

It is my privilege to represent my Director, Mr. Roger Roche of the Atlantic Conservation Centre, one of the regional centres of the Canadian Conservation Institute located at Moncton, New Brunswick. The purpose of this paper is to describe the work of the Paper Conservation Laboratory at this Centre, but in a context of the overall work being performed by the staff of the Atlantic Conservation Centre.

Apart from the Headquarters of the Canadian Conservation Institute in Ottawa with its fine laboratories and research facilities, the Atlantic Conservation Centre is one of the two existing and functioning Regional Centres of the C.C.I. The other is the Pacific Conservation Centre in Vancouver. Centres are planned for Quebec, the Prairies, and Ontario.

The Canadian Conservation Institute has a national responsibility for conservation of collections in the field of fine arts, archaeology, ethnology, and history, and to carry out relevant research and information functions. In October, 1976, it celebrates its fourth birthday.

Prior to the establishment of the Atlantic Conservation Centre, a survey was conducted in the Atlantic Provinces by a team of experts from the Canadian Conservation Institute. By necessity, a discriminating selection of 16 museums and archives were visited in order to evaluate the regional need for conservation work. The examination of a "few" objects per institution which could be classified under the status of National Treasures gave the following figures:

	<u>QUANTITY</u>	<u>MAN YEARS REQUIRED</u>
Paintings	846	38
Graphic Art	1,620	22
Polychrome Sculptures	-	23
Artifacts	3,251	56
Archival Documents	148,644	268
Rare Books	25,010	704

The approximate total for 16 institutions: 179,371 items for 1,111 man years.

These few items examined accounted for less than 10% of each institutional collection surveyed, and the 16 institutions selected were less than 10% of the total amount of museums, archives and other related institutions in the four provinces. Therefore, it is not an exaggeration to consider the total requirement of man years to be in the range of 100,000 man years. It should be noted that at this time, no provision was done for textiles, furniture and wooden objects, historical farming tools, boats and marine artifacts, architectural conservation (including log wood cabins, historical houses and settlements) or for field and underwater archaeology, all of which are an important part of the regional cultural heritage. After consideration of these figures, Moncton was selected as the geographic centre of the Atlantic Provinces and an interim laboratory, located at 236 St. George Street, Moncton, New Brunswick was established, with approximately 7,500 sq. ft. (700 m<sup>2</sup>) which is at present housing the Atlantic Conservation Centre which commenced its operation in June 1974.

A permanent building, to be erected on the campus of the Université de Moncton, is under negotiation and will offer by 1978, approximately 25,000 sq. ft. (2,300 m<sup>2</sup>) of floor space and will accommodate over 20 specialists working in various fields of conservation. The building has been designed

in conjunction with conservators in order to offer a maximum of working efficiency and to provide the most sophisticated laboratory facilities, following specific requirements of each department, for the implementation of the most advanced techniques in conservation. This complex will include:

Conservation Laboratories: In the fields of Fine Arts, Artifacts, Paper, Textiles and Furniture.

Scientific Documentation: Microscopy, Photographic Studio, Development and Enlargement Dark Rooms and X-ray Room with attached film processing facilities.

Administration: Offices, Registrar, Library, Archives, Conference and Audio-Visual Room, Cafeteria, and an Exhibition Gallery.

Other Services: A variety of storage areas including a vault are available for works of art. Other services include: packaging, fumigation, a garage, elevators, a chemical storage vault and specially designed safety storage for solvents.

Our present interim facilities, as described later in detail, now offer conservation services in the Atlantic Provinces following a list of priorities recommended by the regional director and approved by an advisory committee representing the four Atlantic Provinces. We also provide assistance in the setting up of restoration facilities with larger institutions, thus enabling them to apply basic treatments to their collections. In so doing, we are able to allot more services to smaller institutions and, also to concentrate

on works of art and artifacts that are National Treasures, or objects that require more complex treatment.

We provide assistance in the form of seminars, working sessions with other specialists, and complimentary practical experience on an "in-house" basis to regional museum technicians. We also address the general public through T.V., radio, and lectures on general conservation matters and more particularly on preventive measures to avoid needless deterioration.

In order to minimize the time lost in field activities, our conservators are required to survey collections, examine in detail and evaluate treatment to some specific individual items, monitor environmental conditions and provide general technical advice as well as assume the transportation of fragile objects. They also act as consultants in various regional projects involving other institutional working teams and in some cases they are obliged to perform conservation treatments in situ.

One of several major projects undertaken at the Atlantic Conservation Centre is establishing a simple and comprehensive procedure for emergencies, to be distributed to all regional institutions. These procedures on "what and what not to do" will also include a list on sources of material available in such situations, and persons able to provide professional advice or technical assistance in various fields. An emergency field unit, which will contain emergency equipment and supplies, is under study so that aid can be delivered in a few hours by road or air.

The scope of the Atlantic Conservation Centre's activities and responsibilities toward the preservation of the cultural heritage of the Atlantic Provinces, provides a sense of professional fulfillment to our staff and hence, the future seems more encouraging.

The Conservation Divisions now existing at the Atlantic Conservation Centre are three: Fine Arts: Paintings & Polychrome Sculptures; Paper; and Artifacts.

FINE ARTS: PAINTINGS & POLYCHROME SCULPTURES DIVISION

Definition: All works of art, the surfaces of which have been painted, by means of pigments, dyes, and/or metal leaves, in order to create a meaningful artistic effect.

These objects are usually known as: easel or mural paintings, and polychrome sculptures, but could be found as miniatures, painted flags, painted or gilded picture frames, or any artifact including an intricate painted design. The support material, flat or three dimensional could be: fabric, wood or presswood, metal, ivory, plaster or mortar, glass or ceramic, paper, cardboard or academic board, plastic, stone, etc.

PAPER CONSERVATION DIVISION

Definition: Any object, the support material of which is paper, in the category of artistic and historic works.

This field of conservation is subdivided into two sections due to the high level of specialization:

1. Fine Art Paper Section

All objects on paper falling into the category of fine art, where the conservation treatment involves the restoration of the decorative material. Such techniques are known as: water colour, gouache, tempera, collage, pastel and charcoal, sanguine and crayon, ink and wash, etc.

Due to specific technical requirements, oil paintings on paper usually stay under the responsibility of the Fine Arts department.

## 2. Book and Paper Section

Defined as all printed and manuscript paper, bound or unbound, and by extension, parchment and seals as well as related archival material including historic photographic collections printed on paper, etc. In general all paper objects where conservation treatment is directed on the preservation and restoration of the support material and does not involve the artistic design.

Materials encountered in this field are numerous and as diversified as leather fabrics, vellum, wood, metal, etc.

### NOTE:

Conservation of photographic collections; due to the complexity of the various conclusions, support materials, and inter-related problems photographic objects should be treated by a conservator specializing in this field.

### ARTIFACT CONSERVATION DIVISION

Definition: "Anything made by human work or art" (Funk & Wagnalls Dictionary)

Usually all three dimensional objects not falling in the categories of "Paper" and "Fine Arts: Paintings and Polychrome Sculpture".

In the case of "textiles", "furniture and wooden objects", as well as "Architectural Conservation", separate divisions are usually considered and recommended. However, they could be individually included in artifact conservation when a conservator in that specific department could demonstrate appropriate experience and relevant qualifications. No separate division in any of those three fields will be considered at the present time.

Inter-related Projects

When an object requires attention from conservators in more than one field, the responsibility of the project should be defined by the basic nature of that object following conservation requirements. i.e. a mural painting to be restored is considered as a fine art object and even if the support material requires attention from an architectural conservator. If the conservation requirement has been done for the building itself, the fine art conservator will work under the responsibility of the architectural conservator.

But as this seminar is concerned with paper, I plan to portray the work being done in the paper laboratory through a series of slides depicting the conservation and restoration work recently done on a three volume work of the Atlantic Neptune, dating 1780, 1781, and belonging to the Provincial Archives of Nova Scotia.

\* A description, of The Atlantic Neptune was published in L'Esprit des Journaux, Paris, 1784, and translated by Mr. Stokes in his Iconography, v. 1, p. 349, as follows:

"There has recently been placed on sale at The Hague by P.F. Gosse, court book-seller and printer, a superb Atlas, which we take this first opportunity to describe in detail. This work, which is indispensable for the navy, is the result of nineteen years' labor and has cost the English government more than £100,000 sterling, in addition to the considerable expense which the author himself has discharged for its execution. The work is of the highest degree of beauty and superior to everything of the

kind that has heretofore been published.

"It is entitled: -

"Plans of the coast and harbours of North America, entitled: the Atlantic Neptune, executed, engraved and published by the order of the government for the use of the Royal Navy of Great Britain, by Joseph F. W. Des barres, Esq., under the direction of the very honorable Lords Commissioners of the Admiralty...

"The first part contains the original plans by the author, of the coast and the harbours of Nova Scotia with soundings, maritime remarks, etc. on LXXXIV leaves of royal paper. The second part consists of charts composed of different plans, observations and remarks of officers of the navy and army employed by the government as follows:

"The coast and the harbours of the gulf and river St. Lawrence and of the islands of Cape Breton, St. John, etc. on XXXVI leaves of royal paper.

"The charts of the harbours and the coast between New York and the entrance of the Mississippi river on XXVI leaves of royal paper.

"The price of this Atlas bound in one volume in calf is 160 florins, and as the work is sold for the account of the author it will be delivered only on receipt of cash. Address Pierre-Frédéric Gosse, Court bookseller and printer to S.A.S. who alone is authorized by the author to dispose of this work in foreign parts.

"The same Atlas (impression supérieure) large size on imperial paper with the addition of several pictures superbly printed in colours representing views of the coasts, the river banks and interior portion of the country, views of towns, remarkable places, etc. the whole accompanied by numerous



interesting plans and views of military operations occurring during the war in America.

"In two Volumes.

"The price of this work complete in CCLVIII sheets on imperial paper is 252 florins, money of Holland, payable in cash."

Joseph F.W. Des Barres (1722-1824) was a military engineer, trained in the Royal Military College at Woolwich. He came to America as a lieutenant in 1756 and took a prominent part in the Canadian campaigns. "From 1763 to 1773 he was engaged in surveying the coast of Nova Scotia ... Two years ... were spent on the survey of the Isles of Sable alone. Two bars here, over which the surf broke often mast high, for seven leagues were strewn with wrecks, and could not be approached without the greatest risk. Des Barres completed the survey of the island and the soundings around it at the hazard of his life." He was in England, supervising publication of *The Atlantic Neptune*, until 1784 when he was appointed Lieutenant-Governor of Cape Breton. In 1805 he became Governor of Prince Edward Island, holding the post until 1813. Thereafter he lived in Halifax, Nova Scotia, until his death at the age of 102, in 1824.

"Apart from the practical value of *The Atlantic Neptune*, the artistic excellence of the views alone would give it high rank. This feature is solely due to Des Barres. He drew with great sensitiveness and had an exquisite sense of color. Many of his aquatints, whether in monotone or colors, are of the highest quality.

"We may wonder why so many views, both large and small, were made and the criticism that many of them had little practical value is just. But, this may be forgotten, when we consider their esthetic value, and we should

be thankful that the first important efforts in cartography on the coasts of Canada and the United States should have been presented to the world with such delightful artistic accompaniments.

"The practical value of The Atlantic Neptune was soon demonstrated. It became the standard guide for ships of all nations in American waters. Yet the charts were in many instances defective, especially in regard to soundings. This is not surprising considering the extent of area covered. These defects gradually became known during the nineteenth century and fresh surveys had to be made by trained officers with competent staffs, with more means and better equipment and organization than Des Barres, Holland and other pioneers of the eighteenth century enjoyed."

\* Bulletin of the New York Public Library, Vol. 40, Jul 1936, #7.

Documentation is considered of prime importance by the Atlantic Conservation Centre. When a survey is first made of any institution, photographs are taken of the artifact and a form is filled out listing the institution and describing in general the artifact, its condition, and the steps required for treating it. When it arrives at the Centre a special Incoming Form is completed, and careful photographs are taken, and again the article is described in general on another form with the restoration treatment required. The conservator who is coordinating the project describes in careful detail on a Condition-Treatment form the condition and measurements of the artifact and the proposed treatment. This proposed treatment is subject to the approval of the Director. Complete and detailed photographs are taken both in colour and in black-and white by the staff photographer. This photography is continued during the restoration as necessary, and careful notes are taken during the

entire restoration process. When the restoration is complete, final photographs are taken and all the notes describing the restoration of the object are incorporated into the final treatment form which accompanies the object on its return to its institution.

The three volumes of The Atlantic Neptune were of special interest. On their arrival at the Centre the boards were loose from the binding, most of the spine leather was missing, the board paper in sad repair, the paper was quite acid (pH of 3.4-4.0), and there was much transfer of the acid-ink from the printing ink to the opposite sides of the plates, creating ghost images from the acid-hydrolysis that had taken place.

The proposed treatment was as follows along with a description of the incoming books:

ACC - 

7	0	0	0	1	3	6
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**CANADIAN CONSERVATION INSTITUTE**

NATIONAL MUSEUMS OF CANADA

STUDIO EXAMINATION AND TREATMENT RECORD  
ARTISTIC AND HISTORIC WORKS ON PAPER

OWNER: Public Archives of Nova Scotia

ADDRESS: Halifax, N.S.

DESCRIPTION OF OBJECT: BOOK

"Atlantic Neptune Volume III"

pH: 3.5-4.5

DIMENSIONS:

(H) 64

(W) 45½

(T) 11

CMS.

120 Folded Maps and Sketches

ACC. NO. (CATALOGUE NO.):

PROVENANCE/ATTRIBUTION:

DATE OF OBJECT: 1781

TECHNICAL HISTORY/CONDITION/EXAMINATION AND TREATMENT PROPOSAL:

CONDITION:

Bookcover: Both boards broken at joints. Spine leather completely missing. Marbled paper on board damaged by wear. Several large areas missing. Bookplate on inside front board.

Bookblock: Several breaks in sewing cords; many pages badly soiled. Some tears. Corner missing from several pages. Considerable scotch tape. Some guards broken. Acid-migration from printers ink. Several sheets with heavy foxing.

PROPOSED TREATMENT:

Bookblock: Paginate (number all leaves); take book down, applying paste on spine to free section. Dry clean: Pink pearl erasers and opaline pads. Remove scotch tape with proper solvent. Check solubility of all inks and colours in water and alcohol. If possible wash entire book in warm water and sparkleen. Deacidify with Magnesium Bicarbonate if possible, or with barium hydroxide (spray) or magnesium methoxide. Make new guard (Japanese mulberry) and attach plates. Mend tears, back plates as necessary. Resew on double-raised cords and construct new endsheets. Round and back.

Bookcover: Attempt to duplicate marbled paper, either from Europe (Rolb and Grossman, Munich), England, or make at A.C.C., or remove old paper and utilize on new binding. Attach new boards, make hand-sewn headband and cover with half leather (goat). Title with appropriate type-face (use old title as model). Replace original book-plate, treat leather with leather dressing and potassium lactate.

Construct: Clamshell box, lined with acid free lining.

EXAMINED BY: C. Brandt

*Charles Brandt*

DATE: June 25, 1976

PROPOSED TREATMENT APPROVED BY: R. Roche

*R. Roche*

DATE: *July 5, 76*

The French Shell marbled paper covering the boards was easily removed by soaking the boards in water. It soon floated off. It was later deacidified and resized. Efforts were made to have the pattern duplicated by writing to experts in England, France, and Germany but without success. Finally it was decided to replace the old paper over a coloured paper matching the dominant colour of the French Shell.

The book (books) was paginated and taken down (cords cut and all thread removed), first soaking the backbone of the book with paste to soften the old glue (animal).

Most of the plates were rather badly soiled from use. Some of these stains were easily removed using Opaline pads and magic-mend erasers. The scotch-tape was removed by the use of acetone applied with a cotton swab. Then came the testing of the solubility of the various colours and inks of the plates, testing with water, alcohol, and spot bleaching with Chlorine Dioxide and Chloramine-T.

Sheet by sheet the plates were then washed in constantly changing luke-warm water using Sparkleen soap powder (Fisher), supporting the sheets on Reemay. Depending on the bleach to be used, the deacidification (Magnesium Bicarbonate Solution) was as follows:

Chlorine Dioxide Bleach: wash, bleach, deacidify, wash.

Chloramine-T: (5% solution): wash, deacidify, bleach, wash  
(3-4 hours) in running water.

We used a system of air-drying, placing the wet documents on clean blotters. When almost dry (2-3 hours) the blotters were changed and the plates were left under slight pressure in the large laminator overnight. The

following morning they were quite dry and neatly pressed, ready for guarding and mending.

Rice-starch (Talas) was used for all mending. This is prepared by mixing the starch with water - 1:3. First a little water is added to the dry paste forming a thick slurry. To this is added boiling water, stirring rapidly and gradually adding more boiling water to the correct proportions. To the rice-starch paste a few drops of Thymo is added. The paste must then cool and it is ready for use. Mending and guarding was done with Japanese mulberry paper. Some plates that were more fragile required backing. Again, Japanese paper was used. This was first deacidified and then placed still wet on a large sheet of plexiglass and then pasted off with starch paste. The wet document was then placed upon this pasted off Japanese paper and brushed down through a sheet of teflon. The border of the Japanese paper was lifted 2" all-around and pasted down to the plexiglass. The following morning when flat and dry the document still on the plexiglass sheet was moved to the light table and any needed repairs were made.

Every plate was guarded at the fold, again with Japanese paper, and extension guards were attached so that the plates would open flat.

The sewing was done on six double cords with linen threads. Flexible glue was applied to the backbone and the book was rounded and backed, the cords frayed and laced into the new boards.

Sewing the head <sup>BAND</sup> cap consisted of two steps: First a basic headband was sewn. This consists of wrapping the headband cord with linen thread with frequent tie-downs but with no head. Over this basic headband is sewn a decorative headband in two colours, each colour made up of three threads:

these threads were dyed with aniline dyes according to the following formula:

When I was studying in Munich in 1975 at the Institute für Buch-und Handschriftenrestaurierung at the Bayerische Staatsbibliothek I had the opportunity of dyeing a number of skins and also linen threads for headbands. The same aniline dye is used for both and can be purchased from Braunworth & Lütke, 8000 München 5, Ickstattstrasse 3, München. The three basic colours for older style headbands are -

- 1) Yellow (Amidogelb E). When dyeing don't use Bastamol. Use Ameisensäure. One can produce various shades of yellow by leaving threads in for a shorter or longer time.
- 2) Blue (Lurazol blau N.) Use both Bastamol and Ameisensäure.
- 3) Pink (Lurazolscharlach B), no bastamol but use Ameisensäure.

To dye the thread for the headbands one proceeds as follows: Use 10 grams of dye-powder for each liter of H<sub>2</sub>O. Three liters require 30 grams of dye. Heat the 3 liters to boiling. Take the 30 grams of dye-powder and place in a separate bowl and add a little cold H<sub>2</sub>O and a little warm H<sub>2</sub>O and stir well. Add the 3 liters of boiling H<sub>2</sub>O to this mixture and return this to hot plate and boil for 2 minutes. Allow this to cool until it reaches a temperature of 30-35° C.

In a separate bowl have the Ameisensäure prepared: 10 cc for each liter of H<sub>2</sub>O. Add the Bastamol powder to the hot water (60°C) and stir. The Bastamol controls the depth of dyeing and also adds a certain tonal splendor.

When all is prepared, and with the use of rubber gloves, run the linen threads (about 20 at a time and a length of about 3 feet) through the dye several times. If, for example, you are dyeing the threads blue,

immediately after dyeing the threads are run through the Bastamol mixture and then through the Ameisensaure mixture and then placed on thin cardboard or brown kraft paper to air dry. Before using they should be waxed in the ordinary manner.

Hewit's 3 oz calf leather was used for the  $\frac{1}{2}$  leather binding, skiving the edges with the use of a "Scharf-Fix", a neat little machine used by many hand-binders in Europe, costing approximately \$150.00 and available from W. Benteli & Co, 8022 Zurich. In addition drum sanders were used to thin out the leather edges. These operate off of a Black & Decker drill with a flexible shaft. Potassium lactate was applied to the leather before it was pasted off and again after the book was completed and before Talas leather dressing was applied.

The titling was done with handle letters, first through a pattern and then blind. Roger Powell glaire was applied and Wiley's gold leaf utilized.

The original board paper, French Shell, was deacidified and resized with soluble nylon. A butternut Domtar Byronic Text paper was first pasted to the board and over this the old French Shell, bringing it just to the edges of the boards. This was later waxed along with the leather with micro-crystalline wax.