

National Museums
Canada

Musées nationaux
Canada

Canadian Conservation
Institute

Institut canadien
de conservation

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T. J. ...
C. Bennett

ACC File 1465-1

16 September 1978

David Ross
New Brunswick Museum
277 Douglas Avenue,
Saint John, N.B.
E2K 1E5

Dear Mr. Ross,

Attached are our findings and recommendations relative to the preservation and maintenance of the collection housed in the New Brunswick Museum, its various storage areas as well as the warehouse storage area. These recommendations are based on a survey conducted by Mr. Lynn Ogden and myself on August 15th and 23th, 1978.

First, you are to be congratulated on your concern for proper conservation measures and storage; it is commendable that your new wing completed in 1976 is air-conditioned. This is the one single most important step that any institution can take towards proper climate control of its collection. In addition you are to be congratulated on the well planned organization of several of your storage areas; e.g. SF2 - the principal storage area for your oils, watercolours, prints stored in racks; B1, the storage area for glass, ceramics; and the basement storage area for your furniture collection.

On the other hand several storage and display areas can be improved upon. Before we point out several deficiencies in the environment of your museum, we would like, very briefly, to remind you of some of the causes of the deterioration of artifacts. They are several: light, atmospheric conditions, including air pollution and unfavorable temperatures and humidity; biological factors, including mold growths, insect pests and rodents; mechanical damage and acid. It is not possible to consider temperature independently of humidity. If there are wide fluctuations in either, more damage is caused than by constantly high or low readings of the same. Physical failure of materials is caused by the expansion and contraction due to temperature variations. High temperatures and humidity encourage the growth of fungi and increase chemical decomposition. High temperatures dry out adhesives, (eg. in furniture joints) leather and paper. Ultra-violet radiation from unscreened fluorescent lighting and visible light cause fading, discolouration and embrittlement of many organic materials such as textiles, library bindings, and ethnographic objects.

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From our survey we discovered the following deficiencies in the museum's environment, factors which militate against the permanency and durability of your collections:

1. Relative Humidity High with Annual Fluctuations

Optimum temperature for most museum materials that will at the same time provide health and comfort for people is in the range of 68-70°F. The temperatures in several rooms of your institution were well above this range. Because of the sensitivity of organic materials to moisture change, relative humidity should be kept reasonably constant - 45 to 55 percent is desirable. Above 65% R.H. mold growth is encouraged; much below it, say at 40% R.H., paper becomes brittle, wood begins to warp, and leather begins to react unpredictably. The relative humidity in several of your display areas and storage areas was well above an acceptable level. (We have appended our readings of each area tested). Measures should be taken as far as it is feasible to adjust these temperatures and relative humidity through the installation of window air-conditioners and humidifiers or de-humidifiers as the need may be. We have found by personal experience in Moncton in our temporary quarters on St. George Street that much can be done to modify room environments by purchasing and maintaining room-size humidifiers and de-humidifiers.

2. Unfiltered Radiation from Fluorescent Lighting and Too High Light Levels in much of the building

Although some of the fluorescent lighting fixtures have been equipped with UV plastic sleeves to eliminate this harmful radiation, others have not. It is our recommendation that all fluorescent tubes be covered with these plastic sleeves as soon as the budget will allow this. In addition, the light levels in some storage areas and display areas are above the recommended level.

Illumination: The following light levels are recommended for museums and galleries -

Sensitive objects - 50 lux (e.g. watercolours, prints, felt pen drawings, textiles, etc).

Medium sensitivity objects: 150 lux (e.g. oil paintings, panel paintings, polychromes, etc.)

For example, from our monitoring with the Panlux Electronic Luxmeter we discovered that the reading on the Robert Percival watercolours on display to be 150 lux instead of the desired 50 or less. In addition, please see our readings for each area appended to this report.

3. Some Inadequate Housekeeping

Dust particles form nuclei for water and sulphur dioxide in the atmosphere, which result in the formation of acid. When this acid comes into contact with your artifacts it degrades paper, leather and wood. So good housekeeping is extremely important. Rather than listing here the areas in your museum that could profit from systematic and thorough housecleaning we refer you again to the appendix of this report.

4. Water Hazards:

From the recent flooding of the textile storage area you are undoubtedly keenly aware of the damage that can occur to artifacts from water damage. In several storage areas we have noted overhead or wall steam pipes that are a potential danger to articles stored in their proximity. In particular we would like to call your attention to the water risk that your oils, watercolours and graphics are subjected to in storage area TF4. We feel that the proximity of this steam pipe to these works of art warrant the removal of all of these artifacts to an area where the risk would not be present. The same danger exists in the ethnographic storage area.

In addition to these four major points of concern we would like to deal with several areas in your museum which in our opinion require some immediate attention:

A) ETHNOLOGY STORAGE:

Here extremely valuable items are being stored in an environment with high Relative Humidity (57%), high temperature (79°F) with unshielded overhead fluorescent lighting (200 to 300 lux readings in some areas), with the items in close proximity to steam pipes creating a water-damage risk. The area frankly is dirty and dusty, with leather and basketry unprotected, a valuable Chilkat blanket stored in a heap and items stored directly on the floor. There is also considerable evidence of mechanical damage which is the result of either severe and sudden changes in temperature and Relative Humidity or mishandling. Certainly many of the artifacts are no longer in a condition where they can safely travel or be displayed until treated. It would be possible to adjust the climate by the installation of a window air-conditioner, a de-humidifier (for summer months) and a humidifier (for the winter months). It is our opinion that this area should be the area to receive immediate attention.

B) TF4 (GRAPHIC STORAGE)

Because of the potential danger that these works of art are exposed to from the proximity of the steam pipe running the length of the room, we suggest that another storage area be found for this collection.

C) WAREHOUSE STORAGE

Although this warehouse is a vast improvement over your previous warehouse storage, there is much to be desired here:

- 1) the outside doors are not properly sealed off against drafts of cold air and contamination by sulphur dioxide and other pollutants in the atmosphere.
- 2) there is an accumulation of dust and oily grime about.
- 3) the trunk storage area in the basement is damp and there is clear evidence of live mould which is degrading the material stored there.
- 4) the fan blowing blasts of hot air in the upper level artifacts storage probably creates rapid shifts in temperature (especially in winter) every few minutes.

RECOMMENDATIONS:

1. That the trunks be moved out of storage in the basement of the warehouse.
2. That the ethnology collection be given priority (eg. in terms of spending money on better storage) in light of the above findings.
3. That some temporary sheeting be placed/hung between the graphic storage drawers and the water pipes (NOT touching the pipes!:) in order to divert any leakage away from the objects.
4. That care be taken to ensure that all items are up off the floor at all times, especially in areas where there is water pipes in storage or display.
5. That a review of the use of the (air-conditioned) new storage area be made with a view to storing the most environmentally sensitive artifacts (including some of the furniture) in this area in order to make the most efficient use of the best storage in the New Brunswick Museum.
6. That the Atlantic Conservation Centre have an opportunity to return and take environmental readings in late February approximately six months after this survey was undertaken.
7. That funds be put aside in each budget year to improve storage/environmental conditions and in order to purchase the necessary monitoring equipment. We are prepared to write in support of an application for funding assistance in this regard.

8. That someone on staff be assigned to monitoring environmental conditions on a regular and continuing basis if this has not already occurred.
9. That all curatorial and conservation staff; curators, conservators, assistants, technicians: continue to be given training opportunities in the fields appropriate to better collections care.
10. That improvements including cleaning and painting, and some storage equipment be obtained for the warehouse.

Yours sincerely,

Charles A.E. Brandt

CHARLES A.E. BRANDT
Conservator
Paper

CAEB/RLO/ra

Att.