboratory. Mario Lopez, foreman.

*Lamination:* They are still laminating according to the Barrow technique at the National Archives, whereas they have discontinued this practice at the Library of Congress. Although they are still using cellulose acetate plus a supporting material, they are also experimenting with a material called cerex. Dr. Shahani is not convinced that lamination as practiced by them is a bad practice. He showed me samples of laminated materials from 1938 which looked acceptable. Peter Waters told me that he and Dr. Shahani plan to do a lamination study and to go into the matter in depth. Silking was one of the first methods of strengthening weak and fragile materials. It was discovered that silked materials lasted for 30-35 years and then the silk would begin to degrade. Then this was abandoned and Barrow's method became



popular. Lately conservators are taking a second look at silking. There is some material that was silked 85 years ago at the Philosophical Society Library in Philadelphia that is in excellent shape. The feeling is that if the silk were washed first, and alum was not added to the paste, then silking could be a viable operation. Peter Waters pointed out that one of the laminators used by the National Archives laminated at a lower temperature than that used at the Library of Congress and that could account for the better condition of the laminated materials at the National Archives. The laminator used is a Wood, steam heated, begins the whole operation each time with a cold platten, is under 500 p.s.i. for approximately 4-5 minutes, partly heating and partly cooling. They also use the R.B. Laminator with a temperature of 375°F. for 20 seconds. The document moves through on rollers. They have another laminator which they now seldom use. It was designed for maps, is steam heated, but does not heat uniformly. This can be seen on the finished documents by the different graduations of colour. They deacidify with Magnesium Hydroxide and use a derivation of Methylmagnesium carbonate when they do non-aqueous deacidification. The National Archives is purchasing a V nyector Leaf-casting machine.

*Storage of Maps and Documents:* Mr. Taylor was my guide. In general they prefer the Hamilton Map Cabinets, but the 1" deep rather than the 2" deep drawers, which they feel makes for better handling; i.e., one can pull out a bristol folder containing a map from the bottom of the drawer with ease because there is less accumulated weight from additional folders. They also had a great number of 72" map cabinets for their larger maps. They are doing some encapsulation, mainly I think because of the difficulty they have had with the large laminator.

*Microfilming:* The National Archives is greatly concerned about the lasting quality of microfilm. On 2-23-81 a press release was issued that stated that at the direction of Dr. Robert M. Warner, Archivist of the United States, the National Archives and Records Service has undertaken a comprehensive reassessment of microfilming as a preservation technique. An 18-member Archives' Committee on Preservation, headed by Dr. Norbert Baer of the New York Institute of Fine Arts, has establish-

ed a sub-committee to study alternative forms of copying and their durability. Under a National Archives contract, Coulter Systems, of Bedford, Mass., is surveying transparent electro-photography (TEP) as an archival storage medium. A National Archives periodic inspection of a representative sample of its vast microfilm holdings of 750,000 rolls is underway. A small but significant amount was found to have reduction and oxidation blemishes (also known as "redox" blemishes or "measles"). These spots - microscopic in size - are sometimes found on microfilm stored in less-than-ideal environments. Dr. Warner points out that the bulk of our most historically significant documentation has survived under conditions that would jeopardize the life of microfilm. Before placing full reliance on microfilm, or any other non-paper medium, Dr. Warner feels that we need to be certain that it will save money and more important, that it will outlast the paper. It is clear from this that archivists will ponder a long time before they recommend destruction of original records.

*Smithsonian:* Washington, D.C. Conservation Analytical Laboratory. Dr. Robert Organ, Director

Under the administration of the Assistant Secretary for Museum Programmes, the function of the Conservation Analytical Laboratory is to serve the various museums of the Smithsonian. The Smithsonian is spread all over Washington. They advise on the suitability of environmental conditions, on conservation procedures, treat objects which present special problems, analyze museum objects or their materials, etc. Of special interest to me was their fumigation chamber where they use ethylene oxide (12% ethylene oxide and 88% freon 12). Dr. Organ is concerned with some of this gas passing into the atmosphere and feels that before long regulations for such emissions will be tightened considerably. He pointed out that one of the toxic gases (hydrogen sulphide) is present within museums and galleries themselves and is given off by the human body, and can be especially critical when the same air is re-circulated within a building.

*John Hyltoft:* 1111 N. Capitol Street, in charge of conservation lab of the Smithsonian Institute. This is primarily a bindery. They do a lot of lamination, using the Ademco

laminator and some of the Ademco laminating materials (Crompton tissue). John marbles his own paper which is used on the Smithsonian bindings.

*Museum of American Art:* Part of the Smithsonian. Katherine Eirk is the paper conservator.

Here I examined the Bill Maxwell paper suction table. This was originally designed for her according to her needs. She uses it infrequently but finds it useful for her purposes.

*Assessment and evaluation of the Short Term Study Tour in relation to my present job and future professional development:* As stated in the preface to this report the purpose of the Study Tour was to examine existing conservation laboratories, to study current facilities for fumigating paper artifacts and to dry them through a vacuum-freeze drying process; to discuss with various professionals the matter of brittle paper and the best means of preserving such materials; to observe methods of storing maps and works on paper; and finally to examine existing climate controls in various institutions.

From this report it is clear that these goals were fulfilled. In studying existing conservation laboratories, one important observation was the current approved method of providing high quality water to the paper sinks. On my return to Winnipeg, we have already implemented some changes in our plumbing specifications that will incorporate improvements in our own system. We have confirmed our proposed freeze-drying facility to be incorporated into our fumigation system by discussions of competent scientists from the Library of Congress. From speaking with such professionals as Peter Waters and Robert Organ we will stress even more the importance of cold storage for our permanent documents storage and see that such conditions in our storage areas are assured. We will turn over information to our archivist entrusted with the care of maps concerning proper storage of the same. It was disappointing not to discover a system that utilizes activated charcoal for air filtering during our study tour. My future professional development depends greatly, I think, on implementing the above-mentioned operations and techniques, and this study tour has contributed to such a development.

Charles Brandt