Cette conférence est la première dans une série qui sera présentée à chaque année. L’auteur, le Dr. Evan Turner, directeur du Musée d’art de Philadelphie, dans sa conférence intitulée De l’idéal à la réalité, les conflits qui menacent les musées, nous invite à comprendre les problèmes de finance, d’administration et de conservation dans les musées de l’avenir.

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Le rapport officiel du Congrès 2001: le musée et le public canadien qui a eu lieu au Lac Couchiching, Ontario au mois de septembre, 1976. Tous les documents de travail, plusieurs présentations par les délégués ainsi que la liste des trente-cinq recommandations sont compris dans ce procès-verbal. Les sujets sont le voix du public, le rôle des musées, le rôle de la conservation des expositions dans le musée du futur, les édifices du futur, les ressources financières disponibles à l’avenir, l’expérience des universités — peut-on éviter leurs problèmes?

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*PRIX RÉDUIT POUR LES MEMBRES DE L’A.M.C.*
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Traductions
Préervation et présentation: certains aspects de l'éclairage des musées et des galeries d'art
par Ernest Wotton ........................................... 70
Sir,

R. Yorke Edwards' Tomorrow's Museum (gazette, vol. 10 no. 1, p.p. 6) is the most refreshing and exciting museum article that I have read for a long time. He is to be congratulated for having the courage to say that all is not well in Canada's museums. It is worth reading and rereading again and again. I hope that it will have some impact. His comments are badly needed and very much to the point.

My involvement with museums has been as researcher and as visitor and I am writing this letter in the latter capacity. As a frequent museum visitor I often feel cheated. Too many museums are painted in shades of mediocrity; they are directionless, insipid, uninformative imitations of trade shows and shopping centres. I could tolerate the cheap phoniness of our coast to coast sons of Expo if, after wading through the plastic mire there was something at the end. But there is not. It is like eating candy floss for the first time; you keep eating thinking there has to be something inside but there is nothing there; suddenly it is over and you ask: Is that all there is?

Hopefully comments from individuals of such undeniable stature as Yorke Edwards will bring information, understanding and inspiration back to the museum. Museums have the finest kind of audience possible: the volunteer audience. It is time to quit insulting that audience and start treating them as intelligent and curious human beings. They should leave with their curiosity both satisfied and whetted. To achieve that goal we might start by relearning the meaning of curator.

When I go into a museum, I want some quiet time for reflection and speculation but I also want to be spoken to. Why is the museum not speaking? Could it be that the people who decide what the museum shall say have nothing to say? Could it be that in the rush to be oh so very trendy and with it, that the museums have been conquered by, or surrendered to, the vapid ones who say nothing but do it ever so skilfully?

Sincerely yours,

Norman R. Ball

---

N.D.L.R.
Nous accueillons cordialement les lettres au rédacteur, ainsi que les reparties. La rédaction se réserve le droit d'éditer les lettres.

EDITOR'S NOTE
The gazette welcomes letters to the editor, as well as replies. All published correspondence is subject to editing for reasons of space and clarity.
BEN LLOYD ET L'ADMINISTRATION DES INSTITUTIONS CULTURELLES

En général, les termes administration et altruisme ne sont pas de ceux que l'on associe d'emblée; il n'en reste pas moins que l'institution culturelle doit, comme tout autre organisme, être gérée. Aussi paradoxal que cela paraissaient les musées, galeries d'art et autres organismes philanthropiques où l'on s'attendrait à voir l'idéalisme régner en maître connaissent des conflits latents, de violescentes luttes pour le pouvoir, des effusions périodiques de sang, qui semblent pratiquement endémiques chez eux.

Au Canada, des explosions intermittentes dans le domaine culturel ont, à un moment ou à un autre, submergé le Royal Ontario Museum, la Galerie nationale du Canada, l'Ontario College of Art et la Société Radio-Canada.

Pourquoi les dissensions prospèrent-elles à leur aise à l'intérieur de ces organismes soi-disant altruistes? Il est trop aisé d'éviter de considérer le phénomène en l'expliquant comme une manifestation du "tempérament artistique", ou en l'attribuant à l'absence de structures régulières. De fait, il est probable que les personnes dont le principal intérêt se situe au niveau des arts ne diffèrent en rien du commun des mortels: elles sont tout aussi compétitives, tout aussi avides de reconnaissance, tout aussi sensibles à la motivation et au découragement.

D'autre part, il est certain que les institutions culturelles diffèrent de compagnies commerciales; elles ne sont pas en affaire dans un but lucratif. Si le premier objectif d'un musée était de faire des profits, sa structure serait, selon toute probabilité, identique à celle d'une grande corporation. Mais puisque sa raison d'être n'est pas la même, la traditionnelle structure hiérarchique, qui insiste sur les responsabilités financières, n'a pas sa place ici. Une autre différence fondamentale concerne le rôle que joue le personnel professionnel dans l'institution culturelle. Contrairement à ces professionnels dont la fonction consiste à aider la gestion intégrée à atteindre ses objectifs, ils sont l'âme de l'institution.

Sans eux, les autres ressources deviennent inutiles et les objectifs de l'organisme, impossibles à atteindre.

Cependant, ni l'absence d'une motivation d'ordre lucratif, ni le rôle clef des professionnels n'impliquent que vous pouvez vous dispenser de solidarité principale. Il est indispensable que les objectifs d'une institution culturelle ou autre, soient clairement formulés, énoncés et compris.

En ce qui concerne ces spécialistes des questions culturelles, ils doivent reconnaître qu'ils ne peuvent s'acquitter de leurs responsabilités sans l'aide d'experts en disciplines aussi terre à terre que la gestion des installations, la gestion financière ou, dans le cas qui nous occupe, l'administration du personnel. Le défi majeur que doit relever toute institution culturelle est d'arriver à concilier harmonieusement, dans un climat de respect mutuel, ces diverses compétences et ces types de connaissances.

Le genre d'organisation le plus à même de réussir cette combinaison sera essentiellement linéaire, favorisera le travail d'équipe et ne sera ni hiérarchisé, ni fortement structuré. En général, il n'y a guère de compatibilité entre enrégistrement, stimulation intellectuelle et faculté ou possibilité d'exploration. Il doit tout de même y avoir une discipline capable de contrôler et de coordonner les agissements de l'institution, ses aspects culturels, ses fonctions administratives et ses biens. Cette discipline doit être assez cohérente pour réunir des gens qui soient à la fois réputés dans leur domaine, fiers, dignes de respect, pleins de méfiance à l'égard des assisoyés de pouvoir et de dédain envers l'ignorance.

Bien que cette discipline s'incarne d'abord et avant tout dans la personne du directeur, le rôle de celui-ci devrait être surtout de catalyseur et de coordonnateur plutôt que d'administrateur tout-puissant. Parce qu'il est à la tête d'une organisation peu hiérarchisée, le directeur a probablement plus de personnes qui dépendent directement de lui, et il doit probablement prendre plus de décisions que la plupart de ses...
homologues présidents de compagnies. Pour mener à bien sa tâche, il doit être un meneur d’hommes hors pair; il doit pouvoir jongler avec les situations conflictuelles.

Le directeur doit s’assurer non seulement de la plus totale coopération de son personnel, mais aussi du support de ceux qui représentent le public, à savoir le conseil d’administration. Le passage du temps et l’implication de plus en plus grande du gouvernement dans les organismes culturels ont amené une révision du rôle des conseils d’administration. Du temps que les institutions culturelles dépendaient en grande partie ou en totalité des dons privés et des legs pour assurer leurs subsistances, la responsabilité des membres du conseil d’administration était surtout de réunir des fonds et d’assurer la gestion des biens.

Maintenant que le gouvernement finance une grande partie des dépenses des institutions, on a tendance à mettre plutôt l’accent sur les communications entre l’institution et la collectivité. Ce qui pourrait s’avérer salutaire. Si les musées et les galeries d’art veulent atteindre leurs objectifs, les conseils d’administration de l’avenir devront réellement représenter les intérêts du public; ils devront en outre être capables d’en interpréter les besoins. Il est peu probable que l’on puisse s’acquitter de telles tâches dans le cadre de nominations politiques.

Aucune institution culturelle ne devrait dépendre uniquement du gouvernement en ce qui concerne son financement: cette dépendance risque de laisser, tout au moins dans une certaine mesure, place à l’ingratitude politique, aux dépens des intérêts de l’organisme.

Mais les administrateurs ne doivent pas non plus être choisis en fonction de leur compte en banque, ou de leur aptitude à conquérir l’appui financier de leurs amis. Non seulement cette pratique témoigne-t-elle d’un manque de dignité, mais elle transforme les conseils en clubs privés qui n’ont plus qu’une vague ressemblance et c’est même beaucoup dire — avec ce qu’ils devraient être.

Qu’une institution culturelle ait besoin d’argent — et ce besoin n’en épargne aucune — elle devrait suivre l’exemple des “service-club”, c’est-à-dire déclencher, avec l’aide de professionnels en la matière, une campagne de souscription dans toute la collectivité. Donald Rickerd, le président de la Donner Canadian Foundation, a laissé entendre que les musées devraient faire davantage pour stimuler l’intérêt des fondations, même des fondations étrangères ayant un siège au Canada. Ainsi, il a mentionné la Volkswagen Foundation en Allemagne, la Toyota Foundation au Japon, Le Agnelli en Italie comme possibilités auxquelles les institutions canadiennes ont rarement — pour ne pas dire jamais — fait appel.

Le seul critère de qualification au poste d’administrateur devrait être l’intérêt et la participation véritables à la réalisation des objectifs de l’institution. Les administrateurs peuvent alors mettre leur influence à contribution pour s’assurer que ces objectifs ne restent pas lettre morte. Par exemple, une récente enquête révèle qu’une des nombreuses raisons pour lesquelles les gens fréquentent les musées est pour parfaire leur éducation. Si c’est vrai, il serait sage que les administrateurs s’assurent que les budgets rendent compte de l’importance accordée aux programmes éducatifs.

En résumé, disons que les principes de base de la gestion exigent une nouvelle forme d’association entre les institutions culturelles et leur clientèle. Le public doit réaliser que la salubrité des institutions dépend de l’engagement de la collectivité à leur endroit, mais si l’on veut que ce sentiment d’engagement se développe, l’initiative doit venir de l’intérieur.

Traduit par J.-P. Morisset

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**PETER SWANN ON JOHN CANADAY**

A really good art critic is the rarest of birds. So “hail and farewell” to John Canaday as he now retires from the New York Times. Such an occasion should not pass unnoticed. For seventeen years he held our hands and shone a light as we groped our way through the maze of the New York art scene — through Abstract Impressionism, Pop Art, Minimal Art, Conceptual Art, Earth Art, Colour Field Painting, Systematic Abstraction, Post Constructivism to, of all things, Photo-realism. As New York took over world leadership in art movements, he charted its course, explored its scandals, upbraided here, encouraged there — an avuncular figure of knowledge, taste, style and wit.

Now that he has retired, we are saddened by the thought that when we turn to the Arts and Leisure pages of the Sunday New York Times, we shall no longer be able to read his insights. Alas, we have nobody in Canada of his stature and we share the loss.

How does he summarize these eventful years? He finds that the great Museum of Modern Art is no longer very modern and that in fact, relatively little that is new can be found there. North American art has caught up with it and passed it by. On the other hand, the Metropolitan Museum, under its controversial director, Thomas Hoving, has survived the storms and there, on the contrary, everything is new. Hoving has made it a “public playground”. He has put the excitement into art where once this was the role of “the Modern”. Whether or not one

**PETER SWANN ET JOHN CANADAY**

Un excellent critique d’art est une perle rare. Aussi doit-on, au moment où il prend sa retraite du New York Times, saluer John Canaday comme il se doit. Il ne faudrait pas laisser une telle occasion passer inaperçue. Pendant dix-sept ans, il nous a conduits par la main; il nous a montré le chemin au moment où nous fétions dans le dédale du milieu artistique new-yorkais, passant de l’impressionnisme abstrait, du Pop Art et de l’art minimal à l’art conceptuel, au Earth Art, au Colour Field Painting, à l’abstraction systématique, au post-construitisme et, finalement, au photo-réalisme. Au moment où New York prenait la tête de l’évolution de l’art à l’échelle mondiale, c’est lui qui entreprit de baliser son évolution, de mettre à jour ses petits scandales, de distribuer ici les réprimandes, là les encouragements: il était le bon oncle qui passée à la fois le savoir, le goût, le style et l’esprit.

Il a pris sa retraite: ce n’est pas sans tristesse que nous prenons conscience, lorsque nous ouvrons le cahier que le New York Times du dimanche consacre aux arts et aux loisirs, qu’il ne nous est plus possible d’y trouver les aperçus lumineux auxquels il nous avait habitués. Le Canada n’a personne qui ait sa stature; aussi sommes-nous aussi perdants que nos amis américains.

Comment voit-il la pléthore de toutes ces années? Le grand Musée d’art Moderne de New York lui semble ne plus être si moderne, en fait, il n’y trouve plus grand-chose de moderne. L’art nord-américain l’a rattrapé et l’a même
approves of Hoving depends upon what one thinks a museum should provide. He is a stimulating figure and, if museums should be exciting places, then Hoving has succeeded overwhelmingly.

Canaday claims that Americans now understand and enjoy art a great deal more than they did thirty years ago — even if only as a result of exposure. Since the Second World War, American museums have grown at an astounding rate across the country. "There has never been a country anywhere like this country today. What we were calling a culture boom in 1959 has become, in 1976, a deep-rooted cultural growth that has yet to come into full flower." He ends, "all the work and all the money... has enriched American life to an extent that reduces the dross of the art world... to inconsequence".

Here in Canada, we are some twenty years behind — except perhaps in government financial aid. However, the aid has not been available long enough to be fully felt. Our museums and galleries, perhaps under the shock of at least having a little money, seem to have become a little dull — though not, one hastens to add, without their own peculiar form of controversy! We have lessons to learn from the United States, and I hope it is not too late to learn them. In art, as in other fields, you get what you pay for — no more, no less. We have not yet learned to invest enough. Anyway, I am certain we have not heard the last from John Canaday.

Peter Swann

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1. The tall case is for large, flat objects, including textiles, for which two rounded, cloth-covered bars are provided, adjustable to various heights. The tall case is finished inside with Dynatex, an inert woven fabric, glued to Homasote softboard, which allows for pinning.
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width: 60" (152.4 cm)
depth at bottom: 8" (narrowest part)
(20.3 cm)
The tall case is lit by two cool-white fluorescent lights.

Figure 1. Masonite floor-plan layout models; one for every component in each client's collection. Using these full-scale models makes it easy to decide on any change in the arrangement of the cases and columns before setting them in place

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Figure 2. A deep case sitting on the lift-table. Clients buying more than one or two cases should consider investing in this specially-designed lift-table, which when not in use can fold to about 14" high.

Figure 3. Window-support in place; simple and easy to handle.
Figure 4. The virtually unpickable Abloy lock and its key.

Figure 5. Two deep cases at right angles to one another, both attached to a right-angle column, but facing in different directions. Cases can face either way, the attachment is the same. Backs of the cases can be used for graphics; self-sticking velcro tape is used along the top and bottom edges.

Figure 6. Interior of a deep case, showing the moveable liners on its back, sides, and floor.
Figure 7. Interior of a tall case: textiles hang over moveable bars on two levels, and at two depths. Bars can be removed, if material other than textiles is planned.

Figure 8. Deep case on the left showing a graphic on its back. Tall case facing forward on the right. To the far left, a decorative panel is screwed to the column.
2. The deep case is for three-dimensional objects. It is finished inside with a neutral plasticised wallpaper, adhered to the inside body of the case. Special provision has been made for the attachment of demountable liners, designed to furnish the desired background in harmony with a particular exhibit. Dimensions inside: height: 29" (73.6 cm) width: 61" (155 cm) depth at bottom: 22" (narrowest part) (55.9 cm)

The deep case is lit by three cool-white fluorescent lights.

COLUMNS
1. All columns are 7" high (2m10), of welded steel framing with carpet covering over plywood.
2. There are three shapes: right angled, 45° angled, parallel.
3. All three shapes are finished in the same way with very durable carpet in a warm neutral colour: dark brown, chosen because it does not draw attention to itself; exhibits should feature the object, not the case.
4. Graphics can be screwed to the columns in any face which is not used to carry a case.
5. Electric current is introduced through the columns to the cases; the columns are connected to an electrical outlet either at floor or ceiling level. With a minor modification baseboard outlets can be used also.

LEAFLET RACKS
Simple racks to carry printed information offered free, such as the leaflets provided with all R.O.M. exhibits, can be obtained for attachment to a column.

FEATURES
1. Ultra-violet light control
   a) Each fluorescent tube is provided with an ultra-violet (U-V) absorbing plastic sleeve, which screens approximately 80% of the U-V rays coming from the lights.
   b) A flat panel of U-V absorbing plastic is installed between objects in the case and the lights. This screens approximately 70% of the remaining U-V rays from the light coming from the fluorescent tubes.
   c) The front window glass is of the laminated 1/4" (6mm) U-V absorbing type, which screens about 99% of the U-V rays from the ambient light in the exhibit area.

2. Heat control
   a) The ballasts for the fluorescent lights are mounted outside the case on the side wall between the flanges by which the case is attached to the columns. This provides a space open at top and bottom so that air freely circulates around the ballasts and carries their heat away.
   b) Without their ballasts, the fluorescent lights above the case heat the space very much less.
   c) Seven air vents in the top of the case help to dissipate heat.

3. Dust-proofing
   a) All apertures are sealed using neoprene foam-rubber gaskets.
   b) Seven ventilators in the top of each case provide for the expansion and contraction of the air within the case, filtering out the dust.

4. Moisture Control
   a) There is a second bottom under the display area for trays of moisture-absorbing silica gel.

b) Two grilles installed in the floor of each case allow circulation of air over the silica gel below. This tray area has three coats of polyurethane to eliminate the moisture absorption of the wood.

5. Security Control
   a) The window-frames are hinged to the case along the top, and screwed all around with stainless steel Phillips' head screws.
   b) In the middle of the bottom of each frame, a keeper falls into an Abloy lock, which is virtually unpickable.
   c) The window-glass is of the laminated 1/4" (6mm) U-V absorbing type, which cracks but does not shatter upon severe impact.

6. Proportions and Flexibility
   Practical and aesthetic considerations have been worked together in the design of the system. Height, depth, width of cases, height and size of columns, distance of the bottom of the case from the floor, were all chosen with two main points in mind: (1) the most space for objects within the case consistent with reasonable restrictions of weight, and (2) aesthetics.

   The system provides a handsome yet essentially unobtrusive setting for a great variety of objects. Neutral colours of brown were chosen for housing both cases and columns because this colour gives the greatest freedom to the designer of specific exhibitions while at the same time maintaining a warm and welcoming ambiance.

   The system can be arranged in various configurations not only to accommodate areas of different shapes, but to allow for changes in floor-plan and traffic patterns at all sites. By changing the arrangement of the cases, different lay-outs can be designed when the exhibits are changed. The exhibit area need not be a static space that always looks the same.

7. Lighting
   a) To prevent heat build-up inside the case, the ballasts are mounted on the outside wall of the case, yet unseen.
   b) Over the U-V absorbing plastic panel which forms the ceiling of the case inside is mounted a parabolic mirror-reflector grille. This ensures greatest use of the light, control of glare, and an even distribution of the light throughout the case.
   c) A reserve fluorescent tube is provided, mounted together with those which are connected.
   d) The area where the tube lights are installed has two coats of reflecting white paint.
   e) Electric current is supplied to the cases through the columns. Full directions are provided with every case which clearly explain how to plug the cases into the circuit. The wiring is Ontario Hydro approved, and cannot be damaged if mistakes are made in connections between cases and columns.

8. Other Features
   a) The window on the front of the case is sloped in from top to bottom. This minimizes reflections, and thus avoids distractions.
   b) The cases are clad with Kynex, an extremely tough material which is coloured right through, and thus does not show scratches.

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NATURAL HISTORY MUSEUM SERVICES TO THE UNIVERSITY

LOUISE S. STEVENSON
REDPATH MUSEUM,McGILL UNIVERSITY

RÉSUMÉ
Les musées tiennent une place spéciale dans l’enrichissement de l’éducation universitaire, et les musées d’histoire naturelle ont depuis leur création rendu d’importants services dans l’éducation supérieure. Les musées peuvent fournir aux ministères d’éducation des spécimens nombreux et rares auxquels ils n’auraient pas accès autrement. Ils sont également capables de présenter des expositions spéciales pour illustrer d’importants concepts; ceci grâce à leur collections. Ces collections préservées par des conservateurs consciencieux sont à la disposition des étudiants et des enseignants de l’université.

L’auteur offre ici une série d’exemples de l’aide qu’ont apportées divers musées d’histoire naturelle.
The museum exists to serve those who can benefit from what it has to offer, and natural history museums since their inception have been excellent examples of this. The Annual Report for 1889 of a newly established Canadian museum expressed the hope that the museum collections would be an integral part of the university teaching, "besides being of essential service to the public generally and to scientific visitors who may visit the city."

In the development of natural history museums since the nineteenth century, the "scientific visitor" has come to be well looked after by the scientific and research staff of the museum. Such visits are certainly much more numerous in this day of improved transportation, and scientists usually come prepared with knowledge of what they want to see and with a background of prior correspondence with the appropriate curator. The "public generally" is also well taken care of, as museums are increasingly tax-supported and the public visitor takes a proprietary interest in what is, indeed, his own institution. But in many museums there is the danger that the valuable assistance they have to offer may be overlooked by the universities, even those whose campuses they share.

Yet museums are in a unique position to enrich university teaching at both the college and the advanced level. This is true for all museums and not just those attached to institutions of higher education.

To begin with, the most obvious feature of most natural history museums is the extremely large specimen: few university departments have the space for a mounted giant gorilla, an elephant, the skeleton of a dinosaur, a large whale, a giant Pleistocene mammal, or the tree trunk of a mature Sequoia. Yet university students, just as much as children, benefit from the actual presentation of large size in nature. The lecture or reference book may well record the dimensions, but the actual confrontation with large size gives a much more vivid picture of the dimensions of large biological specimens, both plants and animals.

Although nearly all museum curators feel they are cramped for space, they generally have more room for display than the teaching departments because the buildings or special museum areas were constructed with exhibits in mind. Thus when a mineralogy class is studying quartz, the students are seeing typical examples of the mineral in the lecture and laboratory, but it is probably only in the museum that the full range of varieties of colour, crystal form and modes of occurrence can be shown in a complete and satisfying way.

Beautiful crystal groups from Dauphiné, France, smoky quartz crystals from the central Alps, rose quartz from Maine and amethyst from Brazil, seen in a museum, give new meaning to a common mineral. Such a display as the travelling exhibit, Quartz, arranged for the Royal Ontario Museum by R.I. Galt, has permitted students in many centres to see rare quartz specimens which are far beyond the resources of the average geology department.

Again, bird skins that may be handled are valuable for study in the ornithology laboratory, but a diorama showing well-mounted specimens in characteristic poses and in an appropriate environment gives a better picture of birds as living beings.

At Redpath Museum we have constructed a number of exhibits for specific courses in answer to requests from professors who wished to illustrate certain concepts for which our museum specimens were particularly appropriate. We were able to use our very good collection of fossil plants to illustrate important evolutionary trends in the development of plants, a subject not well known by most biology students and not broadly illustrated in the average botany laboratory.

Figure 1. Portion of an exhibit on the evolution of fish using both fossil and modern specimens (Redpath Museum)
Similarly, exhibits were designed to show diversity of forms in invertebrate phyla, and to illustrate the evolution of fish (fig. 1).

Joggins, Nova Scotia, is the locale of a unique Carboniferous coal deposit, where miners found small bones of the earliest land animals, entombed in tree stumps some 250 million years ago. A set of sketches showing the little animals “in action” served to bring to life the rather drab bones and dark plant fossils of a museum exhibit, and the imagination was stimulated by the fact that the exhibit indeed showed the actual bones collected in the mine, not facsimiles but the “real thing”. This has been incorporated into an overall exhibit, The Development of Organisms, and has been enjoyed by many students in addition to the ones for whom it was intended.

Nearly every museum with geology exhibits devotes some space to local geology, and the University of Waterloo has some good examples of this in a special biology/geology museum jointly sponsored by the two departments. This museum is particularly successful in its use of a relatively small area to show a number of interesting exhibits. Quaternary Fossils of the Waterloo Area tackles effectively the problem of illustrating mastodons and mammoths in a very restricted space.

The geology departmental museum at Université Laval, Quebec, is an excellent example of a geological museum arranged primarily for students in universities and colleges. The palaeontology section is outstanding for a fine explanatory display of brachiopods, important fossil shells found in the Québec area. Even those not studying palaeontology are impressed with the many variations in nature of a single kind of animal that lived in their neighbourhood long ago. An adjacent display shows modern corals compared to the fossil corals found in the rocks of the Québec area (fig. 2). The Laval museum also displays the oldest mineral collection in Canada, the minerals given by Abbé René Just Haury to the Séminaire de Québec in 1816. To students of mineralogy and the history of science, study of the actual minerals selected by Haury at the time he was elevating mineralogy to the rank of a science is a memorable experience.

An Early Record of Marine Pollution is the title of an unusual exhibit in the museum section of the Science Complex of the University of Durham, England. This shows a large slab of the Permian muri slate which was deposited some 240 million years ago in the Durham area. This slab contains a complete specimen of the fish, Palaeoniscus, with an arched back indicating death owing to poisoning. Nearby in the rock there is a cavity infilled with crystals of sphalerite (zinc sulphide) and other metallic minerals showing the high concentrations of poisonous heavy metals in the deposit. A sudden influx of heavy metals into the sea appears to have exceeded the toxic limit for these fish. Such an exhibit is appropriate for both biology and geology students, and also shows those particularly interested in pollution that these problems are indeed very old, and not unique to the present day (fig. 3).

Anthropology and archaeology classes are especially enhanced by using museum resources. Size is again a factor, since large totem poles and Northwest Indian war canoes can seldom be accommodated in a classroom. Likewise the fragility of such specimens as antique textiles and baskets makes it necessary that they be placed in good museum cases where they can be seen without being handled. Even such a relatively durable specimen as a Noh mask, used in the Japanese theatre in reenactments of the tragedies of feudal Japan, includes fragile parts that preclude its being handled in the classroom.

Art students frequently find inspiration in specimens of natural history museums, and classes are often scheduled in their galleries. With suggestions from the instructor or students, the curator can usually arrange to remove from storage specially desired specimens not already on display. Art students often end a session drawing or painting a specimen quite different from the one that had first interested them; the museum experience has obviously been a broadening one.
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Outdoor field trips are important features of many natural history courses, but no area is so fortunate as to have examples of all the varieties of nature to be illustrated. Furthermore, climatic features make outdoor work impossible during much of the university term; the rock outcrops are covered with ice and snow in many parts of Canada, and the birds have migrated to winter grounds. Hence a field trip to a museum may provide a very useful alternative to outdoor study.

However, in order that full advantage be taken of special museum exhibits, it is essential that students be given specific incentives to visit the museum. If a class is simply told that an exhibit for the course is on display in the museum, experience has shown that only a few keen students actually bestir themselves to visit the exhibit on their own. Strongly recommended is a visit by the class during a regular laboratory period under the guidance of the demonstrator, with the assistance of a museum specialist. It is also helpful if the professor let it be known that a portion of the final examination will relate to concepts illustrated by museum exhibits. If it is impossible to schedule regular class time for museum viewing, an alternative is to assign exercises, such as the drawing of certain specimens to be handed in with the laboratory work. In this way the exhibit becomes a serious part of the course and not just a pleasant extra, available if time permits.

Further, the museum serves as an institution for safekeeping of valuable research materials, and making them available when needed by graduate students or staff. Many disciplines, such as vertebrate paleontology and archaeology, rely largely on museum collections for their research materials, and good reference collections are important adjuncts to research in such fields as mineralogy and malacology. Yet a research collection is only as useful as the care it receives. The museum must meet its responsibility to improve and conserve its research collections, and keep them constantly available under the care of a conscientious curator.

Museum curators should keep in mind that their services to the university are vital and distinctive only when they relate to the specimens themselves. What we have to offer is the museum specimen: the unique, the irreplaceable, the "real thing".

FOOTNOTES

EDITOR’S NOTE
The author is presently Curator of Geology at the Redpath Museum, McGill University, since 1957. Previously she was a researcher for the United States Weather Bureau and a Lecturer at the University of Victoria. She is a Fellow of the Geological Association of Canada and a member of several other scientific associations.
SO YOU WANT TO PUBLISH
A NEWSLETTER

RÉSUMÉ
Avant de publier un bulletin de nouvelles, il faut apprendre le langage propre à l'imprimerie et se familiariser avec les diverses étapes des négociations avec l'imprimeur. Il est essentiel d'avoir avec lui de bonnes relations et d'adopter des méthodes d'affaires valables. Voici une analyse détaillée de chacune des étapes en question ainsi que quelques moyens de résoudre des problèmes fondamentaux.

GARY J. SIROIS
CANADIAN MUSEUMS ASSOCIATION

EDITOR'S NOTE
Any questions concerning the publishing and printing of museum publications will be answered by the editor of gazette. Please address all correspondence to:
The Editor,
Canadian Museums Association
331 Cooper Street, Suite 400,
Ottawa, Ontario,
K2P 0G5
One of the most common publications in the museum field today is the newsletter or bulletin. It can be published in a variety of ways: quick printing (repograph), office copying (xerography), or offset lithography, the latter being the method most commonly used by a commercial printing firm.

DEALING WITH A PRINTER

In order to do business with a printing firm, you must remember that the salesmen of these companies speak a technical language that is not too common outside that field. Therefore, it is almost necessary for you to speak that same language so that the salesmen completely understand what your needs are. There are many excellent books available to help you learn the basics of printing terminology. My personal favorite is Pocket Pal published by the International Paper Company. It is written for the layman and also includes a basic dictionary of printing and graphic arts terms. Another excellent but more durable publication, which can be used on-the-job is Graphics Master. It contains several very useful materials including a copy ruler, a copy-fitting chart and a proportional scale for enlarging or reducing photographs, known as halftones. You must also have a graphics ruler.

Once you have learned and hopefully mastered printing terms, your next step is to invite several salesmen to visit you, in order to discuss your needs. Some museums are located in small rural communities where the only printer is the local weekly newspaper. Your dealings with that weekly can develop into a good symbiotic relationship, in other words, he scratches your back, and you scratch his. Please remember that editors of small weeklies are almost always looking for local news items in order to fill the spaces not taken up by the advertisements, comics, and sports pages. Your museum's news can be very important to him. However, you can bet that he will expect you to deal exclusively with him when it comes to printing your newsletter or other publications.

For those museums in larger communities where several printing firms are competing for your business, you should investigate several firms. After discussing your immediate and future needs, present them with a general specifications sheet so that they may quote on it. When all the quotations have arrived, compare them and ascertain which company can best do the job at the best possible price. You will probably be surprised at the discrepancies in price range. The next step is to visit these companies in order to find out if they have the physical plant capable of producing your publication. Some companies do not have the complete physical plant to produce your newsletter; yet they will still accept your business and then farm it out to another printer. Naturally, they will charge you an additional 10% handling charge, an increase which you can ill afford.

THE PRINTING PLANT

Here are the following services you should look for, and by all means do visit the plant; you might even get a free lunch:

1) Typesetting facilities (if you use typesetting). For those who can afford typesetting, be certain that the company you are dealing with has the proper facilities. Otherwise, he will farm out the typesetting and then charge you the 10% handling charge. There are many typesetting methods available: hot type, cold type, phototypesetting, etc. Phototypesetting is the most common method used in conjunction with offset lithography.

2) Offset duplicators or offset lithography presses capable of handling the physical size and volume which you require. One of the best offset duplicators on the market is the Xerox 9200. It makes paper plates of your copy rather than metal plates and is therefore cheaper and faster. However, it does have certain limitations, or offset lithography, the latter being the method most commonly used by a commercial printing firm.

3) Collating and folding machines. Most presses use large sheets of paper on which several pages can be printed. These sheets are then cut to size, collated and folded. If your printer does not have these machines and must therefore farm out the work, gross errors can occur.

4) Bindery machines. The most common binding method used for newsletters is a simple staple in the upper left-hand corner. Another method is saddle stitching (used by museums). The most expensive method is perfect binding which uses three to six millimeters of glue to bind the individual pages.

5) Mail-out facilities. If necessary, if you do not have the room or the staff to do a mail-out, it may be worthwhile to use a printer with such a facility. Their machinery will automatically stuff envelopes, seal them, affix postage and bundle the packages for delivery to the Post Office.

Once you have chosen a printer, be very careful that your dealings with him are always business-like. Printing companies are in business to make a profit, and they will almost always try to deliver the product on their terms and at their price, unless you know exactly what you want, and what to expect of them. Make sure that the product he delivers fits your specifications exactly and at the price quoted by him. Be firm! Don't accept delivery if the publication is not printed according to your specifications. Have the company re-print it according to specifications. However, if you must have the publication, even in its unacceptable form, because of deadlines or some time element, then tell him you will only accept it as is, if he gives you a 25% discount. Then instruct him that if he does not follow your specifications to the letter the next time he prints your publication, you will take your business elsewhere. Be firm! Be business-like! But stay cool! And do carry out your threats of doing business elsewhere.

THE SPECIFICATIONS SHEET

In order to avoid mistakes, you must be positive that your specifications sheet is correct and suits your requirements. Always prepare a typewritten specifications sheet for every job to be printed. Here are some general rules of thumb:

1) State the name of the publication and the address to which it is to be delivered. This is important because in case a printer delivers a bad printing job, he can simply say that he confused your specifications with someone else's. Likewise, if he delivers it late, he can say that he did not know where to deliver the job.

2) State the physical size of your publication. The standard size is 8 1/2" x 11" (21.5 cm x 28 cm). If your publication is to be saddle stitched, then necessarily the sheet of paper must be folded in half vertically. Therefore the size of the paper is 11" x 17" (28 cm x 43 cm). Paper can also come in larger sheets. Many other sizes for your newsletter are available, such as 8" x 5", 9" x 6", 8 1/2" x 14". Ascertain with the help of your printer, which size best suits your needs.

3) State the number of pages. A folded sheet of paper contains four printed pages. Once you have determined the physical size of the publication, you then fit the copy to size. That should tell you how many pages. If the publication does not have a separate cover, state that it is self-cover.

4) State the number of copies required. You must know the size of your readership. Don't guess. Count it. Your printer...
will almost always deliver more copies than you ask for. Make sure he delivers more or no less than 10% the number required. Therefore if you require 500 copies, he should deliver no more than 550 copies and no less than 450. It is always good to tell the printer not to underprint the number stated.

9) **State the name of the paper stock you require as well as the type of paper such as Century opaque, Centura 1001, and Rolland #1 offset are very white and therefore give an extremely clean copy, especially if you use black ink. It also gives a mat finish so that the photographs will reproduce very clearly, as well there is very little glare from light when your reader is leafing through it. Of course if you prefer a glossy finish you will get better high contrast in your photographs, but the cost of this type of paper is higher than the mat finished papers. The weight of the sheet of paper is very important. The standard weight for paper which is to be printed on both sides is 120M. It does not allow the ink printed on one side to penetrate the paper to the other side. Naturally, heavier paper stocks such as 140M, 160M and 180M are heavier and thicker, therefore more costly to purchase and to mail. Conversely, lighter paper is thinner and less expensive. You must determine your own criteria before selecting the finish and weight of your paper stock. Again your salesman or printer can help you by showing you paper samples and stating the tolerances of each.

6) **State the color or colours of ink required.** Most newsletters are printed with black ink on white paper. But coloured inks on coloured paper can give a very beautiful effect. Naturally coloured paper stock is much more expensive than white, but the cost of using one colour ink such as brown is only about $8.00 more than using black ink. The extra charge (known as a wash-up charge) is for washing the drums of the printing press after your job is completed. If you use two colour inks, e.g. black and brown, your cost will increase significantly because the paper must pass through the press twice in order to print the black areas, and then the brown areas. Average cost is about $55.00 for every four pages (signature) printed on one side, and $250.00 per signature printed on both sides. If you must have colour, ascertain whether it is cheaper to print on coloured stock with a coloured ink, than to print on white paper with two coloured inks. Larger press runs are much more costly if you use more than one ink colour. The cost difference can be very significant.

7) **State the kind of binding you require.** Most newsletters which have more than four pages are saddle stitched. For instance a four page issue will only be folded in half and does not require saddle stitching. A six page issue can be printed on a sheet of paper measuring 11” x 17” (28 cm x 43 cm) paper, folded in half, and vertically stapled in the middle. This latter process is known as saddle stitching. You may prefer to use perfect binding.

8) **State the number of photographs (known as halftones) and line drawings.** Based on the number and sizes to be used, the printer must estimate what the cost of these will be, because he must use special photographic materials. The usual cost of printing halftones is $4.50 to $5.50 each.

9) **State the number of reverses and screens which you require.** Again based on the number and sizes, the printer must quote a price for each. A reverse is simply a surface in which the parts or printing that are usually black or coloured are reversed, so as to appear white or the colour of the paper stock. This creates a very beautiful effect and only costs about $5.00 to $6.00 each. A screen is simply a reduction of the colour of your solid ink in order to create shades of the original colour. This can also create a very beautiful effect and the cost is usually $5.00 to $6.00 each. There are other special effects which can be used, but they are rather expensive.

10) **State the delivery date.** You must ascertain with the help of your printer how long it will take him from the time you give him your final copy, to the time he will deliver the final product. Usually, if typesetting is involved, the time element is four to six weeks.

11) **If your publication is tax exempted, provide copies of the letters you have received from the provincial and federal governments.** If your institution is a non-profit or educational institution, or if it is a charity, or if it is a charitable or educational organization, you may apply for tax exemption from the federal Excise Tax by writing to Revenue Canada, Customs and Excise Branch or your regional office; you may also apply for exemption from provincial sales tax by writing to the Retail Sales Tax Branch in your province. The saving, if you are exempt, is 12% federal tax; and 7% in Prince Edward Island, Ontario and British Columbia; 5% in Manitoba and Saskatchewan; 6% in Quebec, New Brunswick and Nova Scotia; 10% in Newfoundland. There is no provincial sales tax in Alberta.

### PREPARING AND MARKING COPY

The next step is preparing and marking your copy for typesetting. A very useful aid is a Marking and Correcting Copy published by the A.A.S.L.H. as a technical leaflet. After your copy has been typed, it must be proofread by two people; make any and all corrections necessary by using a standard proofreader's marks available from your printer. If there are any errors, then re-type the page. Second, count the number of lines of type in order to ascertain the length in pages that the typeset version will take. (Refer to Pocket Pal, Graphics Master or a copy-fitting chart for help.) Third, mark each page of copy in pencil, indicating the number of lines, and any corrections in addition to a plus (to be of help) and the size and name of the font desired. (Both Pocket Pal and Graphics Master list a large selection of fonts to choose from; but first, ask your printer what fonts he has in stock for typesetting.) You then mark each page of your copy in pencil with the size and font that is standard for that page. Any type which is not standard, should also be marked accordingly.

### PROOFS AND BLUEPRINTS

When you are satisfied that your copy is without error and correctly marked, hand over the copy for typesetting. About one week later, the printer will return with galley proofs. (These are photocopies of the actual typesetting.) These should be proofread by two people and marked for errors, again using standard proofreaders marks. A system which has proven to be successful is to mark all typesetting errors in red ink, and any other errors or corrections (known as author's alterations) in blue. Remember that author's alterations cost you money, but typesetting errors do not. That is why you must be certain that your prepared copy is totally free of errors.

The next step is known as the dummy paste-up. The preferred way is to make a photocopy of the galley proofs (ask your printer to give you two sets of galley proofs) and cut it up, and paste it with the help of glue onto a dummy sheet of paper which is already squared off with the length and width of the columns to be used. Size all photographs and line drawings that are to be included; enlarging and reducing photographs can be done mechanically, mathematically or with the help of a proportional scale. Then make a photocopy of the finished paste-up dummy and mark it with all the corrections that you made on the original galley proofs. Retain this photocopy with the corrections so that you can verify that all the corrections which you made as well as the lay out is followed by the printer when he brings you a second set of proofs.

This stage is known as the page proof stage. All the errors which you marked at the galley proof stage should be
corrected; the pages should be in order and right side up. Verify against your photocopy of the dummy. Remember, economically speaking, this is the last chance you will have to make any author’s alterations. Correct any errors, and make a photocopy of the printer’s page proofs. Retain the photocopy in order to check it against the next stage. Return the printer’s copy with marked corrections.

The final stage is called the blueprint or blueline stage. Author’s alterations can still be made at this stage but they are very expensive because the printer has already made negatives and pasted them up; from there he will make plates. Each metal plate, depending on the size, can be worth $25.00 or more. However, do correct any errors made by the printer. If there are a great number of errors, demand a second blueprint. It is better to take a little more time and wait for the second blueprint, than to give the olay a mess.

THE FINAL PRODUCT

About one week later, you should receive the printed publication. Before accepting delivery, check the packing slip. It should state the number of copies delivered; be certain that they have delivered the number specified, within 10% of course. Then check a random copy of the publication to see if it is what you asked for. Any major discrepancies should immediately be mentioned to the salesman. It is up to you then to accept or reject delivery.

During the course of your dealings with a printer, you might come across an ethical situation. I am not saying that a printing company will offer you a bribe, but it has been known to happen. There are also more subtle ways, which have become accepted practice in business. Psychologically, the printer is playing on your emotions by offering you bottles of liquor at Christmas, free tickets to concerts, football or hockey games, free dinners, etc. Of course, these statements are not meant to set any ethical standards, nor judge the ethical performance of museum people who deal with the business community. It should be pointed out however, that mind games are part of business affairs.

CONCLUSION

The last point to be discussed is continuing relations with a printer. It has already been mentioned that you should be firm and business-like. But also be diplomatic because a time might come when your regular printer can no longer service your account to your satisfaction. At that point, you will want your options open to deal with another printer. A good example of outstanding relations with a printer is as follows. Early in the spring of 1975, the C.M.A. wanted to produce its first book list. The specifications called for peach coloured stock with brown ink. About one week before it was to go to press, the salesman called to inform us, that due to a strike at the paper companies, the peach coloured stock was not available. We then chose to publish on a red coloured stock with black ink and indicated so in writing to the salesman. And do you know what was delivered? Peach and brown instead of red and black. As soon as the shipment arrived, we called the salesman to inform him of the error. He told us that they finally were able to get their hands on some peach coloured stock, and since that was what we originally ordered, they did not think we would object. Too bad we said. We want red and black. They offered us a 25% discount if we accepted delivery on the peach and brown. No, we said, repriming it according to revised specifications. The salesman apologized, and two days later, we received three thousand copies of red and black.

The moral of the story is that by standing by your guns, the company and its salesman will realize that you mean business. If you let them force you to accept an inferior product even at a discount, the gate will be open for them to walk all over you. Eventually, they will somehow make sufficient profit to cover the loss on the discount which they gave you. That is why you should have various firms bid on each job. If, however, you have a regular newsletter, let us say a monthly, it might be better for your sanity to let one printer handle the job on a continuing basis. However, be certain at the time you select the firm that it is reliable and trustworthy.

FOOTNOTES

1. Pocket Pal is available at a cost of $2.00 each from the International Paper Company.
2. Graphics Master is available at a cost of $35.00 each from Dean Lem Associates, P.O. Box 46086, Los Angeles, California, 90046.
3. You may also purchase a copy ruler, copy-fitting chart and a proportional scale from Corcom, P.O. Box 1372, Station B, Ottawa, Ontario, K1P 5R4. The cost is $28.98.
4. One of the best graphics rulers is the Copy-Caster available for $2.00 or $3.00 from any commercial art supply firm.
5. Available from the Canadian Museums Association, 331 Cooper Street, Suite 400, Ottawa, Ontario, K2P 0G5. The cost is $5.00 each for members and $7.50 each for non-members.
6. Do not use cement glue or other toxic glues. It is recommended that you use an instant adhesive such as "Glue Stic".

BIBLIOGRAPHY/BIBLIOGRAPHIE

APPENDIX I

Specifications

name of publication: museogramme
deliver to: 331 Cooper Street, Suite 400
number of pages: 12, self-cover
number of copies required: 2500
size of publication: 11" x 17", folded to 8½" x 11"
paper stock: Century opaque, 120M
typesetting: to be done by printer
ink: black throughout
bindery: saddle stitched
number of halftones: 3
press: offset
delivery date: 4 weeks from day of delivery of copy to printer
Other instructions: Please quote on these specifications. We understand that any author's alterations in the above specifications will necessitate a change in the price quoted.
tax exempt: see attached exemption forms

EDITOR'S NOTE

The author is Publications Editor for the Canadian Museums Association. For the last eight years, he has been an editor of several periodicals in the cultural field.
GUIDELINES FOR
CATALOGUING MILITARY
UNIFORMS

DAVID ROSS
DIRECTOR
NEW BRUNSWICK MUSEUM

RENÉ CHARTRAND
MILITARY CURATOR
PARKS CANADA
RÉSUMÉ

Cet article est destiné à aider les musées dans le catalogage des uniformes militaires. En présentant un glossaire illustré de terminologie relative aux uniformes militaires, les auteurs visent à standardiser les descriptions de catalogue.

ACKNOWLEDGEMENTS

The information presented in this paper has been obtained from many sources. Between them the writers have been in the employ of the following institutions at various times and would like to thank their Directors for access to their collections and for their support of research in the field of Canadian military dress:

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The Provincial Museum and Archives of Alberta, Edmonton, Alta.
  Director, Mr. Bruce McCordquade and former Director, Mr. Raymond Harrison
The Glenbow-Alberta Institute, Calgary, Alta.
  Director, Mr. Allan Hammond
The Royal Canadian Engineers Museum, Chilliwack, B.C.
  Director, Major A. Milten, R.C.E. ret’d.

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The Army Museum, Halifax, N.S.
  Director, Capt. C.A. Holt, ret’d.
The R.C.M.P. Museum, Regina, Sask.
  Director, Mr. Malcolm Wake
The Canadian War Museum, Ottawa, Ont.
  Chief Curator, Mr. Lee Murray

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EDITOR’S NOTE

Montréal born René Chartrand came from advertising to the study of military history. He is currently Military Curator in the Interpretation Division of Parks Canada, and a Fellow and Governor of the Company of Military Historians.

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INTRODUCTION

This paper makes only modest claims and probably has much to be modest about. It is intended to assist the museum worker, who is not familiar with the intricacies of military dress, to catalogue uniforms. It is hoped that it will introduce the catalogue to the standard vocabulary of military dress terms, and perhaps ensure some standardization of catalogue descriptions.

It is a sad and illogical fact of the Canadian museum world that military uniforms are not considered to be part of the textile or clothing collection of the general history museum. It is sad, because there is a wealth of social history to be illustrated by uniforms. During the nineteenth century, men living literally in the backwoods of Canada, sent to London tailors for elaborate military uniforms, correct in every detail of the Imperial Army regulations. This is surely a clue to the status of the militia officer and even the private in Canadian society, worthy of investigation by the social historian. The Militia Department was the engine of patronage of the party in power from the very early days until well into the twentieth century. One that worked very efficiently, with many varied inducements to offer, from impressive military titles to clothing contracts. For a detailed picture, those interested should read Dr. Desmond Morton's Ministers and Generals: Politics and the Canadian Militia. For an example of the militia as a ladder of social and professional advancement see also the same writer's life of General Sir William Otter, The Canadian General.

This neglect of uniforms is illogical because they were common wear prior to 1914 and mess kit could still be seen at socially important functions well into the 1950's. Canada's militia was a citizen soldier army, so it is strange that the textile curator should treasure the frock coat but ignore the uniform worn by the same man.

To the outsider, military uniforms may seem very complex because of the great variety of buttons, colours, badges and braid which occur. But the distinguishing marks are all carefully and logically designed to provide evidence as to the rank and service of the wearer.

It is hoped that this paper will assist the textile curator and catalogue to overcome the invisible barriers which at present exist between uniforms and civilian clothing and arouse their curiosity about an intensely interesting field.

The writers hope that the expert reading this will forgive the obvious simplifications, comment on the content and suggest additions or corrections. Such help would be sincerely appreciated.

GUIDELINES

The museum catalogue entry consists of three principal parts:
1. the name of the artifact;
2. a physical description;
3. the artifacts' historical use and function.

These guidelines deal with the first two parts. The physical description should include name or identity of the artifact is based. The catalogue should be modest enough to realize that errors of judgement can be made in identifying a uniform, therefore a detailed description either written or photographic, should be available so that others can make a judgement of their own as to the validity of the catalogue's decision.

Canadian uniforms closely follow the patterns of the Imperial Army. These guidelines should be supplemented by referring to the Official Dress Regulations. The following are the most readily available:


Dress Regulations for the Officers of the Canadian Militia 1907: Copies are available for consultation at the Directorate of History, National Defence Headquarters, Ottawa; at the Base Library, CFB Chilliwack, Chilliwack, B.C. and in the library of the Manitoba Museum of Man and Nature, 190 Rupert Ave., Winnipeg, Man.

(The writers of this paper hope to publish shortly a facsimile edition of this book with additional photographs and an appendix containing the significant additions and amendments up to 1914.)

For the best and most complete coverage of the varieties and changes of British military dress, cataloguers should consult:


Another publication of value is the pattern book of the London military tailor, T.H. Holding, from which some of the figures in this paper are derived:


The following books by Mr. A.H. Bowing, published by Airmark Publishing Co. Ltd., 270 Burlington Road, New Malden, Surrey, England are also helpful:

British Infantry Uniforms 1660-1914
Scottish Regiments and Uniforms 1660-1914
British Hussar Regiments 1605-1914

GENERAL

It is essential that all details of the parts of a military uniform be noted. Small variations are often the only difference between one rank and another, or between one unit's uniform and another.

A uniform consists of a number of items. The catalogue entry should carefully list the parts in the museum's collection, i.e. rather than just saying "Uniform, full dress, captain, 19th Alberta Dragoons 1968", add "(spurs, helmet, tunic, waistbelt)".

Note also any missing parts of the items which make up the full uniform or item. The inscriptions and symbols on the buttons and badges will often provide the identification of the wearer's unit and rank. Look at these first.

Footwear:

a. Distinguish between riding boots, ankle boots, and shoes.

b. Describe type, lace-up, slip-on, buckled.

c. Specify the duty for which they are worn — combat, riding, lever, with mess kit, etc.

d. Describe colour. Note: After the introduction of Khaki until the green uniforms were issued, say 1900-1965, officers wore brown footware and N.C.O.'s and other ranks wore black, with few exceptions. (In the navy and air force all ranks were black.)

Spurs:

a. Specify type. There were two main types — Box Spurs which clipped to the heel and had no straps, and Jack Spurs which were strapped to the boot with leather and/ or chain straps.

b. Specify metal — usually brass, gilt, silver or nickel plated steel.

c. Describe fittings and note if they are missing.

d. Describe general shape. Is the part (Neck) holding the towel straight or curved?
e. Describe the rowel, spiked or smooth. (Note: rowels were sometimes replaced with a small coin; this can be a help in dating the spur's period of use.)

Trousers:
a. Specify type:
1. Trousers: Leg same width all the way down, wide at cuff.
2. Overalls: Slim leg, tapering to the ankle, usually worn with strap under instep. Used with mess kit or for riding, worn with half Wellington boots and boot spurs.
3. Riding breeches: Flared from the hip to the knee, fastened below the knee with laces or buttons. Worn by cavalry officers and other ranks and by adjutants and field officers of infantry regiments.
4. Pantaloons: A predecessor of riding breeches. Slim leg butting or lacing at the ankle or just below the knee. Worn with riding boots.

b. Specify colour and type of cloth and give details of colour, width and design of seam stripes or piping.

c. Enter full details of all markings, tailor's labels, stamps, etc.
d. Describe buttons and enter maker's name if marked on buttons, (usually on back).
e. Describe fly opening — buttoned, zipper, drop front, etc.

Sashes:
a. Describe material, dimensions and physical appearance.

b. Specify how worn — over shoulder (left or right); around waist.

c. Specify significance. Is it an officer's or an N.C.O.'s? On what occasion and with what type of uniform was it worn? Note: Sashes were worn over the left shoulder by infantry officers. After 1902 it was worn around the waist. Highland, kilted units wore it over the shoulder until the late 1960's. N.C.O.'s (Sergeants and above) wore them over the right shoulder until the late 1960's.

Belts:
a. Specify dimensions, materials used and all attachments for slings and swords.

b. Describe the type of fastening and its decoration in detail.

c. Describe how worn. Most sword belts are worn around the waist, but some over the shoulder (highland regiments). Are they worn over or under the tunic or sash.

d. Specify any component straps, e.g. shoulder straps for Sam Browne.

e. With slings specify how many, and their purpose, e.g. for sword, sabretache, etc.

Pouches and Pouch Belts:
a. Specify dimensions, colours, materials and physical description.

b. Specify type — full dress, undress, etc.

c. Specify what unit they are used by.

d. Specify if officer's or other rank's.

The Tunic:
This is the principal article of military dress and the most important from the viewpoint of the catalogue. From study of the tunic, the following can be determined:

- **Rank:** From the decoration of the cuffs, collar and shoulder straps.
- **Unit:** From the pattern of the buttons, from the colour of the badges and in some cases from badges on the shoulder straps.
- **Career of the owner:** From the medal ribbons on the left breast.
- **Name of the owner:** From the tailor's label or other markings inside.
- **Name of maker and date of manufacture:** From the tailor's label.

The first step is to determine what type of uniform this is: full dress, undress, combat, service dress, frock coat, battle dress, mess kit, etc.

2. Determine the unit to which the wearer belonged.
3. Determine his rank. (Refer to rank badge table).
4. Determine the date.

You then have your artifact name, e.g. "Full dress, Royal Winnipeg Rifles, Captain, 1908."

Details of Tunic:
1. **Collar:** Note colours, type and specific attachment details, and describe badges. Specify if high closed type, or open for collar and tie.
2. **Shoulder straps:** Note colour and type and specify any badges fixed to them.
3. **Cuffs:** Note colours and specify type and placement of lace and braid.
4. **Buttons:** Note placement, describe badges and inscriptions on them, and maker's name on back.
5. **Body of tunic:** Specify colours and details of tailoring, length, waist size and sleeve length. List any medal ribbons and qualification or long service badges.
6. **Inside:** Specify type of lining material, location of pockets and note in full all inscriptions, especially on the tailor's label, usually located inside the interior pocket.

Headdress:
Military headgear is made up of several component parts including chin-strap, plumes, badges, finial spikes, cap lines, etc. Be sure to note if any of these components are missing.

1. Determine what type of uniform the headgear is worn with: full dress, undress, combat, etc.
2. Determine the unit to which the wearer belongs, from badges or special regimental designs.
3. Determine if it is an officer's or other rank's headgear.
4. Determine date.

From this you have your artifact name, e.g. "Full dress Wolseley helmet, Royal Canadian Engineers, Officer, 1914."

Military headgear is strictly codified as to type. Please consult glossary section for identification.

Physical description of headress:
1. Specify the official name. This will save a lot of descriptive detail.
2. Describe badges, plumes, patches, flashes and all regimental distinctions.
3. Note any missing parts.
4. Note any inscriptions inside the headgear.
5. Specify materials, colours, dimensions, especially colour of metal fittings.
GLOSSARY OF TERMS

The task of cataloguing of military uniforms can be greatly simplified by the use of the standard vocabulary which already exists in the Official Dress Regulations. This glossary explains some of the more common terms.

**Adjutant:** An appointment not a rank. The chief staff officer of a regiment or battalion. Responsible to the Lieutenant Colonel for discipline and administration of the unit.

**Aiguillettes:** Sometimes known as Shoulder Cords. Decorative cords worn around the arm at the shoulder. Gold aiguillettes are worn on the right shoulder by field marshals. Gold and red ones are worn on the right shoulder by Army HQ Staff, and on the left shoulder by all other staff officers. Most commonly seen when worn by the Aides-de-camp.

**Bearskin:** Headgear worn in full dress by guard’s regiments. Consists of a wicker frame covered with black bear skin with the hair to the outside. Plate 3.

**Bengal Knot:** A pattern of sleeve decoration used by some units of the Indian Army. Not seen in Canada where the Austrian knot decoration was used.

**Belted Plaid:** *(Breacan an-fheòlaich)* Ancient Scottish dress consisting of 12 yards of tartan belted around the waist, half of which was used as a kilt, the rest hung from the left shoulder when not used as a cloak. Replaced by the kilt in second half of 18th century.

**Blanco:** A gritty Khaki coloured compound used mixed with water to coat webbing equipment for parade purposes. A successor to pipeclay.

**Bonnet:** Headgear worn by kilted highland units, usually made of ostrich plumes on a wire or wicker framework with diced border headband. Plate 4.

**Box Spurs:** Spurs which are fitted directly on to the heel of the boot, without straps. Do not confuse with Jack spurs. *(q.v.)* Plate 5.

**Braid:** Cords of gold and silver wire or coloured silk or cotton. Three dimensional. Do not confuse with lace *(q.v.)* which is flat. Used in varying patterns to denote different ranks.

**Breeches:** Fairly tight type of trousers going to the knee and worn with stockings and gaiters. In use from 17th century to 1811. Some British units still had them in Canada in 1813.

**Buff leather:** Type of rough finish leather with a similar texture to brushed suede used for waist belts and equipment straps. Has a faint yellow tinge but outside is pipeclayed or whitened.

**Bullet hole braid:** Continuous line of looped Russia braid on tunic collars and cuffs forming circles about 1/2" in diameter. Used to indicate field rank on full dress uniforms.

**Angola:** A heavy wool fabric used for tunics, in particular officer’s frocks. *(q.v.)*

**Atilla:** A Hussar style tunic. A term used in continental European armies.

**Austrian Knot:** Braided decoration most commonly seen on tunic sleeves. Do not confuse with a crowfoot. Plate 4.

**Badge:** Metallic devise to denote identity of a unit, worn forage cap and tunic collar, from mid 19th century. See also Helmet plate, Shako plate.

**Ball Tuft:** A wool ball about 2-3 inches in diameter worn by all ranks on the top front of the infantry shako. Field Officers and all ranks of Battalion Companies wore two-thirds white and one-third (on bottom) red. Grenadier Companies all white. Light Infantry Companies all green.

**Infantry Officer, full dress 1990**
**Busby:** Headgear of varying shapes, made of fur. Named after Mr. Busby of London, the original maker. Worn by Engineers, Artillery Fusiliers, and Rifles at various periods.

**Buttons:** In the British service, they are plain until 1767 when regimental numbers were ordered to be put on. Usually of pewter for OR’s until 1855 when changed to brass. Gold or silver for officers.

**Cap:** Word usually used in contemporary British records when referring to Shako (q.v.) until mid 19th century. Basically a cap is headgear with a peak instead of a brim.

**Cap badge:** Distinctive badge in unit pattern worn on the cap. Not to be confused with the helmet plate, which consists of a universal pattern plate with the unit badge mounted in the center.

**Cap Lines:** Decorative cord used to attach headgear to the tunic, so that it can be easily retrieved if it falls off. Used in cavalry, rifle regiments, engineers and horse artillery. Looped across the chest in various ways by different units. Though largely decorative, cap lines always retained their original function. Plate 1 & 4.

**Chacko:** See Shako.

**Chain Gimp:** A type of woven braid, most usually seen of hussar pattern officer’s full dress tunic. Also found on the 1876 pattern officer’s full dress scarlet tunic of the N.W.M.P. as shown below.

**Chevron:** V shaped stripe worn on the sleeve to indicate the grades of non-commissioned rank. One for a Lance Corporal, three for a Sergeant, etc.

**Coat:** A general term for a sleeved garment, but used specifically for the full skirted knee-length garment worn by all ranks prior to 1796.

**Coatee:** Pattern of coat for all ranks introduced in 1830, cut away sharply in front and following the style of the civilian tailcoat. Discontinued in 1855.

**Cockade:** A type of rosette or bow usually of leather or cloth attached to hat (q.v.) and shako (q.v.) used for national identity, especially from mid-18th century. Great Britain had black, France white then red, white and blue, Spain red, Netherlands orange, etc. The U.S.A. had black with a small metallic eagle from end of 18th century.

**Cocked Hat:** Headgear worn by Colonels, Generals and Staff Officers in full dress. Best known as the distinctive mark of a General. Of black beaver with gold lace and falling feather plume, the length of which varies according to rank. Feathers white and red for Generals and staff. Black for Medical Staff.

**Collar Badge:** Distinctive badge in unit pattern worn on each side of the tunic collar. Worn near to the front opening on high, closed collar tunic and on the lapel on open collar tunic. Usually, but not always, a smaller version of cap badge. Plate 2.

**Collar Dogs:** Another name for collar badges. (q.v.)

**Crescent:** Part of the shoulder board, (q.v.) a crescent shaped piece of metal, usually silver, gilt or brass.

**Crowsfoot:** Braided decoration in the shape of a trefoil or stylized shamrock. Seen on some infantry tunic sleeves and on some undress tunics. Sometimes called a “crow’s toe”.

**Crow’s Toe:** Another name for “crowsfoot”. (q.v.)

**Cummerbund:** A waist sash worn in the Indian Army. Sometimes worn in an abbreviated form with mess kit by Canadian or Imperial Army Officers.

**Czapska:** Headgear worn by lancers. Term used in continental European armies.

**Doublet:** Tunic worn by Scottish units, with kilt or trews. Plate 4.

**Epaulettes:** Detachable shoulder ornament consisting of a shoulder board with a fringe of tassels hanging down over the outside of the shoulder. Rank of the wearer can be ascertained from the thickness and number of the fringe tassels. Prior to 1830 the fringe tassels hung loose, after 1830 they were boxed,
**Epaulettes:** (Cont'd)

i.e. attached to a rigid backing.

*Officer's cousteau, Queen's New Brunswick Rangers. New Brunswick Museum collection*

**Lieutenant**

**Ensign**

W.Y. Carman

**Facings:** Cloth covering of the collar and cuffs of a full dress tunic. All units have distinctive facing colours. The facing colour also appears on the lapels of some mess jackets. Plate 5.

**Field Officer:** An officer above the rank of Captain but below Brigadier General, i.e. Major, Lieutenant-Colonel and Colonel.

**Flask Cord:** Originally the cord from which the powder flask was suspended, survived in the form of a line of cord in the center of the pouch belt (q.v.) in some regiments such as the British Lifeguards. Rarely seen on Canadian uniforms, but appears in the 1937 full dress of the 19th Alberta Dragoons.

**Forage Cap:** A general term for an undress cap as opposed to full dress headgear. Top: in use 1856-1878. Bottom: in use 1878-1902.

**Frock:** Service dress tunic, usually of wool serge in red or blue introduced in late 19th century as a working or combat tunic for officers and other ranks. High closed collar with two or four outside flap pockets. Plate 7.
Frock Coat: Knee length officer's coat, single or double breasted, with high closed collar or open collar with shawl lapels. Worn on parade occasions which do not require full dress.

Gorget Patches: Oblong patches of cloth with one pointed end, decorated with self coloured braid (colonels and brigadiers and junior staff officers) or gold wine oak leaves (for generals). Worn on the collar of patrol jacket or frock and on the upper lapel of khaki service dress. The distinguishing mark of a staff officer or general. Scarlet for general staff, other colours for people like medical staff were used until 1918.

Frog: Usually, sword frog or bayonet frog. The sleeve-like attachment into which the sword or bayonet is fitted for fastening to the belt.

Full Dress Uniform: Term to denote the most elaborate order of dress, used for special parades and formal occasions. Note that the combat uniform of one era becomes the full dress of the next, as uniforms become simpler and less costly. Therefore it is important to note the date of the pattern of full dress you are referring to.

Gaiters: Protective legwear, buttoning at the side with an instep, usually of linen or wool, in use from beginning of the 18th century to 1823 by British infantry.

Girdle: Waist belt worn by Lancer units. Patterned of horizontal stripes in regimental colours. Worn with the full dress tunic by both officers and other ranks. Fastened by means of metal acorns and cloth loops. Plate 1.

Glengarry: A soft fore and aft pattern cap which originated with Scottish regiments. Became the standard undress or working cap of the Canadian military from 1870 and 1898. Ornamented with the wearer's unit badge and two silk streamers hanging down behind.

Greatcoat: An overcoat worn over the uniform for protection against cold and rain, first issued to O.R.s in British army in 1801. Made of thick grey cloth, later dark blue or khaki.

Gorget: Crescent shaped metal badge, usually of gilt copper, hung around the neck at the throat. The distinguishing mark of an officer on duty until 1830. Derived from the gorget or neck piece of a suit of armour.

Colonel, full dress 1960

Hackle: Plume of feathers or hair worn on the side of the bonnet (q.v.) in Scottish regiments. Plate 4.

Half Wellington boots: Short, ankle length boots, elastic sided, worn with overalls or mess kit trousers.

Hat: Headgear composed of a crown and brim (as opposed to the cap which has a peak) worn by all ranks from 16th century until 1800 in British infantry. Brim could be turned up three sides to make a tricorne (popular until 1780's), or turned up two sides to make a bicorn (from 1780's) or cocked hat (q.v.). The brim's edge of military hats is nearly always laced and a cockade with its loop and button is fixed on the left side.

Helmet: Headgear made of leather or metal worn by some cavalry from mid 18th century, adopted much later by infantry as Home Service Helmet (q.v.). Universal Pattern White helmet (q.v.) and Wolseley Helmet (q.v.). A few cavalry units in Canada have worn the metallic spiked helmet with horsehair plume since the second half of the 19th century.

Helmet Plate: A badge usually in the shape of a star surmounted with a crown, with the unit badge in the center. A
Helmet Plate: (cont’d)
large size affair worn only on a shako (q.v.) or helmet. Plate 2.

Inverness skirts: Name given to the flaps on a highland doublet (tunic) below the waist seam, at sides and rear. Plate 4.

Other ranks doublet

Jack Spurs: Spurs attached to the boot with leather straps, or by a combination of straps and curb chain. Do not confuse with Box Spurs. Plate 7.

Jacket: A general term for a sleeved garment with short skirts, but specifically used for the garment worn by all ranks from 1796 to 1820 and by Light Infantry, Highlanders and Rifles from 1820 to 1830. Cut to the waist in the front and tapering in a gentle curve to the tails. Do not confuse with Coates, (q.v.) Plate 8.

Kerseymere: A type of wool cloth of fine quality used for the lining of officer’s coats in the 18th and early 19th century. Also used for turnbacks and piping.

Khaki: The colour of combat and service dress uniforms of the Canadian and Imperial Army. From the Persian word for dust or earth. Comes in varying shades, but basically the colour of dried earth.

Kilmarnock: Name used in Canada for a round soft cap with no peak, worn by other ranks from about 1855-1880. The forerunner of the pill box, (q.v.). Named after the Scottish town where many types of military cap were manufactured.

Kilt: Worn by Highland units from mid 18th century to present day. Essentially the pleated part of the Belted Plaid (from the waist down). Also called “small kilt”.

Kurta: A loose fitting, knee length blouse worn by Indian Army
Cavalry units. No collar; opening at the neck front. Not used in Canada.

**Lace:** Flat woven decorative ribbon, in gold, silver wire or coloured silk or cotton. Used in varying patterns to denote different ranks. Do not confuse with braid (q.v.) which is three dimensional cord.

**Levee Belt:** Special pattern belt for officers worn with Levee Uniform (q.v.). Usually gold or silver lace with a central light or stripe of scarlet. Introduced 1868, discontinued 1900. Belt plate shows a crown surmounted by a lion.

**Levee Sash:** Officer’s sash worn over the left shoulder in Levee Uniform (q.v.). Of gold or silver lace with two scarlet stripes, and two tassels reaching to the hem of the tunic. Introduced 1868, discontinued 1900.

**Levee Uniform:** An order of dress for infantry officers for wear at Leves and official balls. Consists of full dress with special pattern Levee sash (q.v.) and belt (q.v.).

**Light:** Line of contrasting colour, usually narrow, between two wider stripes of another material. Found on pouch, and waist belts and trouser stripes. In distinctive regimental colour.

**Mameluke Hilt:** Pattern of hilt of sword worn by General Officers and by some hussar regiments. Has quillons (cross piece) but no knob guard.

**Mess Kit or Mess Dress:** An order of dress for officers worn at formal social evening functions. The jacket developed from the infantry shell jacket and the cavalry stable jacket. A short coat worn fastened at the neck, but cut to reveal the waistcoat below. Later styles had a shawl or roll collar, open at the neck and fastening at the waist. Plate 5.

(See photo at top of right column.)

**Norfolk Jacket:** Based on the civilian design of the same name, but buttoning to the neck. Its best known use in Canada was for the original uniform of the North West Mounted Police 1874-1880.

(See photo at bottom of right column.)
Pantaloons: A type of riding breeches, loose in the leg but narrow cut, without flared styling. Buttoning well below the knee and worn with riding boots. Long loose overall type legwear which replaced breeches in British infantry from 1811.

Patent Leather: Leather finished with a very shiny, mirror-like surface, usually black. Used for peaks of caps, pouches, waistbelts, chinstraps and some types of military footwear such as half-Wellingtons.


Pelisse: A braided outer jacket, edged with fur, usually worn by Hussars and Rifle officers until mid 19th century, often slung over left shoulder.

Pill Box Cap: Round cap worn on the side/front of the head secured with a thin chinstrap. Worn with mess kit and undress uniform. Also worn by other ranks, mainly in cavalry units, in non-full dress outfits. Plates 5 & 6.

Plaid: A fringed length of tartan cloth worn over the shoulder by officers and OR's of Highland Scottish Regiments in full dress. Note that a kilt is sometimes incorrectly referred to as a

“belted plaid”. Plate 4.

Plain coat: A simpler version of the embroidered coat worn by generals and staff officers c. 1800-1831. Both were identical in cut, but the plain coat had no embroidered loops on the chest.

Plastron: A feature of Lancer tunics, a panel of cloth integral to the tunic covering the front of the body from shoulders to the waist. A different colour to the rest of the tunic, and in a distinctive regimental colour. Rarely seen in Canadian uniforms except in the Corps of Guides. Plate 1.

Officer's full dress tunic, Cdn. Corps of Guides c. 1900. Glenbow Collection

Plume: Decoration worn on headgear, usually dyed feathers from a species of bird (ostrich, for example) or dyed horsehair for cavalry and artillery.

Pontifical Zouaves: A volunteer unit raised in French Canada in 1867 to fight for the Pope in the Italian War of Independence. (See Zouave).

Pouch: Small oblong container with flap closure often highly decorated with lace and regimental badges, for full dress. Plainer leather versions used for undress. Worn on the pouch belt (q.v.) in the small of the back. Most patterns are non-utilitarian, though some contain small pairs of binoculars.

Officer, 19th Alberta Dragoons. Alberta Provincial Museum Collection
Pouch Belt: Decorative leather belt usually covered with lace, worn over one shoulder to hold the pouch (q.v.) in the small of the back. In rifle regiments the belt is plain black leather decorated with the regimental badge, chain and whistle. Cavalry belts sometimes have chains and pickers (q.v.) attached. Other ranks pouch belts are usually of plain buff or coloured leather. Plates 1 & 2.

(See photos at top of right column.)

Prussian Collar: Style of tunic or frock coat collar. A high, stand-up collar fastened with two or three hooks and eyes. Common usage prior to about 1860.

Puggaree: A length of cloth, usually muslin or light cotton wound around the helmet. For use in hot climates as insulation and as a crude mosquito net, on the Wolseley or Universal Pattern helmets. In Canada it quickly became an intricately folded hatband often white, but sometimes in regimental colours. Sometimes written pagri, pugri or pugree. Plate 7.

Puttees: Cloth strips approx. 3" wide worn wrapped around the leg in an overlapping spiral, from ankle to below the knee.

Most usually khaki and worn with service dress, but sometimes dark blue. Introduced at the end of the 19th century and discontinued in 1939.

Queen's Scarf: Khaki wool muffler knitted by Queen Victoria given to some N.C.O.'s for distinguished conduct during the South African War. Only about ten of these were given. Queen Victoria's cypher (VRI) was embroidered on one end. An example can be seen in the Canadian War Museum.

Rifle Sling: Adjustable strap of leather or fabric attached to the rifle so that it can be carried slung over the shoulder.

Round Hat: Type of headdress somewhat like a top hat, sometimes used in British regular troops and some Canadian Militia from the 1790's to the 1830's. It had a cockade (q.v.) and a plume on the left side.
**Russia Braid:** Type of gold or silver braid 1/8" wide used as part of the pattern of rank insignia on full dress tunics.

**Russia Leather:** Type of light weight leather used for such purposes as pouch belts. A thin supple leather.

**Sabretache:** Originally a case to carry writing materials worn by mounted officers, by two or three slings attached to the waist belt. It later became a highly ornamented decorative accessory of little practical use. Found in full dress and undress (plain leather) versions. Use discontinued in 1901. Plates 1 & 2.

**Artillery Officer, full dress. New Brunswick Museum Collection**

**Sabretache Slings:** Short adjustable straps used to attach the sabretache to the waist belt. Plates 1 & 2.

**Sam Browne Belt:** A leather belt with one or two shoulder cross straps worn by officers. Cross straps support the sword and revolver holster. Originally worn with two straps, it became one of the distinguishing marks of commissioned and warrant officers with only one strap during World War I. Invented by General Sir Samuel Browne of the Indian Army.

**Sash:** Length of fabric, usually crimson silk with tassels, worn over the left shoulder and across the chest by infantry officers. The mark of a commissioned officer. Later worn around the waist. See also: Levee Sash. General Officers wore a gold and scarlet version. Worn in a wool version in scarlet by Sergeants over the right shoulder. Plates 3 & 4.

**Scales:** A metal version of the shoulder board. Consists of overlapping metal plates.

**Serge:** A coarse wool fabric used for tunics and trousers, in particular for other rank’s uniforms.

**Shako:** Generic name for full dress infantry headgear. But more specifically for the style of peaked full dress cap (q.v.) introduced in 1800 and worn until the introduction of the Home Service Helmet in 1878. Rifle regiments had shakos until 1878, busbies until 1878, Home Service Helmets until 1890 when they resumed the wear of busbies.

**Shako Plate:** Large metallic badge worn on front of a shako.

**Shell Jacket:** Short jacket worn by infantry officers in the 1850’s and 60’s as a working and combat uniform. Single breasted with high Prussian collar.

**Shoulder Belt:** Strap worn over the shoulder joining at the opposite hip to support the sword worn until 1855. Only in Highland, kilted units in full dress (Plate 4) after that date. Used by other ranks to support the bayonet until 1850.

**Shoulder Belt Plate:** Metal plate, usually oval or rectangular, decorated with the unit badge. Worn on the Shoulder Belt (q.v.) approximately over the sternum. In general use from 1770’s until 1850’s.

**Shoulder Boards:** In effect a detachable shoulder strap, attached to the jacket with laces or clips. Carries decoration to indicate rank. (See photo at top of left column on p. 36)

**Shoulder Chains:** A form of shoulder strap used in some cavalry units. Made of chain link mail. Could conceivably protect the shoulder from a sword cut.

**Shoulder Flashes:** Another name for shoulder titles (q.v.).

**Shoulder Title:** Metal or embroidered cloth badge. Metal ones are usually to be found on the shoulder strap, cloth ones on the sleeve just below the shoulder seam. Shoulder titles are used to indicate the wearer’s unit and/or country of origin (e.g. “Canada”) in words or by acronym, but are also used to indicate army, corps or brigade formations by means of shaped pieces of coloured cloth. Often called “shoulder flashes.”
Shoulder Strap: A strip of cloth, often covered with braid, lace or other decoration, running from the join of the shoulder and sleeve seams of a tunic to the collar, where it is secured by a button. Originally designed to hold the sash or equipment straps on the shoulder. Later, rank badges of officers were mounted on it.

Corps of Guides undress tunic.

Skirt: The part of a tunic below the waist seam. See also: Inverness skirts.

Slings: See: Sabretache slings, Rifle slings, and Sword slings.

Snake Fastening: A type of waist belt fastening in the form of an S-shaped snake hooking into a ring.

Slouch Hat: Also called cow-boy hat, a soft felt wide-brimmed headgear, used by some Canadian Militia in Riel Rebellion, Yukon and South Africa, brim usually turned up on one side, fastened by button or badge. Some have a puggaree (q.v.).

Spurs: See: Jack Spurs and Box Spurs.

Sword Knot: Decorative cord attached to the hilt of the sword and looped around the wrist so that the sword is not lost if it is knocked out of the owner’s hand. Ends in acorn shaped tassels. Plates 1, 2, 4, 6.

Sword Slings: Straps used to attach the sword scabbard to the waistbelt. Plate 1.

Tartan: A wool fabric used for uniforms. Can be solid plain colour, not necessarily a highland plaid pattern.

Tommy, Back: A triangular device found on the back of other rank’s coatee at the waist. Coloured cloth triangle in the facing colour edged with tape.

Tuft: Woolen cylindrical or ball-shaped ornament worn on headgear. In British forces, these were white for grenadiers, green for light infantry, white over red for battalion companies from 1797 to 1855.

Tunic: General term for the coat of a military uniform, usually prefixed by a descriptor such as “Full Dress”, “Undress” or “Service Dress”. Specifically refers to the 1855 tunic, skirted all around, which is basically the same as today’s full dress.
**Turnbacks:** The folded-back edge of the tails of a coat or jacket. Originally buttoned back for ease of marching, it was later sewn down.

**Waistcoat:** See Vest.

**Webbing Equipment:** Combat equipment worn by soldiers in the field to carry their personal weapons and equipment. First introduced in World War I. Made of woven cotton fabric and straps.

**Ulanka:** Lancer type tunic. Term used in continental armies.

**Undress Uniform:** An order of dress for officers — in effect, a working uniform, usually dark in colour with little decoration. Plate 6.

**Universal Pattern White Helmet:** A cork helmet covered with white cloth with spike or ball finial and unit badge. Widely used in the Canadian Militia as a full or undress headgear. In 1886 it officially replaced the Home Service Helmet, but had been in use before this time. Plate 7.

**Vest:** In the 17th and 18th centuries, a sleeved short skirted garment worn under the coat, often ornamented with lace until the 1760’s. Since mid 19th century to present day, a short sleeveless garment worn under the mess jacket, usually ornamented with small ball buttons and narrow lace.

**Waist Belt Plate:** Metal fastening of the waist belt. Consists of a plate with the unit badge superimposed on it. Plate 2.

**Web Belt:** Official name for waist belt of woven cotton fabric with metal fittings used with webbing equipment (q.v.). Also a light cotton belt worn under tunic or waist sash, to which sword slings are attached.

**Welt:** Line of piping in contrasting colour to emphasize a seam for decorative reasons. Plate 2.
Wings: A type of shoulder strap with an extension or "wing" following the shoulder/sleeve seam. Worn by rank company. Discontinued 1855.

Wolseley Helmet: A cork helmet covered with white cloth and ornamented with the same furnishings as the Home Service Helmet. Worn in full dress by the Royal Canadian Engineers until 1939. Has a lower crown than the Home Service Helmet (q.v.) and wider front and back peaks. Named after Sir Garnet Wolseley, the Victorian General and Commander of the Red River Expedition 1870. (See photo at top of right column).

Worm: A thin wavy line of braid or colour. Most often found on belts and shoulder straps.

Zouave: Originally (1830) units of the French colonial army in North Africa. Uniform consisted of very baggy trousers and sleeved vest for a tunic. Uniform widely used in the Northern and Southern forces in the U.S. Civil War. Rarely used in Canada except for the Pontifical Zouaves (q.v.) and a unit of the New Brunswick Militia in the 1860's.

BADGES OF RANK

The various systems of badges to indicate rank are too complex to be covered in depth in a publication of this size, and only the more commonly found ones are covered.

For detailed information reference should be made to the following publications and articles by Major N.P. Dwayne B.A. published by the Society for Army Historical Research, c/o The Library, Old War Office Building, Whitehall, London.


The Staff Uniform of the British Army 1767-1855. Journal of the S.A.H.R. Vol. XXXI.

Though these publications are not easily accessible in Canada, a set does exist in the library of the Glencoe-Alberta Institute in Calgary.

The following charts show the rank distinctions of infantry officers; cavalry wore the same badges but the sleeve and collar decorations were of a different pattern. It should be noted that the sleeve and collar decoration of the mess jacket did not usually follow the same pattern as full dress. Non-commissioned officers' rank was indicated in general by chevrons worn on the sleeve in various combinations, sometimes with other badges. There are a large number of regimental variations.

There are four main systems of officer's rank distinctions covering the periods 1855-1874, 1874-1880, 1880-1902 & 1902-1965.
OFFICER'S BADGES OF RANK, 1855-1880

Field Officers had two rows of lace round the cuff and the slash and the inner edge of the skirt flap were lined with gold lace.

1868-1874
Collar badges and decorations remained the same but the cuff was changed to the pointed style shown on the following page.

1874-1880
All wore the same badges but the collar decoration changed. All ranks had ½" lace around the top and a line of Russia braid along the bottom. For field officers the light was filled with a line of bullet hole braid along the upper edge. Captains and below had a straight line of Russia braid.

Until 1880 the collar had rounded front corners fastened with a single hook and eye. After 1880 the collar was cut square and fastened with two hooks and eyes.
OFFICER'S BADGES OF RANK, 1880-1902

COLLAR:
Major — same as Lt. Colonel.

Captain — same but no bullet hole braid.

Lieut. & 2nd Lieut. — same as Captain.

From 1880 until 1902 officer's rank badges were worn on the shoulder straps of the tunic. In addition, the lace and braid on the collar cuffs varied according to rank. In brief, the more decoration, the higher the rank. The chart above shows the patterns for infantry officers full dress.

<table>
<thead>
<tr>
<th>Rank</th>
<th>Shoulder Straps</th>
<th>Cuff</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colonel</td>
<td>Crown &amp; 2 stars</td>
<td></td>
</tr>
<tr>
<td>Lt. Col.</td>
<td>Crown &amp; Star</td>
<td></td>
</tr>
<tr>
<td>Major</td>
<td>Crown</td>
<td></td>
</tr>
<tr>
<td>Captain</td>
<td>2 stars</td>
<td></td>
</tr>
<tr>
<td>Lieutenant</td>
<td>1 star</td>
<td></td>
</tr>
<tr>
<td>2nd Lieut.</td>
<td>no badge</td>
<td></td>
</tr>
</tbody>
</table>

NOTE: After 1902 all ranks wore the cuff and collar decoration of a Lieutenant. The badges remained the same, except:

- Captain 3 stars
- Lieutenant 2 stars
- 2nd Lieut. 1 star

Khaki Service Dress was introduced just before 1914 and officers rank badges were then worn on the cuff.
The colour of the collars and cuffs, the pattern of pouch belts would differentiate various regiments. Also the colour of the plastron and the cap badge in the case of lancers.
Both figures are wearing box spurs and half Wellington boots.

**INFANTRY** wear scarlet tunic and dark blue trousers or overalls.

**ARTILLERY** wear dark blue tunic and dark blue trousers or overalls.
In Canada this pattern of uniform was worn by such units as the Winnipeg Grenadiers and the Governor General's Footguards. The tunic would be scarlet, the trousers dark blue with a scarlet seam stripe.
HIGHLAND officers wear scarlet doublet and regimental patterns kilt and plaid

RIFLE regiment officers wear rifle (dark) green tunic and trousers
All three figures are wearing overalls strapped under their half Wellington boots. Overalls have seam stripes of regimental colours. Rank is indicated on the shoulder straps or by sleeve braid.
OFFICER'S UNDRESS UNIFORM

Patterns shown were in use with slight variations until 1896.

Infantry Officer's undress or patrol jacket.

Engineer officer's undress or Patrol jacket. Artillery used same pattern except for extra loop on pocket braid.

Jackets were dark blue with black braid and lace.
A Glossary of Terms Useful in Conservation compiled by Elizabeth Philp. Ottawa: CMA, 1976. 45 pp. A comprehensive listing of conservation terms for the non-conservator containing term origins, definitions, and applications. Includes a valuable listing of glossary terms under their appropriate field headings and a supplement on reporting the condition of antiquities.
$1.00*  $2.00

An Illustrated Glossary of Kayak Terminology by David W. Zimmerly. Ottawa: CMA, 1978. 12 pp. This article brings together the terminology and the illustrations needed to accurately describe a sub-class of small watercraft known as kayaks.
$0.50*  $1.00

An Approach to Museum Security by Denis B. Alford. 1975
$1.00

Directory of Canadian Museums 1976 151 pp. The most complete listing of Canadian museums and related institutions ever published. Includes all non-profit museums and art galleries as well as government departments and agencies and associations. Each entry lists the director and senior staff, activities and hours open to the public, as well as complete address and telephone number.
$8.00*  $12.00

Basic Museum Management edited by George MacBeath and S. James Gooding. 1988 80 pp. An introduction to museum practices and principles. Includes sections on administrative procedures, legal status, the museum staff, museum functions and programs. Also available in French.
$2.50*  $3.35

$2.00*  $2.65

ADDRESS ORDERS TO:  THE CANADIAN MUSEUMS ASSOCIATION TRAINING RESOURCES DIVISION 331 COOPER STREET, SUITE 400 OTTAWA, ONTARIO,  K2P 0G5

*CMA MEMBER PRICE

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PRESERVATION AND PRESENTATION

some aspects of museum and gallery lighting

RÉSUMÉ
Dans un musée ou dans une galerie, les œuvres d'art ne jouissent pas d'une existence séparée: elles font partie d'un environnement. Aussi l'éclairage y a-t-il une double responsabilité: envers l'architecture, envers les œuvres d'art. L'éclairage de l'architecture doit tâcher d'articuler les espaces créés par l'architecte; l'éclairage des œuvres d'art doit tenir compte de leur présentation et de leur conservation. En grande partie, l'éclairage sera réussi en autant qu'il aura su intégrer cette double responsabilité à l'intérieur d'un seul système d'éclairage.

ERNEST WOTTON

There are twenty or more different kinds of art which may be distinguished among its two branches — fine art and the useful arts. Of these twenty, only two — music and song — fall fundamentally outside the sphere of light. In all the others, including painting, sculpture, ceramics and architecture, artistic expression cannot be communicated without light. Without light we can appreciate neither painting, nor sculpture, nor ceramics, nor architecture.

You will notice that I have included architecture in this short list of examples. I have done so because art in a museum or gallery does not exist in isolation: it exists as part of its environment. Accordingly the lighting has two responsibilities — on the one hand to the architecture, and on the other to the art. The success of the lighting will depend, in large measure, on how well those two responsibilities are integrated into a single lighting system.

The lighting for the architecture has the responsibility of articulating the architect's spaces, his massing of forms, his materials — all of which he has designed into his gallery. The lighting for the art will be concerned with display and conservation.

Your attention may be focussed on the lighting of the architecture, so that it is gracefully and faithfully rendered. The lighting equipment may be incorporated into the structure of the architecture and become integral with it — as it is in some galleries of the Art Gallery of Ontario. But unless, at the same time, skill is used to integrate into the spaces the lighting for the art, as well as for the architecture, then the lighting for the art will appear as an afterthought. And, in appearing as an afterthought, it can become a dominant feature in a gallery.

The lighting for both the art and the architecture should, of course, be so integrated into the architecture that one is not aware of how the lighting is being done, or even that it is being done. I recall seeing a gallery illuminated by the big, spherical incandescent lamps known as "Fat Alberts": they were mounted side by side in rectangular frames. The lighting was loud, it was gimmicky and it distracted from what was being illuminated. Even if the lighting does not go to this extreme, we find the frequent use of spotlights suspended on long stalks from the ceiling. Loud and distracting? Yes, in my opinion. And, probably, unnecessary, if the lighting had been cunningly integrated with the architecture.
The design of the lighting for a gallery or museum involves a continuous interplay of ideas between the architect and the lighting designer. In fact, as the Gulbenkian has shown so effectively, the lighting requirement can determine the architectural design. That design was in a promising stage; the roof was to admit natural light without over-generous levels of illumination and without strong patterns of sunlight. Then Thompson’s work on conservation was published. It was realised that the control of light necessary for conservation could not be made with roof lighting. Accordingly the design was changed completely; electric light, instead of natural light from the roof, was adopted as the principal source for general illumination.

The need for the interplay of ideas which I have just mentioned arises in the competition for the design of the new National Gallery of Canada. Some lighting designers are working with more than one design team; each of these designers is involved in an interplay with more than one team. I fail to see how the design concepts which the lighting designer has selected for the first design team can be isolated and prevented from influencing the choice of concepts for the second and third design teams. I suggest that the interaction between the architect and lighting designer precludes the possibility of keeping one set of concepts isolated and in quarantine from the other sets of concepts. The Gallery competition should expect ten different lighting concepts—one from each design team. I suggest that we may very well not get those ten different lighting concepts.

The National Gallery of Canada competition rightly stresses the use of daylight. This follows the lead of Gropius, who refers approvingly to the use of daylight in a gallery: he says that, “the fleeting occurrence caused by the change in (daylight) is just what we need.” This change is particularly significant in the display of sculpture. Much sculpture, however, is too vulnerable to be subjected to the outdoor condition: it must be shown indoors. But the lively quality of daylight must be retained; the daylight must not be so weakened that the sculpture appears lifeless.

I frequently visit Toronto City Hall, and always stop to admire Henry Moore’s work The Archer. At least, I do by day; the nighttime lighting does horrible things to the work. But on a bright sunny spring morning, with a few clouds crossing the sun, the work is vibrant with life; its form changes from minute to minute. I am afraid that I do not get the same emotional effect in the Moore Court of the Art Gallery of Ontario. The daylight has been so diffused that it is difficult to tell if it is sunny or cloudy outside.

There is a mystique about daylighting. For example, I made enquiries about the lighting of the new Kimbell Museum in Fort Worth. I was told of the statement by the architect, Louis Kahn, that “(day)light must come from the zenith where it is at its best”. My attention was drawn to “the obvious truth of that statement.” I replied that I did not find that truth at all self-evident. In fact, the interiors of Vermeer of Delft show how effective side lighting can be in a space which includes paintings, and furniture, and people—a space, for example, at the Kimbell.

But what is evident is this: What usually happens is that, to suit his client’s requirements, the architect designs for daylight at great expense. He then provides, at even greater expense, systems for virtually eliminating it because conservation demands that in a picture gallery, for example, the powerful effects of direct sunlight must be completely eliminated, while the diffuse skylight must be much reduced. The effects of exposure to light have been recorded from antiquity. Long before the development of modern chemistry and our understanding of photochemical reactions, early craftsmen had noted that sunlight faded coloured objects and even bleached oil paint. So, in a gallery, the lighting for art—as opposed to the lighting for the architecture—has to meet the requirements of conservation as well as those of display.

Turning first to conservation, we know that light, with its concomitant infrared and ultraviolet radiation, can cause deterioration in art objects. The most common forms of that deterioration are the fading of dyes, the weakening of textiles, and the discolouration and embrittlement of paper.

Photochemical effects are strongly dependent on the wavelength of the radiation. Ultraviolet radiation is usually the most photochemically active, although some deterioration can be caused by visible radiation. Heat (as from the infrared component of the energy from an incandescent lamp) can cause both physical and chemical changes. The rapidity of heating, too, is important, because objects suffer greater damage if the changes in temperature and humidity are rapid. Such changes can be expected when incandescent lamps are used to provide high levels of light. Thus, any designer responsible for lighting art must be concerned about the effects of visible light, and ultraviolet as well as infrared. The only safe practice with ultraviolet is to eliminate it.

In an article on the lighting of the Winnipeg Art Gallery, one reads that, “thirty to sixty footcandles are typical (lighting) levels with up to 100 footcandles given to freestanding displays.” It is my opinion that the designer of the lighting at Winnipeg adopted for his lighting levels those recommended by the Illuminating Engineering Society. The Lighting Handbook published by that Society recommends a minimum level of 30 footcandles and a maximum of 100 footcandles; a painting although “dark paintings with fine detail should have two to three times higher illumination.” These levels are dangerous: they are far too high. They are something like six times higher than the levels recommended by conservation experts.

In an article I wrote on the lighting levels recommended in the Lighting Handbook, one of the points I made was that low lighting levels must be used in a gallery. That article generated some correspondence; one writer said that, “Rembrandt’s paintings, with their somber colours and dark tones, would be difficult to view under low lighting conditions” such as those quoted in my article. Even if I agree with him about Rembrandt’s “somber colours”, I would still have to disagree with his conclusion: it is not true that low lighting levels make it difficult to see Rembrandt’s work. One of the most famous collections of his work is in the Rijksmuseum in Amsterdam; it is beautifully displayed. The display technique was achieved after much experiment. The lighting levels are well within the limits quoted—the lighting of Night Watch, in particular, is to an even lower level, about 4 footcandles.

The secret, of course, is adaptation, the dominating feature in human vision. The need to take adaptation into account will have a profound effect on gallery design. The gallery layout must be such that the viewer can adapt to the low levels of light with which the work is displayed. This requires the gallery to be designed with the lowest possible collaboration between the curator, the architect, and the lighting designer. And it requires the use of the very best lighting techniques because, at low lighting levels, the eye is working at about its limit for good seeing.

But we must expect the lighting to be concerned with more than conservation. We must expect that, in addition, form and colour be rendered accurately.

I have seen incandescent lamps on dimmer circuits used for gallery lighting. The dimmer is there so that the lighting can be reduced to a safe level. When the incandescent lamps are operated at normal voltage the lighting level might be 30 footcandles or more. By dimming the lamps the level can be reduced to 5 or 10 footcandles. But when this is done something happens to the colour of the light, something which is frequently overlooked. The light changes colour; it becomes redder. Instead of being yellowish-white, the light is now yellowish-orange. And this change in the colour of the light has a marked effect on the appearance of colours seen under it.
Blues, for example, become mud.

What, then, is accurate colour rendering? This means different things to different people. Let me quote an example — the lighting at the Metropolitan Museum of Art in New York City. After experiment, that Museum decided to use a combination of “cool white” fluorescent lamps and incandescent spotlights. But Rühemann, an experienced restorer, wrote of the lighting that “spotlights of a warm sunset hue illuminated the pictures. They killed the delicate blues and greens so characteristic of Cezanne and thereby robbed the paintings of their distinction. After a brief and friendly argument the director in charge agreed with my criticism of the lighting”.

The details of lighting for presentation are outside the scope of this article, for it is a truism that the lighting must be unique to the artifact. As in the theatre, light of different qualities must be used to reveal different objects. But on two matters — display cases and labels — general comment can be made.

In many display cases, although the requirements for preservation have been taken into account, those for presentation have been overlooked. The ceiling of the case is too bright and is distracting. Objects which should sparkle do not; one object puts another in shadow. And, most important, reflections appear in the glazing of the case. At times these can make it impossible to see what is displayed. I believe it possible to overcome these defects. This calls for cunning case design and for care in locating the cases with respect to the general lighting system.

Most label designers are young and with perfect eyesight. They are unaware that one’s eyesight usually deteriorates with age and that many museum visitors are not in the flush of youth.

At one time the museum in the crypt of Westminster Abbey used labels which were beautifully hand written in India Ink on matt white card. I had a sentimental attachment to the labels since they were initialed RPHG: Howgrave-Graham was my first tutor at university. I could read the labels easily. But I now notice that the labels have been changed; they are now typewritten with small, fuzzy letters. I have to put on my glasses to read them. This should not be necessary. Labels should be in bold characters on a strongly contrasting background of matt material. I can recall a striking exhibition mounted at the National Gallery of Canada about eight years ago. The galleries were transformed into tents of draped purple velvet. The labels were typed — in quite large face — on metal foil. Reflections off the foil made it almost impossible to read the labels.

Nearly twenty years have passed since the experiments which resulted in the use of “cool white” fluorescent lamps and incandescent spotlights at the Metropolitan Museum of Art. New fluorescent lamps with improved colour qualities have been developed. Gallery lighting and display techniques have been studied. A lot more has been learned about the relationship between lighting and conservation. Yet I see new gallery lighting which is unaware of our increased knowledge of lighting techniques and which shows little skill in conservation. I have criticised the lighting at some galleries; it would be easy to criticise the lighting at others.

With this in mind, let me touch on the lighting for a new museum or gallery. My opinion is that the choice of the lighting system should not be left entirely until the time when the architect sits down to design the gallery. Investigation into the choice of system should be started much earlier. Tests and appraisals should be carried out by the gallery staff and the lighting designer. In fact, the public could be asked to assist in the appraisals. This is the sort of procedure which I should like to have seen adopted for the new National Gallery of Canada.

I said earlier that the lighting design must meet the requirements of the architecture and of the art, of display and conservation. With design tools which are now available, and with the skilful use of those tools, we can now preserve our art as well as present it in its best light.

FOOTNOTES

4. Communication to the author from the Kimbell Art Museum.
8. Wotton, Ernest, (reply to correspondence) in Lighting Design and Application, vol. 5 no. 4, 1975, pp. 3.

EDITOR’S NOTE

The author is a Toronto lighting designer who has made a life-long study of lighting design and research. He has taught lighting at schools of architecture and design in Canada and the United States. He also teaches in the Master’s programme in museology at the Royal Ontario Museum. Examples of his work can be found in the National Gallery of Canada, the Canadian War Museum and the Glenbow-Alberta Institute.
EXHIBITIONS

EXPOSITIONS

HALL OF ANIMAL LIFE I
A REVIEW

GEORGE LAMMERS
MANITOBA MUSEUM
OF MAN AND NATURE

On October 7, 1976, The National Museum of Natural Sciences in the Victoria Memorial Museum of Ottawa opened its fifth hall, the Hall of Animal Life I. The new gallery cost $300,000 and has taken six years to plan and build. The hall, located on the third floor, covers 5,000 square feet and describes what an animal is and the diversity of animals in this world. Admitting that these are good subjects for a gallery, it is unfortunate that for the visitor, it will probably be the next to the last of six galleries he visits. The visitor would have a better orientation to learn from the mammal and bird halls if he explored animals in general first. Animal Life I will be followed by Animal Life II on the floor above which will continue with exhibits on general natural history and biological principles (primarily discussing animal communities and behaviour).

The Hall of Animal Life is the product of a team effort by several scientists and designers, mostly consultants from outside the National Museum. Mr. Wayne Grimm was responsible for co-ordinating the curatorial contribution. Dr. Arthur Clark, now at the Smithsonian, was the Curator in charge. Jacques St. Cyr was the designer for the initial planning of the gallery. During the final stages consultant Martin Green served regarding layout and space utilization.

Figure 1. Praying Mantis (Mantis religiosa)
Photo: Gary J. Sirois
Figure 4. Slide show accompanying the "Tree of Life"
Photo: Gary J. Strolis

Figure 5. "Tree of Life"
Photo: Gary J. Strolis
Though, not original, the Biblical quotation from Genesis making reference to the earth bringing forth living creatures after their kind prefaces the gallery. The quote is used well to introduce the topic of diversity the first of seven subdivisions of the gallery. This is done both to show the wide variety in the animal kingdom as well as a comparison of some of the attributes of these animals such as their mode of locomotion, sound, shape, size, colour, feel and smell. The presentation of scent and touch are especially appealing because of the way they encourage the visitor to participate in the exhibit. This section, while interesting to most visitors, is at the same time very heavy. The text and detail is voluminous and this informational assault adds to indecision confronting the visitor as to the starting point through the gallery. Additional confusion is caused by a sound track suggesting one attend either an excellent slide show on diversity, or a movie on motion. These criticisms are not to say the section on diversity is uninteresting, but certainly gives an overwhelming impression. A colour-code plan to facilitate the viewing has not proved successful and will be corrected. This subdivision does have excellent support in good graphics and a well chosen collection of actual specimens. Models of a praying mantis (fig. 1), an earthworm and a fly (fig. 2) are well done and appealing to the general public.

In general, by choice of topic, the gallery is successful.

There are several museological faux pas such as labels printed on the wrong side of thick plastic and producing shadows, making the labels difficult to read, or because of being on transparent backing with distant exhibits beyond causing them to be illegible. Display contractors are not always familiar with museum problems of this type. Conflicts of sound occurs in a couple of areas between slide shows and movies; in one instance the visitor is not able to distinguish to which exhibit the sound belongs.

By contrast there are many excellent museological principles followed as well, such as an absence of credits to distract from the exhibits. The designers have also labelled casts. The selection of specimens to illustrate principles has been done well, although a few are missing with no explanation. Lighting of labels, graphics and specimens is excellent. Omitting the confusion at the entrance, the traffic flow patterns seem well thought out for the visitor to see the exhibits yet not interfere with others. However, because of the reflective nature of some of the large transparent area-dividers and multiple entrances to some areas, an uncertainty as to the next exhibit occasionally occurs. If it is your first visit, you will be confused with the choice of direction in which to go at certain points.

To conclude, the Hall of Animal Life is certainly of interest and brings together many educational units on "what is an animal?" The hall does answer this question, however not...
with the quality of the other natural history halls. We hope the National Museum of Natural Science will overcome most of the more obvious problems in the next gallery — Animal Life II.

The second subdivision of the gallery, on Systematics was the responsibility of Dr. Francis Cook, a herpetologist with the National Museum. A rattle snake (fig. 3) is utilized to illustrate the method used to separate and recognize the diversity of the animal kingdom. The display consists of a series of colour-coded, plastic arrows proceeding through a dichotomous key to arrive at a final identification of an unknown animal. While it is done with great scientific accuracy, the amount of text and explanation must appear overwhelming to the visitor.

If one is following the planned path for the visitor the third subdivision is a circular ‘‘Tree of Life’’ (fig. 4). The central part of this exhibit is a large, electronic bowl containing concentric rings which light up during a twenty minute, bilingual, audio-visual slide show. There were still many bugs to be removed, the three times I visited this exhibit. The concept is good, but electronically it is difficult to keep the dialogue in phase with the accompanying slide show. While most of the discrepancies between the spoken word and slides seem to be explained by this lack of synchronization, there also appear to be misidentifications. The speaking voice for the audio portion is well modulated, but in great need of correction on pronunciation.

The spoken text seems correct for the most part, however some errors seem to have crept into the text, e.g., the age of the Pleistocene lasting only one million years. Stools are provided while listening to the message on a telephone and watching around a circular ceiling (fig. 5).

The visitor then moves on to the fourth subdivision which discusses heredity, ranging from Gregor Mendel’s pioneering work with garden peas to the genetics of eye colour in man and coat colour in cattle. There is also a thorough coverage of the chemical basis of inheritance and the DNA molecule. However the subdivision is overloaded with textbook examples and uses scientific symbolism unfamiliar to most visitors. This jargon could have been simplified, or left out, making the information much more palatable to the layman. The colours in the transparencies illustrating this section are faded; some hardly show the genetic colour difference being discussed. The giant model of a chromosome with its gene loci along its length is very effective, however.

One then moves into the fifth subdivision on natural selection. Several aspects of natural selection are discussed, such as protective colouration, mimicry, and climatic influences on these characteristics. This is one of the better units, for it uses both graphics and specimens to good advantage. In some cases, however, it is difficult to associate label with specimen. Part of the discussion on protective coloration (in moths) is in the genetic subdivision and not in natural selection where it would be more relevant.

The start of the sixth subdivision, pertaining to speciation, has an uncertain beginning. While the subdivisions are well marked, two units on natural selection (and so labelled) are just inside the speciation subdivision. The speciation area is especially well blended with an abundance of colourful butterflies, shells, fish and beetles. One particularly interesting exhibit on evolution of marine animals on both sides of the Isthmus of Panama, is marred by an incorrect reference to the Tetrahyr marine passage, actually associated with southeastern Asia. It is good that mention is made of the National Museum doing research in some of the areas covered by the exhibits such as the one on climatic influences on speciation.

A visitor then passes to the seventh subdivision, titled evolutionary stories. The great varieties of domestic pigeons and goldfish are well illustrated by several mounted pigeons and live fish. One problem might be, because of the captivating appearance of these exhibits, to lure the visitor into this last subdivision when first entering the hall. Because there are confusing directional arrows and the fact that the visitor sees this last subdivision first upon entering the third floor entrance, he is tempted to view the exhibits in a reverse sequence.

In general, by choice of topic, the gallery is successful. There are several museological ‘‘faux pas’’ such as labels printed on the wrong side of thick plastic and producing shadows, making the labels difficult to read, or because of being on transparent backing with distant exhibits beyond causing them to be illegible. Display contractors are not always familiar with museum problems of this type. Conflict of sound occurs in a couple of areas between side shows and movies; in one instance the visitor is not able to distinguish to which exhibit the sound belongs.

By contrast there are many excellent museological principles followed as well, such as an absence of credits to distract from the exhibits. The designers have also labelled casts. The selection of specimens to illustrate principles has been done well, although a few are missing with no explanation. Lighting of labels, graphics and specimens is excellent. Omitting the confusion at the entrance, the traffic flow patterns seem well thought out for the visitor to see the exhibits yet not interfere with others. However, because of the reflective nature of some of the large transparent area-dividers and multiple entrances to some areas, an uncertainty as to the next exhibit occasionally occurs. If it is your first visit, you will be confused with the choice of direction in which to go at certain points.

To conclude, the Hall of Animal Life I is certainly of interest and brings together many educational units on “what is an animal?” The hall does answer this question, however not with the quality of the other natural history halls. We hope the National Museum of Natural Sciences will overcome most of the more obvious problems in the next gallery — Animal Life II.
UNIVERSITY OF BRITISH COLUMBIA
MUSEUM OF ANTHROPOLOGY
A REVIEW

P. DOUGLAS ELIAS
WAHPETON SIOUX BAND

Reviewing the University of British Columbia's new Museum of Anthropology is not a simple project. Individual parts or functions or services would be sizeable enough, let alone the entire entity from concept to concrete. But, besides that, the Museum seems to have at once extended itself into and drawn into itself entities outside the Museum. It is difficult to avoid or ignore this environment of information, so I haven't: other critical reviews, the writings and statements of the Museum's very productive staff, observations of Indians, the history of the Museum's collections.

First, there is the building, and a remarkable place it is. The building is divided into six distinct parts — three galleries, a theatre, offices and seminar rooms and — a museum innovation — the visible storage gallery. Joan Vastokas, in her *Arts Canada* review of the Museum's architecture, describes it:

“The Museum of Anthropology is built upon an impressive cliff-side site, one that overlooks the Strait of Georgia and the North Shore mountains. Indeed, it is sensitive response to this particular landscape environment that has shaped the design of the building, a structure that hugs and echoes the descending slope from roadside to museum entrance, from entrance to Gallery I, and thence to the major open space of Gallery II. In terms of overall massing, the building consists of three basic divisions, each stretching longitudinally and parallel to the descending levels of the site. But the design of the Museum consists not only of the building structure itself but of the entire surrounding landscape as well. The landscape immediately adjacent to the structure as well as the distant views of mountains, shore and sea, are as integral to the overall conception.

Figure 1: The University of British Columbia, Museum of Anthropology Credit: John Morris
of the Museum as the handling of the steel, glass and concrete of the space-enclosing walls.

Gallery I is composed of six somewhat rectangular exhibit flats, each facing onto a gently-inclined central foot ramp (a bit of truly enlightened planning: most of the Museum is accessible to users of wheelchairs). This gallery contains Coast Salish, Kwagiulth, and Haida great carvings, feast dishes, house posts, pole sections and a fine welcome figure from Blunden Harbour.

The Great Hall, Gallery II, contains what are surely some of the finest pieces of West Coast monumental sculpture in existence. Many of these carvings are being exhibited for the first time since they were collected. A full appreciation of the pieces is only now developing as space, light and the chance for contemplation have opened them to a new generation of observers.

Gallery III is called The Masterpiece Collection and, for some of the objects, the first sight of which gives you an organic feeling like passing over a gentle bump on a prairie road, “masterpiece” is a thin word. Gold, ivory, black argillite, horn and wood reflect frontiers in human taste and skill.

These three galleries form the heart of the Museum and there can be no doubt that it is a spectacular facility. But it is not perfect. Vastokas concluded that, “Erickson’s museum building in itself serves ... as a monument and a tribute to Northwest Coast native culture and becomes, thereby, as important as the collections it contains.” I would go further and say that, on several points, the design and architecture have superceded the magnificence of the artifacts either by crushing the delicate beauty of aged, silver wood with acres of opulent one-inch plate glass and custom carpeting, or by forcing the dismemberment of large monuments. Thus, in Gallery III, many of the masterpieces huddle in shadow relative to the daylight pouring in through high windows. This is especially so for small pieces made of dark materials such as a finely detailed Tlingit comb (Number 2469). The cases in which these pieces are exhibited come in two sizes so standardized that one suspects the artifacts were selected to demonstrate the function of the cases, rather than the cases being designed to best display the artifacts. And, in Gallery II, a sectioned Haida pole is displayed in three regimented pieces, one behind the other, a most unnatural configuration. Vastokas, in her moist and lush review of Arthur Erickson’s architecture, elevated the man to sainthood.

Thus, Erickson’s masterful and truly inspired handling of site, materials and space results, if not in something almost sacred, then certainly in powerful visual poetry.

Perhaps, the end result is good architecture, but it is not great anthropology. The architecture is so well attuned to itself, so perfectly integrated, that it has forced the artifacts into the same integration, and, in so doing, has obscured the great cultural and historical differences embodied in a Salish feast dish, Kwagiulth house post and Haida rattle.

Compounding the anonymity of the artifacts is an almost total lack of label copy. This is a teaching Museum and, for the student, unlabeled artifacts are a pedagogical technique in the fine tradition of Socrates, where the question of significance is posed to the student rather than answered by the teacher. A good many viewers, however, are simply not up to this challenge: students have time to be students, but most citizens must have time to work, tend children and otherwise live. Such a wealth of complex and symbolic subtlety defies guesswork and demands comparison between what the citizen-observer and professional analyst may have concluded about the material. Many less-than-professional visitors to the Museum will be going away with an impression of the physical execution of Northwest Indian art but with little information about Northwest Indians.

The Open Storage Gallery partially relieves this problem but, not entirely. In this gallery, a vast array of objects from many parts of the world are available for public viewing in large, glass walled cases or in glazed cabinet drawers. Each
Figure 3: The great hall, gallery II. The sectioned, regimened Haida pole is framed by Kwagul house posts. Credit: John Morris
Figure 4: The open-storage research facility in action Credit: John Morris

Figure 5: No mask or pole in the museum can be confused with the living tradition that gives such objects their meaning and value Credit: Peter McNair
artifact bears a number and a catalogue can be consulted for information on each one. Close study of these artifacts, however, is difficult, especially those in cases such as the one in which a full-sized Salish loom is almost lost. Where Vastokas claims that this gallery was "not designed to move the visitor emotionally or aesthetically", I would say that the architect simply lost interest in the project by the time he reached Gallery IV; the lighting and layout are quite uninspired.

The artifacts are undisputably great and now that the new Museum has made them available for appreciation and scholarship, they will contribute significantly to the understanding of West Coast Indian people. Unfortunately, the artifacts have become imbedded most inappropriately in the stream of non-Indian history of accomplishment on the West Coast. This has been done by the Museum's lavish eulogizing of the collectors of the pieces, often at the expense of the real creators of the works — the Indian artists. Thus, while individual pieces are at best underdescribed in the label copy, every opportunity is taken to impress upon the visitor the facts that Gallery III contains the Walter and Marianne Koerner Collection and Galleries I and II, the H.R. MacMillan Collection. The three exhibit guides available when I visited the museum used more space describing MacMillan and the Koerners than any other aspect of the collections themselves.

It is in the two publications printed by the University of British Columbia Press and an article by Audrey Hawthorn, Curator at the Museum, appearing in the November, 1976, issue of the Canadian Geographical Journal where this misdirected praise becomes palpably offensive. Hawthorn describes the collecting process:

"Times were propitious because people in many Indian villages in the B.C. coastal region were abandoning their traditional life with its attendant feasts, the carving of totem poles, masks and dishes, and reminders of crest, rank and privilege. They were adopting white societies ways of economic and social life. With the generous support of such benefactors as H.R. MacMillan and Walter C. Koerner, and others, it became possible over the following 24 years to salvage totem poles, great cedar houseframes and other massive carvings."

Again, the University publication Northwest Coast Indian Artifacts from the H.R. MacMillan Collections, it is emphasized that:

"in 1948, the Indians of the coastal region seemed about to abandon their traditional cultural activities, including the manufacture and use of the material objects attached to their former life."

Such benign statements as these disguise or even deny a recent past in which Northwest Coast Indians were forbidden by law to practice ceremonies of which those very dishes, poles and crests were a vital part. In fact in the first quarter of this century Indians who attempted to celebrate the potlatch were arrested, imprisoned and all their ceremonial property seized, eventually to become museum collections themselves. The 1940's were also a time of repressive developments in the structure and administration of the Indian Act, a time when assimilation was the expressed desire and goal of the federal government. This abandonment of traditions was hardly an unfortunate inevitability that went with the unhalting passage of time. To the contrary, it was the result of overt religious persecution and social repression.

The collectors who operated in this atmosphere are described by the museum as "generous and enlightened private patrons and donors". They could well afford to be generous: most of the wealth owned by the Museum's major donors was amassed through the exploitation of British Columbia's natural resources. It is of critical importance to point out that not one treaty of surrender has, to this date, been entered into by the Coastal Indians. Thus, the Kwakiutl, Noo-Ko, Haida, Salish and all other tribes still own their aboriginal rights and territory, regardless of the pragmatic end of might over right. Exploitation of these resources by non-Indians represents trespass and the seizing of wealth is theft. In the final analysis, Indians not only created the physical art works themselves but, through their expropriated wealth, are directly responsible for their preservation and continued existence, no one else. The collector-donors are, at best, exploiters or middlemen who returned a miniscule part of the wealth they seized back into the course of Indian history.

Anthropology departments are traditionally liberal in general character and it is disappointing to see such important aspects of West Coast history overlooked. Perhaps this is because, as Dr. Hawthorn says of H.R. MacMillan, "our debt and gratitude to him are enormous and unending."
LE MUSÉE DU NOUVEAU-BRUNSWICK
UN COMPTE RENDU

CAROL-ANN NICHOLSON

Figure 1. L'annexe du Musée du Nouveau-Brunswick, l'édifice à droite.
Solidement implanté à la surface d’une mine d’ardoise, le Musée du Nouveau-Brunswick occupe un site d’une beauté impressionnante. Ancré en plein roc, il se dresse au-dessus de la ville de Saint-Jean, dominant le port à l’est et la rivière Saint-Jean à l’ouest.

Comme la vieille ville loyaliste, le musée est un amalgame de l’ancien et du nouveau. La construction originale est en grès de Shédiac; ouverte au public en 1934, elle s’inspire de l’architecture grecque. La nouvelle annexe, inaugurée au cours de l’été dernier, est un simple carré en brique. Chose curieuse, ces deux structures se marient très bien au cadre provincial; elles abritent des collections précieuses et rares qui constituent une partie de l’héritage du Nouveau-Brunswick et du Canada tout entier.

Fruit de trois ans de préparation, cette annexe de $1.2 million ajouta beaucoup aux services offerts au public par le musée.

Trois nouvelles galeries ont augmenté considérablement la surface utilisée pour les expositions; par ailleurs, les dispositions prises pour assurer la température et l’humidité nécessaires assurent une meilleure protection aux objets des collections. Les 18,000 pieds carrés que l’on a pu répartir en espaces de bureaux, de réserves, d’ateliers et d’exposition ont donné une nouvelle dimension à l’institution.

Comme la construction des bâtiments, les résultats les plus importants de l’accroissement de l’espace consacré aux réserves et aux ateliers concerne la préparation des expositions itinérantes et des prêts destinés à voyager à travers la province ou ailleurs au Canada. Il est désormais possible de préparer des expositions que l’on pourra mettre à la disposition d’autres collectivités. Par ailleurs, le musée est maintenant en mesure d’accepter un grand nombre d’expositions itinérantes nationales et internationales, qu’un contrôle climatique inadéquat et le manque d’espace de réserves interdisaient jusqu’à maintenant de recevoir. La nouvelle annexe a pu accueillir la première d’une nouvelle exposition, en tournée au Canada pour deux ans.

“Boîte Nejée” Regards sur l’art indien du Canada


Boîte Nejée: Ces deux mots, tirés des langues française et Ojibwa, servaient de salutation dans le nord canadien au temps de la traite des fourrures: ils signifient: “Bonjour, ami.” Une aussi simple salutation est une excellente introduction à une exposition qui est passionnante, voire même impressionnante, et qui est par ailleurs présentée avec beaucoup d’imagination.

L’intérêt des Européens envers une culture matérielle étrangère s’est souvent prolongé par la collection et la préservation d’objets qui, autrement, ne pourraient survivre hors de leur milieu d’origine. La collection Speyer illustre bien cette tendance. Par son âge et son étendue, elle enrichit notre connaissance du patrimoine.

On y perçoit, à travers une illustration très fréchée, l’importance du respect des indigènes pour la nature, de la diffusion de ce respect dans le cadre culturel, de la valeur spirituelle de l’existence de l’Homme, et de l’adaptation de plusieurs manières de vivre entre elles et aussi vis-à-vis l’influence de la civilisation européenne sur leurs sociétés.


Les objets les plus anciens datent avant 13750 L. Ils représentent le patrimoine de la culture indienne: objets simples en pierre, en écorce, en peaux d’animaux et en fibres et pigments naturels. On y trouve également des chemises à scalps, ornées de dessins primitifs, des tunique en peau de cheval, des mocassins en peau de chevreuil et des amulettes de cérémonie. Il y a aussi une photographie grandeur nature des fainéants blanches de peaux de caribou dont les sorciers s’enroulèrent les épaules pour attirer les troupeaux de caribou dans les pièges des chasseurs. La peau originale est la seule qui subsiste.

Les objets d’une époque plus récente montrent l’adaptation des métiers et des techniques indigènes. Nous y voyons des échafauds au tissage compliqué, des objets qui incorporent des perles de verre, de l’ostéologie, de la céramique, de la soudure, tout aussi bien que des contenants en écoute de bouleaux et des porte-bébés en bois.


C’est dans la vieille section du musée, cependant, qu’il est possible de se familiariser avec la richesse du patrimoine culturel du Nouveau-Brunswick, avec son important enregistrement des coutumes et de traditions indiennes, françaises, néo-anglaises, irlandaises, anglaises, écossaises, galloises, danoises et hollandaises.

La collection originale du musée comprend des spécimens géologiques et minéraux, ainsi que des spécimens de mammifères, qui datent de 1882, année où le géologue provincial, Abraham Gesner, exposa temporairement sa propre collection. Il demanda à l’Assemblée législative du Nouveau-Brunswick une subvention qui lui permettrait de mettre sur pied un musée permanent à Saint-Jean. Sa demande fut rejetée, mais d’autres individus, intéressés au projet, collaborèrent et le Musée Gesner devint le "Mechanics Institute Museum" et demeura accessible au public jusqu’en 1890, alors que la Société d’histoire naturelle en prit la direction. Finalement, après beaucoup de démarches, l’Assemblée législative du Nouveau-Brunswick adopta une loi créant le Musée provincial. On établit le plan de la présente institution, destinée à préserver l’héritage de ceux qui ont contribué au développement de la province et à conserver les collections d’Abraham Gesner.

Aujourd’hui, le musée possède de vastes collections en sciences naturelles, en biologie marine et de l’orient; des objets qui permettent de retracer l’histoire maritime de la province; une importante collection d’uniformes militaires; et finalement la collection John Clarence Webster, qui comprend des peintures, des croquis, des gravures, des livres, des manuscrits, ainsi que des documents relatifs aux grandes étapes du développement du pays.

Quelques-unes parmi les pièces les plus anciennes bénéficient de soins particuliers avant ouverture de la nouvelle section. L’histoire des Loyalistes, par exemple, est mise en valeur par la présentation à la fois simple et un peu mystérieuse de décalques de pierres tombales.

La présentation de l’époque pré-Loyaliste n’a cepen- dant pas l’importance qu’elle mérite; il devrait être possible d’équilibrer les présentations de façon à mieux refléter l’apport des indigènes et des Acadiens de la province.

Le Musée du Nouveau-Brunswick est un musée d’importance, comme en font foi son statut de musée associé aux Musées nationaux du Canada et la réputation de ses collections à l’échelle internationale. La nouvelle annexe, avec les galeries et les ateliers où elle comporte, devrait permettre de mieux faire connaître les collections; en retour, les expositions pourront servir d’environnées de la région et être offertes par le musée aux musées canadiens.

Traduit par J.-P. Morisset
Figure 2. Les nouvelles salles d'exposition

Figure 3. L'exposition Sept Plus en montre dans une des nouvelles salles
MUSEUMS AND THREE RECENT BOOKS IN INDUSTRIAL ARCHAEOLOGY

Industrial archaeology and the history of technology is one of the growth areas in North American and British book publishing. Our rapidly changing and increasingly man-made environment is partially responsible for this growing field. The change is so rapid that in many areas conscious efforts must be made lest we lose all tangible links with our industrial past. As our daily environment becomes increasingly man-made and man-manipulated, something happens to the cultural remnants and experiences that we can relate to readily. The still lives, the pastoral scenes, and the wall-to-wall cowpokes are now so far removed from the stock of experiences of the mythical average man that we must start asking what other aspects of our life in total — our culture — are worth studying, relating to, and preserving in one way or another.

Historians of technology see that although we live in a society brandishing the homily that the proper study of mankind is man, the fact is that our scholars and museums have tended to congregate in very small areas of human activity and creativity. All who sit through history courses and walk through museums and historic sites are united by the fact that they are clinically alive. Why are they rarely told, or even asked, to think about the history of the means whereby we have met our real and imagined physical means? Many messages and philosophies are promulgated by industrial archaeologists and/or historians of technology but they are all united by the conviction that there is much to see by studying technology in its historical perspective and much to lose by neglecting it.

Kenneth Hudson's *The Archaeology of Industry* is the most eloquently persuasive of the three books to be considered here. Hudson is one of the senior statesmen of the world of industrial archaeology. He has written widely on the subject and travelled throughout the world observing, lecturing, and consulting on the preservation and presentation of industrial sites. One of the major limitations of this book is that it does not reflect adequately his work in underdeveloped countries. Here he has found that there are alternatives to the megabucks solution and that industrial sites, presented sans plasticque fantastique, are refreshingly different, intrinsically interesting, and attractive to tourists.

Hudson regards himself as a social historian who is interested in how people live and work. He has examined five major areas: mining and quarrying; working with metals; factories and mills; transport; food and drink industries. He has used these to argue that we need a wider vision of the scope of history and historical sources. By incorporating existing interests such as art and social history the working place we not lose but gain. The Art Nouveau factory lives and is worth looking at (pp. 12-14).

Canada enters *The Archaeology of Industry* through the Rideau Canal. Hudson sees a canal as a comprehensive primary unit encompassing far more than a few pieces of stone and a string of water. Kenneth Hudson has visited and lectured in Ottawa on several occasions as a guest of the official guardians of the Rideau Canal. It is unfortunate that one so influential as he did not point out that a strong case can be made to show that at no other time in its history has the canal suffered more intentional loss of historic fabric than since it became the object of official care as a site of national historic significance. But Hudson is not strident, perhaps that is why he receives so many return invitations and is so pleasant to read.

But there is more than the Rideau Canal for Canadians to think about. What Hudson has said in connection with buildings can be extended to include many of the objects under museum care. He claims that:

"In most countries, Communist and non-Communist, the majority of those who are ultimately responsible for the saving and care of historic buildings have the art historian’s approach and philosophy." (p. 123).

Think about it.

Many have pointed to Canada as a curious country but perhaps not in the way that we are able to after extrapolating

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from one of Hudson’s observations:

“Denmark, like Switzerland and Canada, is a fortunate country in that it has suffered hardly any damage from war for a very long time. The destruction of old buildings has been the result of a deliberate modernisation policy, not of bombs and invading armies... The industrial archaeology of war-ravaged countries is liable to be unbalanced; watermills, stone quarries and workshops in the countryside have a better chance of survival than factories in urban target areas.” (p. 73)

If one examines the historic sites and museums in Canada commemorating industry we find little beyond a few mine sites, a plethora of mills, and a National Museum (warehouse) of Science and Technology in Ottawa. Without the benefit of war, Canada has managed to virtually obliterate or hide and forget the remnants of our industrial past in heavily populated urban target areas. And who says Canadians are lacking in ingenuity?

If the reader is thrilled by the majestic beauty, the cathedral-like quality and architectural dignity of England’s Ryhope pumping station and equipment (p. 54), save your money and go there. Or, get into the right circles in Canada. There is one as good here. In its field, it is the prize of the continent. It lives in Hamilton, Ontario. I have never yet known anyone to go into it for the first time who was not suddenly at a loss for words and even the means to move. These things are not supposed to exist in Canada; but they do. Alas, they are only open to the few: those who can go to high-priced seminars on aesthetics and get this as a side tour; members of industrial archaeology organizations; and those, such as the author of this article, who have friends in the right places. For the rest of you who happen to find yourselves visiting Canada’s leading industrial city, do not bother to look for an industrial museum, there is none; but you can go to the Football Hall of Fame. You cannot miss it; it is part of the downtown Big Four: across from Hamilton Place, beside the City Hall, behind the Public Library. It is not far from Stelco Tower.

But if our myopic vision of Canada’s industrial heritage goes no farther than mills we should at least do them justice. We should read Carol Priamo’s Mills of Canada even though the title is a bit of a con-job. Priamo’s Canada — or is it McGraw-Hill Ryerson — only stretches from Newfoundland to Ontario. I call that eastern Canada but the Priamo-Ryerson vision of Canada is nothing new to the historical profession.

The photographs in Mills of Canada, most of which are by the author Carol Priamo, are worth the price of the book alone. But don’t stop there; the text is not nearly as good but merits reading and the central thesis is worth heeding. Priamo claims that mills were an important part of the technology, life style, and culture responsible for the settlement and prosperity of much of Canada. She feels that mills are more than merely picturesque and if we are to understand our culture and history we must understand our mills. Agreed.

Those responsible for presenting mills to the public might ask whether or not their visitors leave with an understanding that “the pioneer saw-and-gristmill was the nucleus of the community, a very early industrial unit which allowed the community to function independently” (p. 11). Do visitors leave the restored mill with anything resembling what Priamo felt and knew after a week in a still functioning mill? (p. 9). Or, do they leave a confused museum in a state of confusion (p. 153) with no feeling for the rigours of the miller’s life?

The best intentions notwithstanding, Priamo’s text has serious faults which seem to be attributable to an excess of enthusiasm and a deficiency of understanding. Milling is complex. The desire to ‘push’ — in nineteenth century terminology to ‘puff’ — the mill has led to internal contradictions, or at least confusion. Was the sawmill or the gristmill usually the earliest industrial building in newly developed areas? That depends on whether one is on p. 27 or p. 123. Another case of enthusiasm or my not understanding the
meaning of existence:

"The construction, maintenance, repair and balancing of these stones required great skill and exactitude and entailed an art that no longer exists. It would be surprising to find in Canada now more than a few men who know the art of balancing or dressing the stones." (p. 41).

How many more than a few do we need before something exists? Let us not confuse precarious existence with existence.

Many of Priamo’s statements force the reviewer to ask if she understands her subject. I was mildly surprised by the "wheat berries" (p. 42). But there are more serious problems. We are told about the settlers who used the mortar and pestle for wheat as well as corn (p. 30). But in the primary sources — the pioneering literature of the nineteenth century — the settlers made it clear that the mortar and pestle were no good for wheat. Corn and wheat have different mechanical requirements and hence the overriding importance of the mill for wheat. This is but one of the many fundamental points which Priamo has missed entirely. Her undocumented claim that the miller "was not allowed to take time off for carousing" (p. 99) strikes anyone familiar with nineteenth century complaints about millers, and other skilled tradesmen, as patently nonsense.

There are numerous questionable claims but the real doubts regarding the author’s expertise and the sources used in writing this book come when one tries to follow up quotations and references found within the text. The bibliography at the back of the book does not appear to be the same as that for many of the internal citations. One such incident occurred with a quotation from the memoirs of Archibald McKellar (p. 99). I wanted to follow this source but failed to find it listed in the bibliography. This happened so many times that the reviewer had no choice but to ask who wrote the book and what were the sources. What is being hidden? Were there ghost writers not present for the bibliography meeting or is this another case of that undergraduate trick of reading a few secondary sources and using the original sources cited therein to make oneself appear more erudite and widely read than is the case. Whatever the answer, the author and publisher should have been careful enough that asking these questions would not have been necessary.

Mills of Canada is not a bad book; it accomplishes much and encourages even more but the text, not the pictures, gave me the uneasy feeling that I often have after examining museum exhibits on technology. I leave, having had fun, believing that the time was well spent, but mulling the question: Do these people really know what they are talking about?

I asked the same question a few times while reading Sande’s Industrial Archaeology, A New Look at the American Heritage. This should not have been necessary. Sande is familiar with the literature of industrial archaeology, knows what he wants to do, expresses it well (p. vii), and then proceeds not to do it. He is aware of the need to assess technological and social significance and intended his book to be an introduction to industrial archaeology in the United States. But in the text significance is generally ignored in favour of straight description. This is tragic. He has chosen interesting and significant sites and I can see Sande’s Industrial Archaeology inspiring a photographer to record the industrial heritage. I fail to see it as the book which will create an interest in studying and assessing the nature and significance of the technological past. He gives neither pattern nor method and does not show the intellectual excitement of industrial archaeology.

One also wonders how it will strike those knowledgeable in the engineering of particular fields. Industrial archaeology and the history of technology desperately need their sympathies and active interest because a firm grasp on mechanical understanding is necessary to put social and historical assessment on a more solid foundation. More than once I found myself seriously doubting mechanical descriptions and in one instance was moved to print on the right hand margin "THIS IS LUDICROUS!" (p. 9, regarding the operation of a stacker on a dredge.)

Hudson, Priamo, and Sande have shown that museums and the reading public should expand the breadth of their historical horizons. But let us not forget depth. Far too much of the historical experience is systematically neglected by our cultural institutions, although there are signs that this is changing for the better.

Priamo and Sande have again brought to mind what I consider to be the most serious problem plaguing the museum’s treatment of the history of technology and science: the obligation to help the untrained visitor understand both the nature and significance of what he is seeing. It starts with judicious selection based on a thorough understanding of the history of the field.

Canadian museums are denying their public the opportunity of understanding science and technology in a historical setting, preferring to keep it shrouded in mystery. If, for example, we look at painting, we find a twofold division of skill and expertise. On the one hand there are those with demonstrated ability in painting, those who can produce the works. There are also the art historians who may or may not be able to paint but they can contribute much to understanding the place occupied by the paintings under consideration. One does not find major art museums devoid of art historians. However, in Canada it is rare or unheard of to find those with demonstrated competence and/or training in the history of science and technology working in museums dealing with science and technology. With rare exceptions, curators are hired for their mechanical skills and expertise. Art curators are rarely hired on the basis of their ability to produce and repair the type of items to be found in their collections. We can explain this apparently illogical departure from normal museum practice by referring to an unwritten statute stating that technology in Canadian museums is not to go beyond the stage of showing tinkets; sound and fury are allowed but understanding and perspective are not.

I wonder if this counterproductive approach will ever change. It should. The results, or lack thereof, are a national disgrace but the reading and museum visiting public is being conditioned to accept this needless and patronizing superficiality.

Norman R. Ball
Il existe une bonne vingtaine de formes d'art différentes, que l'on peut répartir en deux groupes : les beaux-arts et les arts utiles. Seulement deux permettent toutes ces formes d'art, la musique et la danse, existent indépendamment du domaine de la lumière. Dès lors qu'il s'agissait d'autres, y compris la peinture, la sculpture, la céramique et l'architecture, l'expression artistique ne se laisse pas communicer ni appréciée sans l'aide de la lumière.

On aura remarqué que j'ai pris la peine de mentionner l'architecture parmi les quelques exemples que j'ai donnés. Je l'ai fait parce que les œuvres d'art qui se trouvent dans un musée ou dans une galerie d'art n'existent pas à l'état isolé : elles y font partie d'un environnement, d'un lieu. L'éclairage a donc une double responsabilité : d'un côté, envers l'architecture : de l'autre, envers les œuvres d'art. Un système d'éclairage sera réussi en autant que, pour une grande partie, on aura réussi à y intégrer ces deux responsabilités.

À l'éclairage de l'architecture revient la tâche d'articuler les espaces voulus par l'architecte, le groupement des formes, les matières, bref toutes les composantes de la galerie qu'il a imaginée. À l'éclairage des œuvres d'art revient la tâche d'assurer leur présentation et leur conservation.

Vous pouvez laisser votre attention se fixer sur l'éclairage de l'architecture : cela le rendra sans doute juste et en souliendra les qualités. Il est possible d'incorporer les appareils d'éclairage à la structure de l'édifice, de sorte qu'ils en deviennent partie intégrante ; c'est le cas de certaines des nouvelles salles de l'Art Gallery of Ontario. Mais si on néglige d'intégrer aux espaces en question, en même temps et avec autant d'habileté, l'éclairage destiné aux œuvres d'art et celui destiné à l'architecture, il est fort probable que l'éclairage des œuvres d'art semblera une idée de dernière minute. À ce titre, il peut arriver qu'on prenne la vedette dans une salle d'exposition. Bien sûr, tout l'éclairage, quel qu'il soit, devrait être intégré à l'architecture au point que le visiteur n'ait pas conscience du moment de cet éclairage, ni même qu'il y ait un système d'éclairage. Je me souviens avoir vu une galerie illuminée par ces grosses lampes incandescentes en forme de sphère qu'on appelle "Fut Alberts", on les avait installées côté à côté dans les cadres rectangulaires. Cet éclairage était loin d'être discret ; il relevait évidemment du truc, et il prenait la vedette sur ce qu'il était censé éclairer. Sans toujours aller jusqu'à de tels extrêmes, il n'est pas rare que l'on suspende des lampes à faiseaux dirigés le long de rampes accrochées au plafond. À mon avis, cela est à la fois trop présent et distraquant. Probablement mieux, également, si l'on pense que l'on aurait pu intégrer l'éclairage à l'architecture.

La mise au point de l'éclairage d'une galerie ou d'un musée suppose un constant échange d'idées entre l'architecte et l'éclairagiste. En fait, comme le Guelpheskan (La si bien montré, les nécessités de l'éclairage peuvent très bien orienter la conception architecturale. Les plans en étaient rendus à un stade décisif ; la toile devait laisser passer la lumière du jour, sans pour autant que les niveaux d'éclairage soient trop élevés et que cet éclairage n'entraîne des inégalités aléatoires. C'est à ce moment que Thompson publia son ouvrage sur la conservation. On se rend compte que les exigences de la conservation en ce qui concerne le contrôle de la lumière étaient incompatibles avec un éclairage naturel. Aussi modifia-t-on les plans du tout au tout, comme source principale d'éclairage général, on remplaça la lumière du jour qui devait filtrer à travers le toile par un éclairage électrique.

Cette nécessité d'assurer un éclairage d'idées, dont je viens de parler, m'amène à vous faire part des doutes qui flottent dans mon esprit en ce qui a trait au concours concernant les plans de la nouvelle Galerie nationale. Certains éclairagistes y travaillent en coopération avec plus qu'un seul des groupes qui préparent ces plans : chacun de ces éclairagistes est donc amené à éclairer des idées avec plus d'un de ces groupes. Pour ma part, je m'attache à comprendre comment les concepts et les idées que l'éclairagiste a choisis dans le cadre de son travail avec une première équipe d'architectes peuvent rester isolés, à l'abri de toutes possibilités d'influence en ce qui concerne le choix des concepts qui se feront en liaison avec une seconde et une troisième équipe d'architectes. Il me semble que les échanges de points de vue entre l'architecte et l'éclairagiste rendent impossible l'isolement d'un groupe de concepts par rapport à un autre. Dans le cadre de ce concours pour une nouvelle Galerie nationale, on serait en droit de s'attendre à voir créer des concepts d'éclairage différents, un par équipe d'architectes. Il me paraît qu'il y a de grandes chances pour que nous ne puissions pas arriver à ces dix concepts d'éclairage différents.

Ce n'est pas sans raison que le concours de la Galerie nationale du Canada met l'accent sur l'utilisation de la lumière naturelle. Une telle tendance est conforme à l'orientation de Groupes, qui parle favorablement de l'utilisation de la lumière naturelle dans une galerie d'art. "L'ensemble de ce qui peut arriver par suite des changements de l'éclairage (naturel) est exactement ce qu'il nous faut!" Ces changements sont tout particulièrement importants lorsqu'il s'agit de la présentation des sculptures. Une grande partie des œuvres sculptées est quand même trop fragile pour qu'on puisse les soumettre aux conditions climatiques extérieures ; il faut absolument les présenter à l'intérieur. Mais il importe de
conservant la qualité très vivante de la lumière naturelle : il ne faut pas l'affaiblir au point de rendre la sculpture comme une image.

Il m'a semblé goûter l'atmosphère de l'hôtel de ville de Toronto. Toujours, il fait une paix pour admirer l'architecte Henry Moore. Précieuse cette paix pour l'œil et pour le cœur : la nuit, l'éclairage déforme complètement cette sculpture. Mais par un beau matin ensOLEillé de printemps, alors que quelques nuages passaient devant le soleil, l'œuvre de Moore est toute vibrante de vie où son vrai caractère même change de minute en minute... je dois avouer que la même émotion ne me poursuit pas dans la salle Moore de la Galerie de l'Ontario. La lumière naturelle y est tellement faible que l'éclairage qui s'y trouve est beaucoup plus difficile à réaliser. Une éclairage qui est moins pour moi, et qui est moins pour l'œuvre de Moore. Il est loin de la salle de l'éclairage de l'œuvre de l'architecte.

Il existe une véritable mystère concernant la lumière naturelle. Par exemple, je me suis remis sur l'éclairage de l'œuvre de l'architecte de la salle de l'éclairage de l'œuvre de l'architecte. Un intérieur très lumineux de Vermeer de Delft montre à quel point l'éclairage latéral peut avoir une efficacité dans une scène où l'on trouve des peintures, des œuvres, des œuvres, des œuvres. Ce qui ne parait évident, c'est que pour répondre aux exigences de son client, l'architecte trace ordinairement des plans qui incorporent à grands frais la lumière naturelle. Or, je ne suis pas content de cela pour plusieurs raisons qui éliminent prétendument. Parce que par exemple, la présence exige qu'en une salle où l'on expose des tableaux, on illumine complètement les plus puissants effets de la lumière seule directe et que l'on réduit la lumière diffuse de l'éclairage. Le concept des effets de l'éclairage à la lumière naturelle est largement accepté, bien que l'éclairage naturel ne se développe pas. On sait que la lumière naturelle est un des plus actifs au point de vue photochimique, qu'elle la lumière diffuse puisse également jouer un plus grand rôle dans l'éclairage. La chaleur, par exemple, de la lumière naturelle, est une largeur importante, elle peut entraîner des modifications tant physiques que chimiques. La rapidité avec laquelle la chaleur diffuse de la lumière est un des plus actifs au point de vue photochimique. On sait que la lumière diffuse est l'un des plus actifs au point de vue photochimique. On sait que la lumière diffuse est l'un des plus actifs au point de vue photochimique.

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Since the backgrounds and activities of the readers are so diverse, it is imperative that professional jargon be avoided and the authors attempt to make their work intelligible to all.

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6) A brief biographical note about the author and a recent photograph are also requested.

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RENOVO
1. Trudel, Jean, Un chef-d'œuvre de l'art ancien du Québec, 1972, p. 11.
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