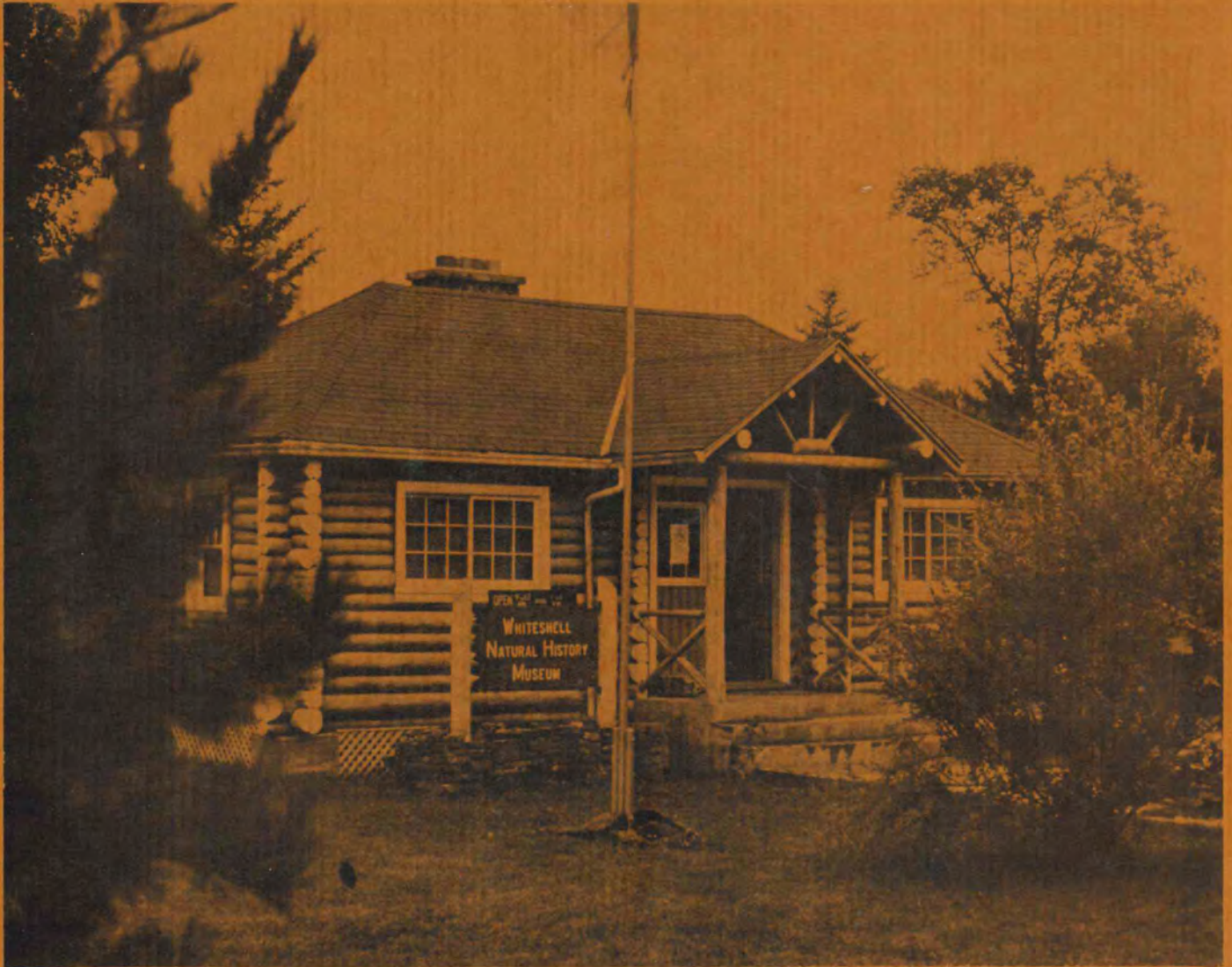


DAWSON AND HIND

SPRING 1976

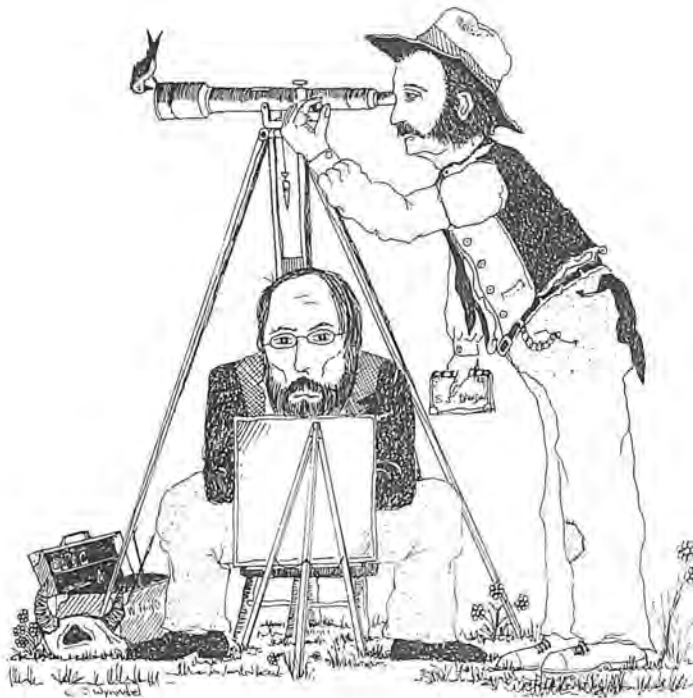
VOL. 5 NO. 2



WHITESHELL NATURAL HISTORY MUSEUM

a quarterly publication of the association of manitoba museums

dawson & hind



SIMON JAMES DAWSON was appointed by the Canadian Government in 1857 to explore the country from Lake Superior westward to the Saskatchewan. His report was among the first to attract attention to the possibilities of the North West as a home for settlers. He was later to build the Dawson Route from Lake-of-the-Woods to Winnipeg.

WILLIAM GEORGE RICHARDSON HIND accompanied his brother, Henry Youle Hind, as official artist, when the latter was in command of the Assiniboine and Saskatchewan exploration expedition of 1858. William Hind revisited the North West in 1863-64 and painted numerous paintings of the people and general scenes.

The *DAWSON AND HIND* is published quarterly for the Association of Manitoba Museums, by the Museums Advisory Service, with the co-operation of the Parks Branch, Department of Tourism, Recreation and Cultural Affairs, Province of Manitoba.

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EDITOR'S FORUM

Diane Skalenda

In the past, the natural history museums in the province have been somewhat neglected by the *Dawson and Hind*. We hope to atone for this omission in this issue which is devoted almost entirely to natural history. We hope it will inspire the community museums to reflect not only the human history, but also the ecology, of their areas.

THE CANADIAN ORAL HISTORY ASSOCIATION

The Canadian Oral History Association will hold its annual conference at the Public Archives of Canada in Ottawa on September 8th and 9th, 1976. The theme of this year's conference will be "*Oral History and Archives*". Air Canada is offering a discount rate of 10% for persons travelling in a group of 15 on the same flight for which a booking has been made. Reservations for those departing from Winnipeg will be on Air Canada Flight #170, departing on September 7th, 1976 at 4:15 p.m. and arriving in Ottawa at 8:35 p.m. If you wish further information, contact David Jenkins at the Manitoba Museum of Man and Nature, 190 Rupert Avenue, Winnipeg, Manitoba R3B ON2 - telephone 956-2830, ext. 143.

MAP LIBRARY

The Curatorial Division of the Manitoba Museum of Man and Nature is in the process of setting up a map library. In this collection it hopes to acquire a full range of maps of diversified interest for research as well as interpretive use. They are interested in acquiring any local or regional maps of Manitoba, regardless of age or the types of information they contain. If you have maps of any kind which you have no more use for, they would certainly appreciate them. Please forward them to: Cornell Wynnobel, Historical Geographer, Curatorial Division, Manitoba Museum of Man and Nature, 190 Rupert Avenue, Winnipeg, Manitoba R3B ON2.

HISTORIC SITES

The Historic Resources Branch of the Department of Tourism, Recreation and Cultural Affairs is looking to local historical societies, history committees, and individuals interested in local history, to pinpoint possible historic site development. The branch also hopes to encourage more equal distribution of historic research across the province, so all areas of historic significance are included. Groups or individuals interested in participating in this programme are asked to

write to the Historic Resources Branch, Department of Tourism, Recreation and Cultural Affairs, 200 Vaughan Street, Winnipeg, Manitoba, with details of interests, projects, or plans for historical research.

UKRAINIAN CULTURAL AND EDUCATIONAL CENTRE

The Ukrainian Cultural and Educational Centre has announced the appointment of Dr. Robert B. Klymasz as Executive Director effective September 1st, 1976. In this capacity, Dr. Klymasz will be responsible for co-ordinating the work of the Centre's different departments and activities: museum, art gallery, archives, extension services and administration.

CANADIAN MUSEUMS ASSOCIATION ARCHIVES

The Fellows Committee is attempting to compile the history of the C.M.A. They kindly request your help by asking you to send copies of historical photos or negatives to the editor, Mr. Gary Sirois, at the Secretariat, P.O. Box 1328, Station B, Ottawa, Ontario K1P 5R4. The Committee is most interested in photos taken at the annual conferences, committee, board and council meetings, seminars and informal events. Great care will be taken to return your photos and negatives, if requested.

CANADIAN MUSEUMS ASSOCIATION PUBLICATION

The C.M.A. has just published a new book entitled "*A Glossary of Terms Useful in Conservation*" by Elizabeth Phillimore. It is available at a cost of \$1.00 to C.M.A. members, and \$2.00 to non-members, from the C.M.A. Resource Centre, Box 1328, Station B, Ottawa, Ontario K1P 5R4.

DAWSON AND HIND

Since the inception of the quarterly, we have been asked on numerous occasions "who were Dawson and Hind?". Our new title page answers this question and we are grateful to Cornell Wynnobel of the Manitoba Museum of Man and Nature for his charming sketch of Simon Dawson and William George Richardson Hind. We have published photographs of these two gentlemen at the end of this issue.

FROM THE PRESIDENT

GOVERNMENT FUNDS FOR MUSEUMS: A MYTH OR A REALITY?

There seems to be reluctance on the part of Governments, from the Federal to the Municipal level, to contribute money for the upkeep of museums.

The Federal Government contributed a considerable amount of money through the National Museums Policy, and the Provincial Government through the Museums and Miscellaneous Grant Program. These grants have been, and are a help, but are insufficient to provide for everyday needs.

Let us take a look at the museum situation in general. Ten years ago, before the Associated Manitoba Museums came into being, there were a handful of museums scattered about Manitoba. In 1976 there are approximately one hundred. What brought on this sudden explosion? With Centennial year being celebrated throughout the country, people have realized suddenly that we have become a nation. We have a history, a culture, a heritage, but what are we doing to preserve it for future generations? Our antiques, artifacts and documents are being lost, destroyed, burned, or worse yet, sold south of the border. Once lost, they are gone forever. Therefore, everyone has become a collector; thus these collections have become museums and some are very good ones. The job of arranging collections into displays took thousands of hours of volunteer labour. The work of maintenance and operating goes on forever, but can we expect the volunteers to carry the entire load?

Let us also consider the fact that museums have become a major tourist attraction from which the Government receives considerable revenue, but are the museums receiving their fair share of the tourist dollar?

Inflation has had the same affect on museums as it has on all other projects. The fact that the Local Initiative Program, the Provincial Employment Plan, and the Student Temporary Employment Plan has been discontinued has taken away these sources of revenue previously available to us. In view of all these circumstances, it would seem reasonable to suggest that the Government work out a criteria, whereby they would issue yearly grants possibly based on the performance of museums, according to their rating.

Let's think about it!

John Dubreuil

LETTERS

PLAUDITS TO DAVID ROSS:

We of the Virden Pioneer Home Museum have learned with regret that David Ross will be leaving Manitoba for the Maritimes. We wish him well indeed, but wish to make public through this medium, our gratitude for his advisory assistance since our first meeting with him. His excellent advice concerning grants, concerning expansion plans, concerning staffing our museum, concerning big headaches during the days of our formation and little headaches at any time of the year - have all been beneficial to us, to our community and ultimately to the visitors who come to our museum.

For all of that, we say thank you to David Ross. Farewell and Good Luck!

Grayce M. Hegron
Pioneer Home Museum of
Virden and Districts

February 24th, 1976

WHITESHELL NATURAL HISTORY MUSEUM

Jim Tallosi

Since the museum at Nutimik Lake was officially opened in 1960, it has become a popular stopping place for those who visit the Whiteshell. Last year, nearly 11,000 people stopped to view its varied exhibits.

The simple log building with its large central fireplace was built by the Manitoba Forest Service while the district was still a forest reserve. Construction commenced in the winter of 1951-52; the building materials were obtained locally.

The rock which is a prominent characteristic of the landscape is among the oldest in the world, being formed about 2½ billion years ago. Samples of volcanic, sedimentary and granitic rock were brought here from throughout the Whiteshell. Early in this century, prospectors traversed it by canoe and on foot in search of valuable elements still embedded in its silent rocks. Manitoba's first mineral claims were filed for areas in the southern part of today's park.

The museum's collection of fauna - birds, mammals and fish - is representative of the Whiteshell's native species. Some



of the birds included are ducks, grouse, owls and the common whiskey-jack. One of the unique animal specimens is an albino beaver obtained from the Rennie River. Other mammals included are the muskrat, weasel and the black bear. There is a colourful collection of Manitoba's butterflies.

Another interesting aspect of the museum is its exhibit of Indian artifacts. The pottery sherds, arrowheads and stone implements were found locally indicating that the Whiteshell was inhabited for thousands of years. Rivers like the Winnipeg, Whiteshell and the Rennie were well-known and well-travelled waterways before the first explorers came this way. Near Betula Lake and throughout the park one of the pre-historic tribes left us a mysterious legacy in the form of their boulder "mosaics".

Effigies of men, birds, snakes, turtles and geometric patterns are believed to have been part of their religious ceremonies.

The museum is operated by the Parks Branch of the Department of Tourism, Recreation and Cultural Affairs. It is open daily through July and August; and open weekends only in May, June and September. Admission is free of charge.

THE ARCTIC-SUBARCTIC GALLERY

Don Walters

Editor's Note: The following article was first published in "Locus", Volume 2, Number 2, and appears with the permission of the editor. The author is a second year Creative Communications student at Red River Community College and prepared the article as a special project.

In a far corner of the Earth History Gallery cool blue light penetrates earthy browns and beiges. Mysteriously attracted, as if to the unknown, you step slowly into an icy aura. The air is cool, an unfamiliar closeness in the surroundings is sensed, as though you are in a cave. Looking around, your startled eye catches the menacing form of a polar bear looming large on the left.

But you need not worry. Those sharp incisors are preparing to make a meal out of a ringed seal, not you.

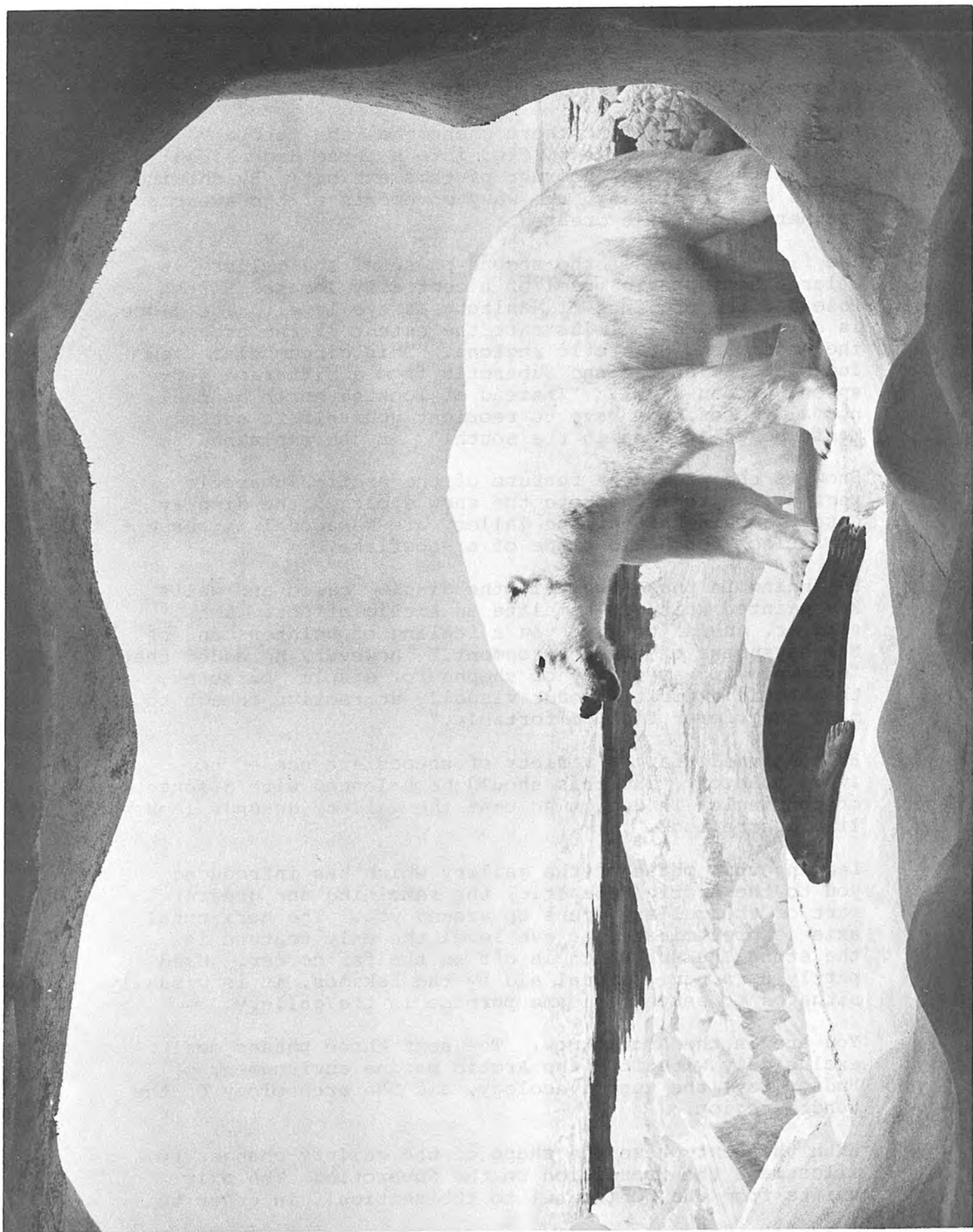
The Snow Cave/Polar Bear Diorama is the dramatic opening to the Arctic/Subarctic Gallery, the sixth major gallery to be completed at the Manitoba Museum of Man and Nature. Three years in the making, from inception to finished construction, the new gallery examines all aspects of Manitoba's Arctic and Subarctic natural history, and how the native peoples, and later the white man, have inter-related with this environment.

The word "Arctic" comes from the Greek word Arktos, meaning bear, named after the bear constellations that circle the North Pole. There is no way more appropriate to begin the Arctic/Subarctic Gallery than with a polar bear, the animal that, to northerners and southerners alike, has become the symbol of the north.

"The reason for such a dramatic beginning to the new gallery is to orientate the public to the other Arctic and Subarctic exhibits they will see," says Chris Au, the gallery's chief designer. "If we can make an impact with the first display, the attention of people will be aroused enough to be keen about whatever else follows in the gallery."

The Arctic/Subarctic Gallery is made up of nine phases and a workshop area for school children. Each phase has a theme which is illustrated by three or four display units.

One unit of this first phase is a three dimensional display called "Northern Days and Nights." It shows the rising and setting of the sun during the Arctic summer. The northern summer is renown, for during this time the North Pole is tilted toward the sun, resulting in the phenomena



of days with twenty-four hours of sunlight.

Another interesting northern phenomena, the Aurora Borealis, has been interpreted into a three dimensional display that covers a corner of this exhibit. By shining lights on the display, the wavy movements of the awesome Northern Lights are created.

The first display of the second phase of the gallery is a large hemispheric model of a centrally located North Pole and the province of Manitoba at eye level. The globe is colour coded to illustrate the extent of the area of the Arctic and Subarctic regions. This circumpolar view looks at the Arctic and Subarctic from a different perspective than usual. "Instead of looking north as one normally does, you have to reorient yourself to seeing Manitoba as an area in the south." Mr. Au explained.

Snow is the prominent feature of the Arctic/Subarctic region, and to illustrate the snow ecology, the display cases in this unit of the gallery are hexagonal in shape - to reflect the basic shape of a snowflake.

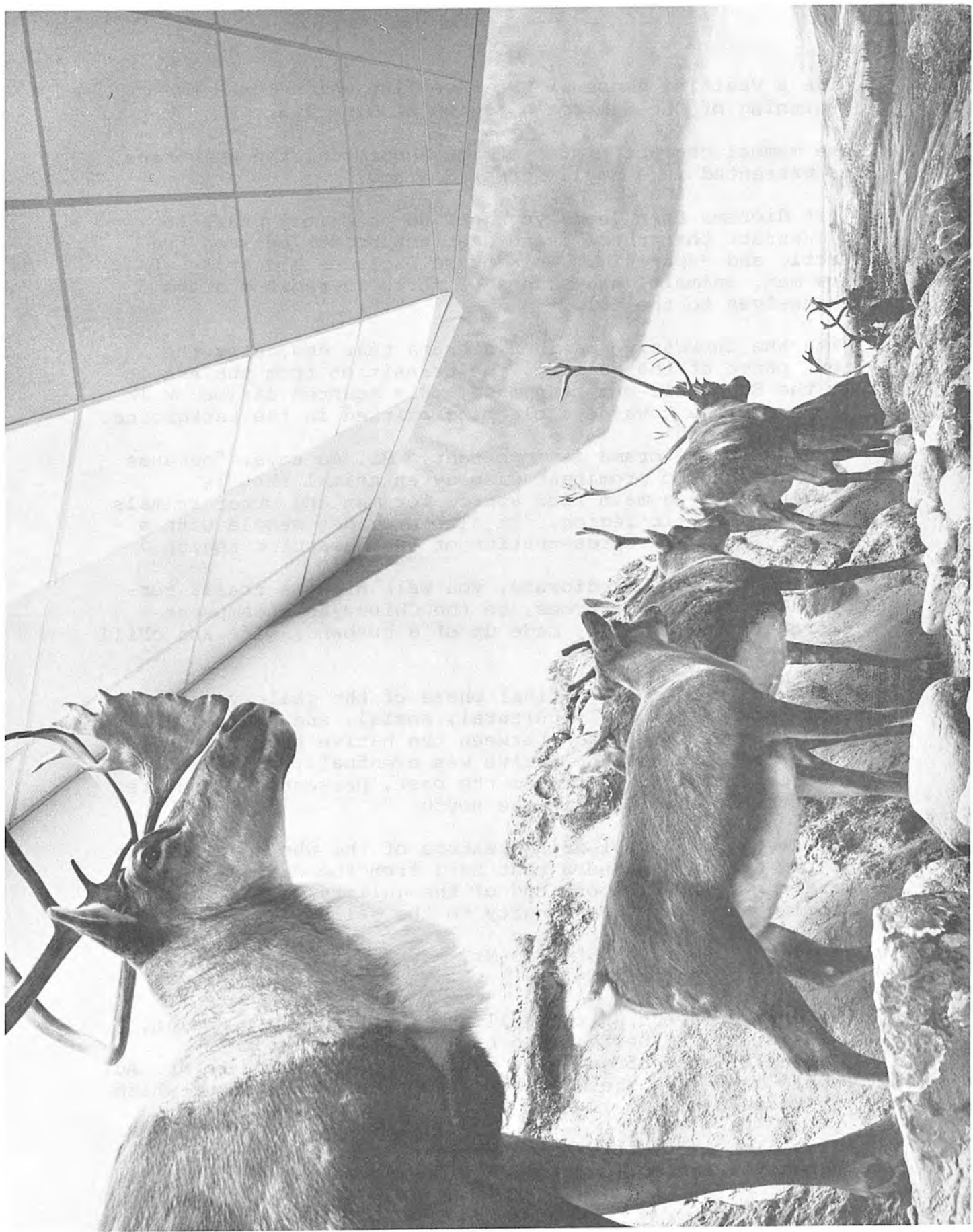
Beginning in phase two, all the display cases and walls are painted white to simulate an Arctic effect. This, said Mr. Au is "to give you a feeling of coldness and of the harshness of the environment." However, he added that "by employing a variety of shapes for display purposes, the Arctic exhibit is made visually attractive enough to make the viewer feel comfortable."

He continued that "a variety of shapes are needed to avoid monotony, but this should be balanced with a sense of continuity in design so that the gallery doesn't look like a scrapbook."

Leaving this phase of the gallery which has introduced you to the Arctic/Subarctic, the remaining and greater part of the gallery opens up around you. The horizontal axis is predominate; at eye level the only feature is the stone Inuksuk which is off in the far corner. Used partly as a navigational aid by the Eskimos, it is visually situated to serve the same purpose in the gallery.

You are in the Arctic now. The next three phases deal exclusively with it - the Arctic marine environment of Hudson Bay, the tundra ecology, and the archeology of the tundra region.

With the next phase the shape of the gallery changes to illustrate the transition to the Subarctic. The axis shifts from the horizontal to the vertical, in order to



give a vaulting sense of the tree line which marks the beginning of the Subarctic region of Manitoba.

One mammal characteristic of the Subarctic, the wolverine, is presented in a small forest diorama.

This diorama then leads you back to an Arctic phase to illustrate that there is no distinct border between the Arctic and Subarctic. This phase includes a display of how man, animals, and plants of northern regions adapt themselves to the cold.

With the impressive caribou diorama that dominates the next phase of the gallery, the transition from the Arctic to the Subarctic has been made. Six mounted caribou walk along a ridge towards a clearing painted in the background.

"The caribou diorama is important," Mr. Au says, "because it brings in to prominent display an animal that is traditionally a main food source for man and other animals in the Subarctic region. It also provides people with a powerful visual representation of the Subarctic region."

Leaving the caribou diorama, you walk along a trail, bordered by coniferous trees, to the Chipewyan encampment diorama. The scene is made up of a husband, wife and child relaxing around a fire.

Other exhibits in this final phase of the gallery include a history of the early cultural, social, and economic changes that took place between the native peoples and the white man, and how the native was eventually colonized. Another exhibit illustrates the past, present, and future aspects of technology in the north.

One aesthetically pleasing feature of the whole gallery is the coloured banners that hang from the ceiling. They wind their way from one end of the gallery to the other, lending a sense of continuity to the gallery.

"They also represent," says Mr. Au, "a visual abstraction of the Aurora Borealis."

The entire layout of the gallery is unilinear in design, a layout Mr. Au believes to be best suited for this particular type of gallery. This way, according to Mr. Au, people can enjoy the displays without worrying about which way to turn next.

"This also makes for a more rational design because to a degree you can anticipate the viewer's movements," he said.

One common misconception about the Arctic/Subarctic itself is that it is a bleak and barren region. Through the Arctic/Subarctic Gallery, the Manitoba Museum of Man and Nature proves that the north is really a lively and colourful environment.

ANYONE CAN MOUNT FISH

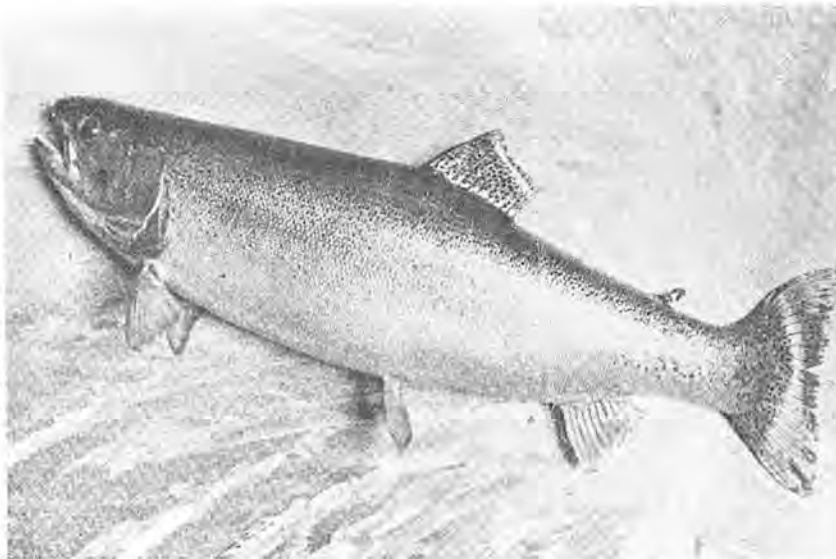
Donald R. Daus

Editor's Note: The following article is reprinted, with the permission of the editor, from "Wildlife Review", which is a publication of the B.C. Dept. of Recreation and Conservation.

As a fisherman and a biology teacher, I have desired to mount trophies and specimens for classroom use. First attempts with plaster molds were unsatisfactory. Student handling of these heavy specimens destroyed them, and they weighed so much that it would have required a railroad spike to hold them on the wall. The alternative of paying \$1.25 to \$2 an inch to have them mounted did not appeal either. A 38-inch salmon worth \$76 just isn't the kind of thing you let students touch.

After considerable experimenting, a system of mounting was devised that is easy and inexpensive. You need buy only a box of powdered borax, a sheet of styrofoam the thickness, width, and length of the body of your fish, India ink the colour of the eyes, and a small sheet of acetate. Any other tools required can be found in the laboratory or kitchen.

If it is desired that the fish be painted, a colour photo should be taken shortly after the fish is caught. However,



Fish are traditionally difficult to preserve and mount, but by following the directions in this article it is possible for almost anyone to prepare a useful fish trophy

it is amazing how well such fish as pike, bass and salmon hold their colour. Specimens may be frozen until it is convenient to work on them. Wrap them carefully to prevent freezer burn.

FIRST STEPS

Prior to thawing, make a tracing of the fish by placing it on a piece of freezer paper. This tracing will be used to shape your body form later. At the points indicated on picture 1, measure the depth and thickness of the body. This will help in shaping the body. Note these measurements right on the tracing. The colour of the eye may also be noted on this tracing.

Take an old bath towel and soak it in very hot water. Wrap this around the fish. After the towel has cooled, repeat the process until the skin has begun to thaw. It is important that the body does not thaw, as skinning is by far easiest if only the skin is thawed.

Using a sharp knife, make an incision on the side opposite that which you wish to display, as shown in picture 2. Loosen the skin with the knife. If the skin is properly thawed, the fingers then can be placed under the skin, and by exerting a small amount of pressure the skin can be separated from the body.

Fold the flaps of skin until the fins are reached. With a serrated-blade knife or scissors, cut off the bones at the base of the fins. Also cut through the spine at the base of the tail, being careful not to cut through the skin on the opposite side. Work the skin forward to the head. Cut the body off as close to the head as possible. Rewrap the body and place it back in the freezer for reference when making the body form.

Using a dull knife, scrape as much of the remaining flesh from the skin as possible. Remove the gills, but be careful not to cut out the tongue. If the fins start to show signs of drying, cover them with wet paper towelling.

The eyes are held in by a membrane that is easily cut with scissors. Cut around the entire eye; then lift the eye out of the socket and cut the remaining materials that hold it. Thoroughly wash out the sockets and the rest of the skin.

APPLY BORAX - THEN FREEZE

Now coat the skin liberally with powdered borax, both inside and out. Be generous with borax in the head cavity.

Using the wet towel you used to thaw the skin, carefully wrap the fish in a neat bundle and place it in a plastic bag. The towel must be moist, and fins should lay flat. This is to remain from one to two weeks in the refrigerator as the skin cures. I have left them as long as a month without any problems of decay.

While the skin is curing you can begin work on the body form. If you cannot purchase styrofoam that is thick enough, buy two or more sheets and glue them together with white glue. When the glue has hardened, trace an outline of the body on the styrofoam, using the freezer paper tracing as a guide. Then with a coping saw rough out the body form and finish shaping it with a wood rasp. The freezer-paper tracing with depth and thickness measurements, as well as the body in the freezer, serve as guides for final shaping.

When the skin is cured, wash it in running water. All of the borax must be washed off or it will leave a white powder on the skin when it dries. You will find that the skin has shrunk somewhat in curing. As you place it around the form, try to stretch it as much as possible. If the fit is not good, you may need to rasp the body form down slightly.

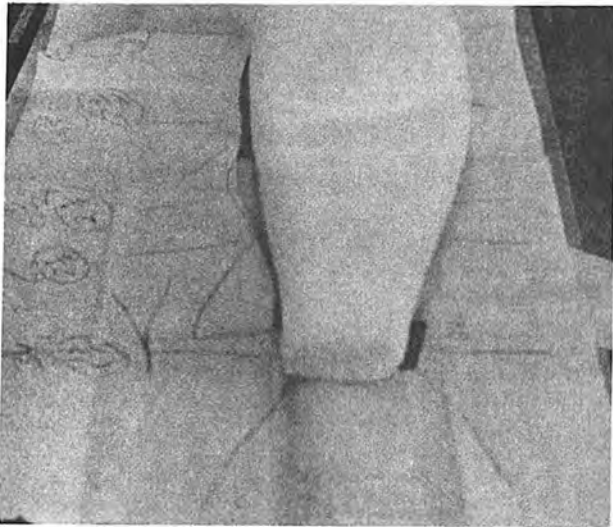
When you are satisfied that the skin will fit the form, pin it in place along the incision with straight pins. Then cut cardboard strips big enough to cover all the fins including the tail. Place a strip on each side of the spread and positioned fin, holding it in place with pins as shown in picture 3. If waxed cardboard is used, it will not stick to the fins.

The first few days of drying may produce a slight odour. Remove the cardboard from the fins when the skin is dry.

FIXING THE EYE

The eye is formed by placing a ball of cotton slightly bigger than the eye in the socket. This cotton is coloured with India ink the colour of the iris of the fish's eye. This will require some time to dry.

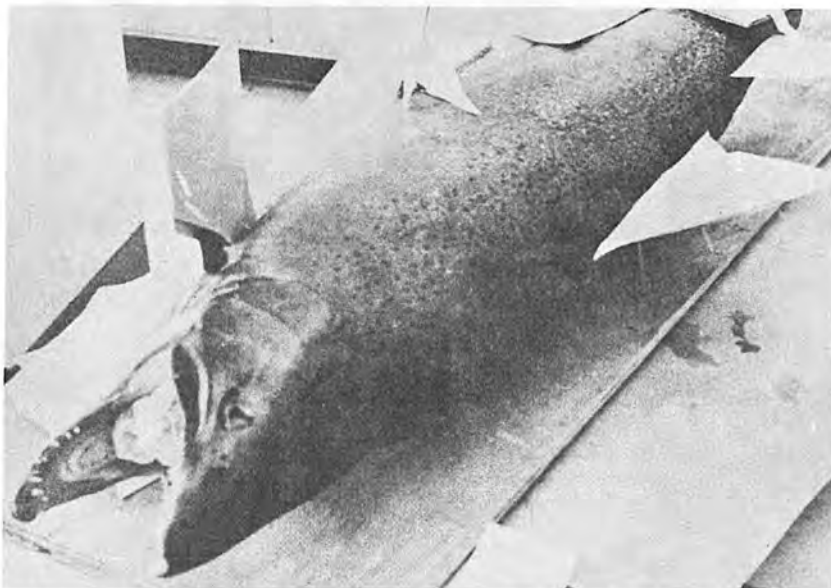
Find a measuring spoon the same size as the eye, and heat the spoon over a low flame. Place a piece of acetate on a dry towel, and press an impression in it with the hot spoon. It may take a few trials to get an impression the shape of the eye. Then cut out the impression, making sure it is slightly larger than the eye opening. Using black India ink, paint the pupil of the eye on the inside surface of the acetate impression. When all of the ink is dry, slip the acetate in over the cotton.



First rough of body form seen on top freezer paper. Note measurements of fish's body marked on paper



Incision made opposite to side to be displayed. Half frozen fish is then skinned



Skin is fitted to mold. Waxed cardboard strips cover fins. Now model must be allowed to dry

The fish is now ready to be painted or lacquered. It may be coated with clear lacquer and hung without a board. Fins that are in poor condition can be repaired with lacquer. Total cost for mounting - less than \$3, and the beginning of a collection of fishes of your area. The finished product should look like picture 4.



The finished product - quite adequate for museum use

A HISTORY OF THE B.J. HALES MUSEUM OF NATURAL HISTORY

Barbara Robinson

*"Great specimens for identifying."
 "Very well done and beautiful."
 "A fine presentation of wildlife in Manitoba."
 "A delightful gallery. Well worth a visit."*

Such are some of the comments registered in the B.J. Hales Museum guest book. From Hereford, Arizona to Aarberg, Switzerland; from Ondefontaine, (Normandie) France to Croatia, Zagreb; from Parana, Brazil to Basingstone, England; from Portugal and Spain to Inuvik, North West Territories; from Nashville, Tennessee to Auckland, New Zealand; from Miami, Manitoba to Miami, Florida, people visit from the four corners of the earth.

The museum has had a varied history of ups and downs over the years, but in its present form at Brandon University, it is a bright, attractive collection of birds and mammals indigenous to Manitoba.

The original collection of avifauna was made by George E. Atkinson, for sixteen years a resident of Portage La Prairie. Toronto-born in the 1850's era, he spent much time as a youth exploring the world of nature in Algonquin Park. His desire to study the fauna of the rugged western Ontario region of Lake Superior, prompted his later move to Port Arthur, where he soon became well known as a naturalist and expert taxidermist. From Port Arthur he moved to Winnipeg, and some four years later to Portage La Prairie. Here he had greater opportunity to study and collect birds of the plains and the nearby Delta marshes.

He was a prolific writer and illustrator of books, pamphlets, magazines and newspaper articles, all on his favorite subject of nature; and yet today he is almost unknown.

He died of a seizure and drowning, June 23, 1913, while on an annual boating trip between Brandon and Portage. His skill in taxidermy is revealed by the many examples still remaining in the Hales collection - excellent mounts, life-like and natural.

Shortly after Atkinson's death, Mr. B.J. Hales took action to acquire and preserve the many mounted specimens of the Atkinson collection. Born in 1869, at Peterborough, Ontario, Mr. Hales received his B.A. from the University of Toronto, and an L.L.B. from the University of Manitoba. From 1911 to 1938, he was principal of the Brandon Normal School.

With the Atkinson collection as the nucleus, Mr. Hales added many more specimens of birds and mammals. The Hales Collection, as it became known, was housed in the Normal School. Surrounded on all sides by examples of natural history, his students absorbed his knowledge and interest in the fauna and flora of Manitoba. His three books, "Prairie Birds", "Selected Western Flora", and "Forests and Trees" were to be found in the libraries of many rural and urban schools. When one-roomed schools were closed, many library books were consigned to the trash can, Hales' books amongst them. Some city schools were guilty of the same offense. Today they are collectors' items.

A very proficient Brandon taxidermist, John S. Charleson, assisted Hales in his endeavors. He was responsible for mounting a majority of mammal forms.

During the years of World War II when the Normal School was appropriated by the Armed Forces, the Hales' specimens were stored in two Brandon elementary schools.

After the cessation of hostilities, the Normal School was not opened again as such. Quarters for the museum were made available at the School Board Building, at 11 Street and McTavish Avenue in Brandon.

Under the direction of Mr. Frank Robb, an interested layman employed by the School Board, attempts were made to refurbish and restore the specimens, and provide attractive displays. The general public were invited to attend on Sunday afternoons during museum hours.

After almost two decades in these quarters, the needs of the school board for space for other purposes, saw all the Hales' exhibits pushed into corners on dusty shelves. After several attempts to relocate the collection, it was offered to Brandon College, with the understanding that it be made available for viewing to the public and school classes.

Through the efforts of Richard Hannah, Professor of Zoology, and numerous others, the collection was moved to its present site on campus. All previous claims having been relinquished, and it is now the property of Brandon University. Engaged by the University to supervise the proposed museum area, Bernard Polly was responsible for the design and assembly of the layout and cases. The late Dr. John Lane was officially appointed first curator in June, 1971, although he had worked in a voluntary capacity for the museum for years. Born in Brandon and a life-long resident, his life-time interest in all phases of nature and his knowledge of ornithology, enabled him to arrange in an orderly fashion

the many specimens of birds and mammals in the many attractive cases.

Dr. Lane, well known "Bluebird Man" of southwestern Manitoba, was helped in his endeavors by many of his "junior birders", young lads whom he trained in many aspects of ornithology. His major, most scholarly work, a monograph on the life history of the Baird's Sparrow, was written for the final volumes of Bent's "Life Histories of North American Birds", sponsored by the Smithsonian Institute.

The crowning achievement of his career was the Honorary Doctor of Laws degree conferred upon him by Brandon University. The citation lauded him as "Naturalist, conservationist, writer, sportsman and accomplished nature photographer".

He was responsible for bringing up to date the Museum catalogue, as well as adding many new specimens to the collection. To one who had spent innumerable hours in its rehabilitation and whose life was dedicated to bird conservation, the Hales Museum is a fitting tribute.

The illumined, roomy exhibit cases are home to a representative collection of Manitoba fauna. On display are more than 500 mounted birds, representing 257 species. The large continuity cases present various species arranged in the same order as found in the familiar "A Field Guide to the Birds", by Roger Tory Peterson.

Other cases present related species in families of birds:

Set forth attractively are the Galliformes -- the Upland Game birds. This group is composed of the native species of Grouse, as well as the introduced Ring-necked Pheasant and Gray Partridge.

All known species of Owl resident in Manitoba are presented in a fine collection. In addition are specimens of the Barn Owl, rarely found in our province, and the Pygmy Owl from western Canada.

Birds of the family Laridae, are represented by members of the Gull and Terns. These are birds which frequent the lakes and marshes, and in fact were all collected at Delta Marsh. In southern Manitoba, flocks of the black-headed Franklin's Gull can often be seen following the farmer's cultivator, feasting on insects and larvae exposed in the freshly turned soil. Members of the Gull family alight on the water to take their food, while Terns hover and plunge head-first into it.

Falconiformes, diurnal birds of prey, with hooked beaks and strong hooked claws, are divided into several sub-families. With the exception of the Merlin (formerly Pigeon Hawk), the collection reveals a complete variety of species common to Manitoba.

Small, and frequently brightly colored, the Warblers (Parulidae) form another representative group. Warblers are among the most active of birds, foraging for insects in the leafy foliage at various levels.

Confined to the Western Hemisphere, the family Icteridae portrays such members as Meadowlarks, Blackbirds and Orioles.

The diversity of birds' eggs, a collection assembled by the late Dr. Lane, runs the gamut of color, texture and design. A word of caution here, it is illegal to collect wild birds' eggs without a permit.

Typical of the mammal cases is "Northern Fauna", depicting inhabitants of the northern region of the province. This display was arranged and designed by a former very talented Brandon University student, Wayne Miller. His artistic background painting of rugged Arctic coastline and pack-ice, as well as realistic surroundings, is impressive.

Other cases include all members of the Weasel family (Mustelidae) and other well-known mammals such as White-tailed Deer, Black Bear, Canada Lynx, Cougar, Porcupine, Beaver, Raccoon, Red Fox, Coyote, Timber Wolf, etc.

Exhibits of minerals and artifact material round out the display cases. Associated cases of sea shells, minerals, and animals are at present located in the J.R. Brodie Science Centre. Hopefully, in the near future, a move to another location on campus will allow more room for a greater variety of natural history materials.

Located in the Arts and Library Building, the museum is administered by a committee appointed by the University president. It is composed of five members of the Science Faculty under the chairmanship of D.R. MacKay, Director of Development.

Open to the general public and tourists, museum hours are 2 - 5 P.M. daily, except statutory holidays. It also provides educational services for community groups and students at elementary, secondary, and University levels.

Dr. David Stewart, chairman of the Department of Zoology, Brandon University, believes that the Hales Museum is "the best arranged collection of birds of Manitoba in the province, and our students are very fortunate to have it."

WHAT'S IN A NEST?

Herbert W.R. Copland

That, of course, depends on the occupant and whether it is reptile, bird, mammal, or insect. It also depends on another factor, accessibility. Is the nest open to view or in a cavity impossible to determine the contents? Suppose the occupant is known, why the interest in the nest and its contents?

Firstly, the owners or tenants with which this account is concerned are birds. Secondly, the information about them is being written on cards and forwarded to the Prairie Nest Record Scheme as an aid to biologists studying birds. This project began in 1958 in Saskatchewan but, since 1966, has been co-ordinated and the file cards kept at the Manitoba Museum of Man and Nature.

The idea of recording on cards detailed information about nesting birds started in England. In 1955 Dr. T. Myres introduced the programme to British Columbia. In the next five years, five schemes were undertaken across Canada. These are located in British Columbia (which includes the Yukon), the Prairie Provinces (Alberta, Manitoba, Saskatchewan, Northwest Territories), Ontario, Quebec, and the Maritimes (New Brunswick, Nova Scotia, Prince Edward Island). In 1969, Newfoundland also joined the programme.

The ideal card would be one which records observations from the time construction is noted or the active nest first discovered, until the young have fledged or the nest terminated by accident or failure. It should also include a nest description and position, dates and times of visits, contents, data about parasitism, the province and nearest town, specific habitat, and evidence for success or failure. However, most cards do not contain all this information.

Many participants do not have the time available to visit nest sites frequently. Sometimes nests are discovered on a one-day trip or at stops when passing through an area with no opportunity to return. However, even if visited only once, a nest record has a greater value if the contents and description have been accurately noted than if no details are recorded. Six appropriately timed visits can provide almost all the necessary data. Extra visits beyond those needed to determine the start of egg laying, length of incubation and hatching, time of fledging may do unnecessary harm or cause desertion by adults.

Nest record schemes are not a substitute for detailed research. A series of cards on a particular species can be helpful to a biologist or researcher by indicating whether

nests are difficult or easy to locate, where studies can be undertaken and by furnishing names of persons able to assist the researcher.

The data from nest record cards has aided studies concerned with breeding distribution, nesting biology and breeding success.

Who are the participants discovering nests and obtaining data? They are members of naturalist societies, park naturalists, biologists, teachers, doctors, farmers, school students, business people, or individuals who have heard about the project and are keenly interested in contributing.

What use is made of the nest record cards? Cards have been used by Canadian Wildlife Service biologists concerned with distribution of falcons. Researchers at institutions such as the Universities of Saskatchewan, Manitoba, Alberta and Michigan have also used the cards. Other species for which cards have been used include Horned Lark, Burrowing Owl, Common Loon, Horned Grebe, Tree Swallow, Yellow Warbler, Upland Sandpiper, and Starling, to name a few. The Canadian Wildlife Service toxic chemicals investigation branch have also used cards in their work. Researchers from California doing work on Brown-headed Cowbird parasitism have requested copies of nest record cards. At present data is being entered into a computer system in Ottawa on the American Robin, Barn Swallow and Red-winged Blackbird.

The regional co-ordinator is responsible for deciding whether copies of cards should be made available to those requesting use of them. Copies of cards of rare and endangered species are not released without special consideration as there is a danger the locations of nest sites could become known to collectors of eggs and young birds.

Contributors to the Prairie Nest Record Scheme are cautioned to (a) avoid attracting attention to the nest by leaving a well defined trail; (b) damaging or exposing the nest by carelessness; (c) disturbing the adults unduly and causing them to desert; or (d) causing the young to leave the nest prematurely.

Since 1968 Dr. Anthony J. Erskine of the Canadian Wildlife Service (CWS) has co-ordinated the efforts of regional nest record card programmes in Canada as part of CWS non-game bird population studies. CWS supplies standard nest record cards to the regional schemes and maintains liaison between regional co-ordinators through visits and newsletters. In addition the problems of storage, retrieval, duplication, and analysis of data by computer have been investigated.

The Prairie Nest Record Scheme had better than 22,000 cards on file on about 260 species at the Manitoba Museum of Man and Nature at the end of the 1975 nesting season. Between 60 and 80 contributors take part every year.

More than ever provincial and federal governments are having their scientists and biologists carry out studies on non-game species and information is being sought from nest record card schemes and other sources. The Canadian Wildlife Service favors continuing the schemes so that a larger inventory of cards can be accumulated on all bird species, and resulting analysis can be more meaningful. The distribution and breeding range of some species are still not well defined and this is another reason to continue the Prairie Nest Record Scheme.



Nest of Gray Jay

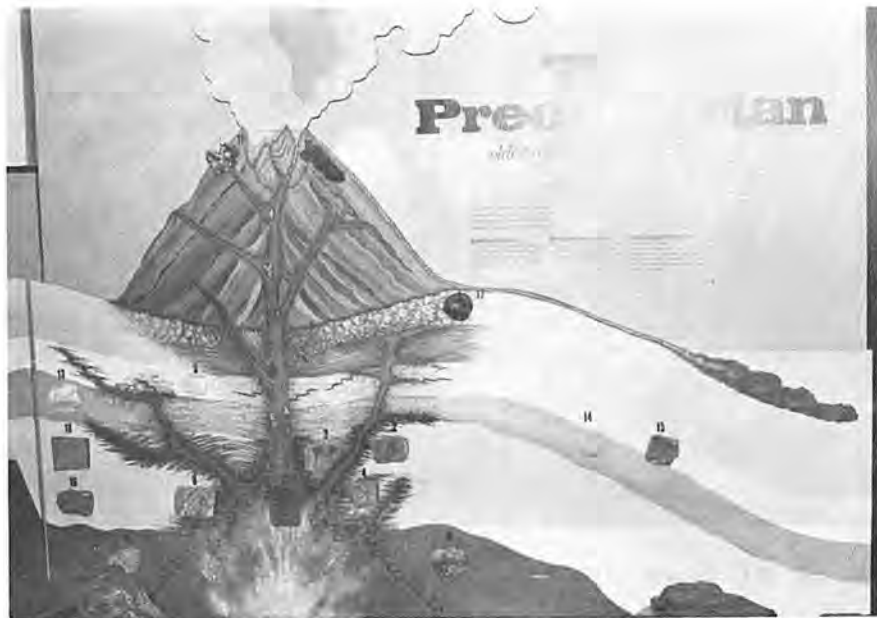
(Photo: Robert Taylor, courtesy Manitoba Nature)

THE COMMUNITY MUSEUM AND GEOLOGY

George Lammers

Community museums are sometimes at a loss as to the methods they might employ to present a complex subject like geology with the space and means at their disposal. If we consider the one thing that makes museums and their brand of education on such a subject unique, it is the fact that they educate and entertain through the use of artifacts and specimens. True, these may be supplemented with photos, diagrams, maps and texts, but these are also available on television, in books and in other forms of learning and thus not what sets museums apart from other means of education. The specimens that museums normally collect to tell the story of geology include rocks, minerals and fossils. These three components are ubiquitous in Manitoba. The geological history has left a rich heritage of a great variety of minerals, fossils and rock types which are readily available anywhere. By trading specimens or collecting within a short driving distance, a museum collection can be expanded to allow for greater diversity.

With no shortage of display or teaching materials, museums have little excuse in not being able to teach many of the



A modest display of rock types placed in their environment of formation

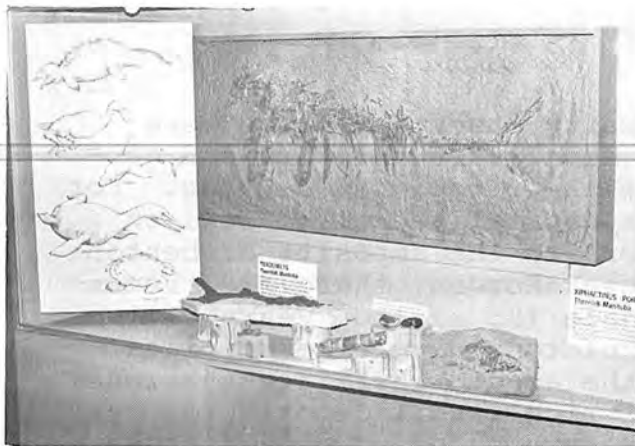
general principles of geology or to explain the local geology. It should explain the importance of local geology to settlement patterns, local natural resource base for industries, agriculture (soil type), and answer many questions on the environment and quality of life in the community. Many excellent geology books are available which also contain ready-made graphic concepts that can be used as backgrounds for teaching general principles of geology. The Time-Life series is one of the best sources in geology as well as other phases of natural history. Often a suitable background can be copied from such a publication and, when supplemented with suitable specimens, makes a very professional exhibit.

On the other hand, most community museums will be more interested in discussing the local earth history and geological phenomena that affect their regional setting. For example, Morden, Manitoba has capitalized quite well on a palaeontological heritage. Due to the deposits of bentonite found in the escarpment near Morden, there are tremendous volumes of Cretaceous shale (95 million years old) removed, thus exposing the skeletons of marine reptiles and fish that once lived in the area. There are numerous other examples in Manitoba of rich fossil deposits exposed in both artificial and natural exposures. Some of these include the amber deposits of Cedar Lake, complete fish skeletons near Kenville, extinct mammals such as horse and mammoth from Souris, horses from Shellmouth, and bison from the Carberry Sandhills.

Invertebrate fossils, including corals, brachiopods, bryozoans, clams, sponges, and fossils of species of living plants are everywhere in the southern third of Manitoba. A simple display of fossil animals which inhabited the seas that once covered Manitoba is well worth the minimal effort needed to collect and prepare them. This brings to the average public information that is seldom easily acquired elsewhere. Such an exhibit can then be embellished with simple pictures of the animals restored to their living appearance, with a sentence or two describing their environment and age. Tyndall stone (Ordovician, 450 million years old) is probably the most widely known fossiliferous rock found in Manitoba, and contains an abundance of easily identified fossils. Other examples include the abundant fossil corals in limestone (Devonian, 370 million years old) from the Narrows near Dog Lake, Manitoba. Fossil wood is found both as agate-replaced (petrified) wood from Souris or as coal from the west side of Turtle Mountain.

Attractive museum-quality minerals may be collected by community museums at many localities in Manitoba. Well-known examples would include the selenite roses from the

geological exhibits



Examples of Manitoba escarpment fossils

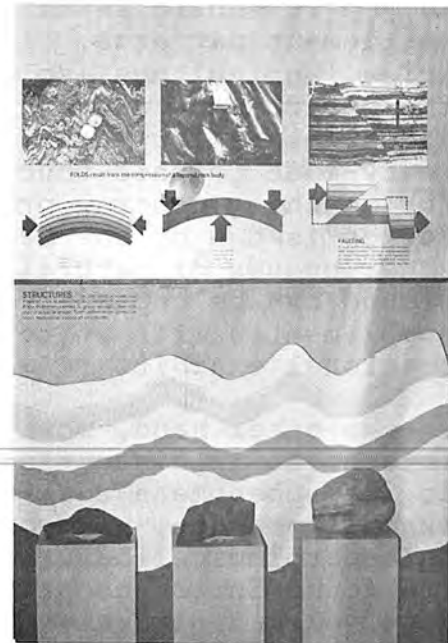
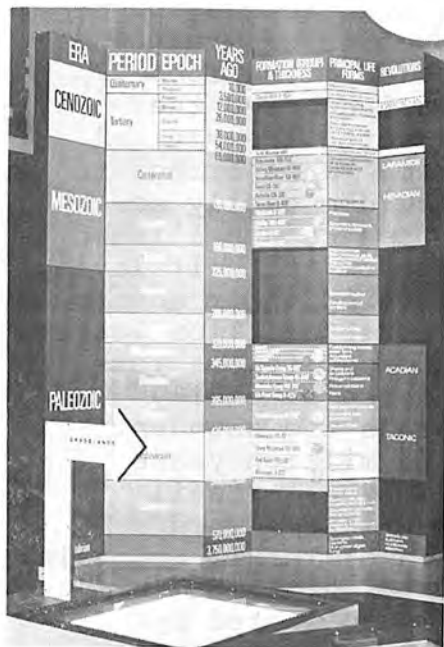
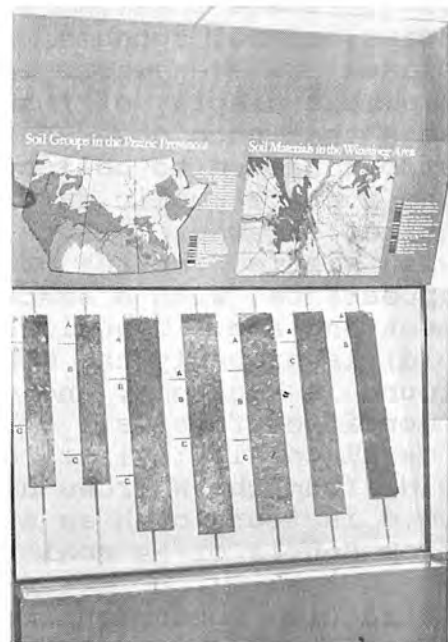


Illustration of the formation of geological structure accompanied by samples



A straight forward presentation of geological time

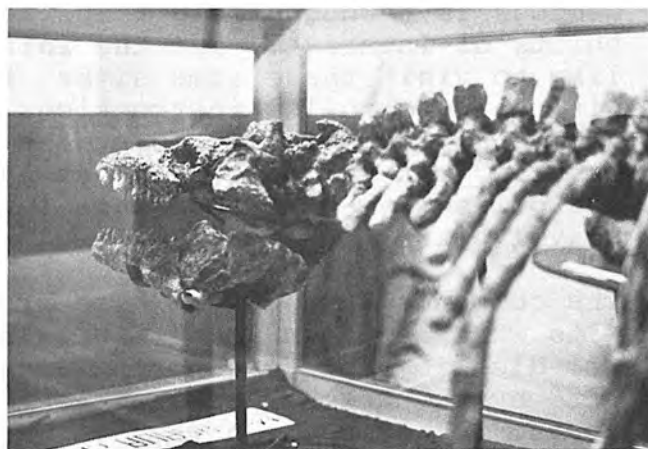
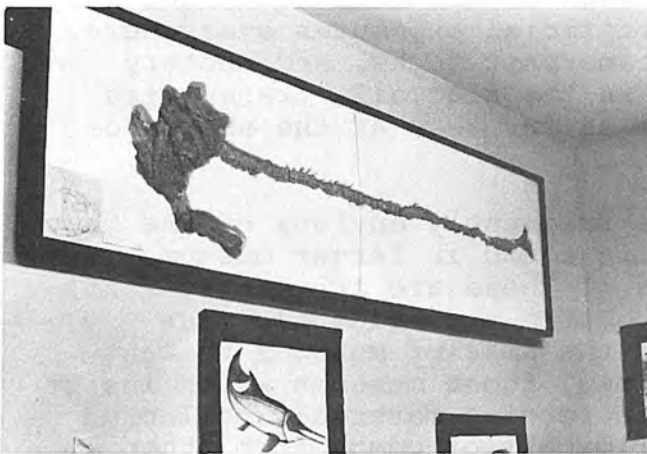


Representative Manitoba soil types



fossil specimens

*Marine reptiles in the
Morden & District Museum*



Winnipeg Floodway, and the beautiful pyrite concretions from quarries near Mafeking. Excellent ore specimens can generally be obtained from northern Manitoba mines (their dumps are often productive of fine mineral specimens). Quarries and mines near Amaranth, Silver Plains and Gypsumville have produced fine specimens of varieties of gypsum which could be quite usable for museum exhibits.

A diversity of rock types may be collected at many localities within the Province. Metamorphic and igneous rocks to be used in didactic exhibits may frequently be collected at the surface. Freshly broken examples of these rock types can be collected at working mines, or more-weathered examples collected in fields anywhere they were transported to their present resting place, by former glaciers.

Sedimentary rocks (e.g., sandstone, limestone, and shale) are the bedrock in the southern third of the Province and show in both natural and artificial exposures everywhere. As with the igneous and metamorphic rocks, sedimentary rocks are also represented in the glacially transported debris in fields, some from as far away as the shores of Hudson Bay.

Small community museums are frequently envious of the many fine examples of extinct life found in larger museums. Plastic or fiberglass casts of these are frequently available at little or no cost. Often the molds are made available to personnel from the smaller museums to cast their own examples. Sometimes, those museums which insist on a charge are satisfied to receive materials collected in an area, in trade for originals or casts from other museums. A little horse trading can replace the cash value of specimens.

Another way that the small community museum can teach local geology is through field trips for school groups to local points of interest. For the infrequent tourist that might like to visit these same sites, tracts can be prepared with easy-to-follow instructions and an explanation of what can be seen and collected at the site. These may include fossils, mineral specimens, or lapidary material for cutting and polishing -- so abundant, for example, in the Souris gravel pits.

The community museum can also produce inexpensive small kits which contain local minerals, fossils, or rock types for distribution to school classes. These can be "checked out" by the teacher similar to the way library books are loaned to accompany a unit on geology in the general science curriculum.

With the present interest in the natural sciences, museums have a responsibility to teach environmental components and interrelationships. Ecology, environment, habitat -- the "in" words of today -- are difficult concepts to communicate in the museum. However, it is not outside the museum's responsibility to educate the public on these important concepts. Geological exhibits are easy to prepare and require minimal conservational care. Think about including a geology exhibit in your museum.

A GROWING MUSEUM SERVICE - FAUNAL ANALYSIS AND ITS RELATION
TO CANADIAN BIRD AND MAMMAL COLLECTIONS

John E. Dubois

Editor's Note: The following article first appeared in the Fall 1975 edition of the Canadian Museums Association's publication the "Gazette".

INTRODUCTION

For those who are wondering what faunal analysis entails, I will start with a brief explanation. On the simplest level, a curious boy brings into his local museum a bone he found eroding out of a stream bank. The identification of that bone, coupled with a hypothesis as to how it got there, can be considered faunal analysis. Every natural history museum and zoology department receives this kind of inquiry all the time. At the opposite end of the scale is the material excavated in a precise, meticulous manner from middens and campsites of prehistoric peoples by archeologists, who not only want accurate identification of the faunal remains, but retrieval of the maximum amount of information obtainable from it by mechanical, chemical and statistical methods. To satisfy both the curious boy and the archeologist, museum personnel must possess knowledge of, and experience with at least the local fauna, plus access to adequate, systematic collections of comparative materials. In the case of the archeologist's demands, the analyst has the additional requirement of a knowledge of his colleague's excavation methodology.

I first became interested in faunal work a few years ago at the Manitoba Museum of Man and Nature, while preparing specimens for our vertebrate collections. Working with the skeletal collections and with the people urgently wanting information from these collections, I soon became aware of two problem areas: first, there were gaps in our collections - gaps in terms of specimens that were poorly represented and hard to find by active collecting; second, there were great difficulties finding out who was doing similar work and what they had written that could be of help to me. Since the information was unobtainable in any other way, I conceived the idea of sending out a questionnaire to all Canadian museums and universities with natural history collections. The information thus obtained would answer all my questions on skeletal collections and those working with them, or so I thought. This paper will consist, then, of three parts: a look at the faunal analysis services at the Manitoba Museum of Man and Nature; a look at bird and mammal collections in

Canada; and some conclusions.

THE MANITOBA SCENE

As stated above, preparation of vertebrate specimens, and faunal analysis for both laymen and archeologists, have been part of my duties for several years. During that span, faunal remains from over 50 archeological sites have been looked at by myself and others in the Natural History Division. We have performed this service for all the universities in Manitoba, for the Manitoba Archeological Association, and for individuals associated with the Provincial Government and with other museums. As the value of ecological information stored in faunal debris becomes more and more apparent to the discipline of archeology, the call for faunal analysis becomes greater. We have definitely seen this trend in Manitoba. Demands of these sorts, however, while escalating, are dependent finally on that same resource at the base of all museum functions - the collections.

Mammal bones make up the bulk of recovered faunal remains and so the Manitoba Museum of Man and Nature has made the greatest effort to obtain mammal skeletons. In pre-European contact days, there were 88 species of mammals living in the Province of Manitoba; seven species have since been rendered extinct. These seven, of course, are difficult to obtain as specimens, as are an additional five species of marine mammals. These "hard-to-get" species represent 14% of the mammalian fauna of Manitoba. The situation is approximately the same in other provinces. At this time 85% of the species found in pre-contact Manitoba are represented in our collection by at least one complete skeleton. The remaining species are very difficult to obtain, either in the field (for obvious reasons), or as loan specimens. When the figures for other collections are examined, it will become apparent why loans are difficult to arrange. Another side to the story, not restricted to Manitoba to be sure, is that expanding and maintaining collections requires resources - money and people that are hard pressed in most cases to take care of other priorities.

THE CANADIAN SCENE

The survey of natural history collections of all Canadian museums and universities to find out what they had and who was working in this field, was neither as strikingly original nor as difficult as it may sound. In fact, both mammal and bird collections in Canada have been surveyed previously: the mammal collections by the American Society

of Mammalogists in 1923, 1945, 1963 and 1973; the bird collections by the American Ornithological Union in 1933 and 1969. The model for the questionnaires (one for bird collections and one mammal collections) that led to this paper was the latest survey of mammal collections mailed out by the American Society of Mammalogists, in October, 1973. The 1963 version of this form was also used by the American Ornithological Union in their latest survey (1969, as previously mentioned). The Mammalogists' survey has led to two publications, one a 30-page supplemental publication put out in 1974 entitled, *Report and Recommendations, Advisory Committee for Systematic Resources in Mammalogy, American Society of Mammalogists*, the other, (the detailed results), is in the May 1975 issue of the *Journal of Mammalogy*. Data from the past surveys of the two societies has been incorporated into this paper and their recommendations have influenced it as well.

The questionnaires were sent to 23 institutions in Canada known from past surveys to have natural history collections (see appended list). As institutional collections were the only interest, the private collections mentioned in those surveys were not contacted, and in any case represent few specimens. Fourteen mammal questionnaires were sent back for a 61% return, and 13 bird questionnaires, for a 57% return. Why those with sizeable collections, reported in other surveys, did not reply is perplexing, but not an uncommon problem with surveys. It would seem to be of benefit to all to know where these resources lie in Canada. However, some may have been in a similar situation to the University of Guelph collections whose Curator had just started in the job and was anxious to co-operate but unable. There may also be other collections only recently started such as those at the Biology Department of Lakehead University or the bird collection at the University of Manitoba, which were not queried but should definitely be included in future surveys. Not reported in this or any other survey is the existence of natural history collections in the Yukon, Northwest Territories, Newfoundland, or Prince Edward Island, although these areas undoubtedly have some representation in the larger collections in other parts of the country.

Looking to the data from Figure 1 "Canadian Mammal Collections", the total number of mammals in Canadian collections as shown is 172,904. The North American total, according to the Society of Mammalogists, is about 2,070,000. For further comparison, keeping in mind the Canadian total, the number of fur-bearing animals taken from the wild in the Province of Manitoba alone in the 1972-73 trapping season, was over 623,000 according to the annual report of the Department of Mines, Resources and Environmental Management.

Under "Actively adding skeletal specimens", note how low the numbers are, and how few institutions are doing anything

about it (the "Yes" answers). The most important column to my particular interest, was "Approximately what percentage of the species of mammals found in your Province are represented by at least *one* complete skeleton?" Note that only the National Museum is close to 100%. Next in completeness are the Manitoba institutions at 85% and so on down the line. It is interesting that our largest collection, the Royal Ontario Museum, has only 30% of the species of its home Province represented by at least one skeleton. For faunal analysts wishing to identify one of the rare species, or even those wishing to include skeletal data in the study of any given species of mammal, the resource is just not there to work with, except at one institution.

One further consideration on mammals is the last two columns of data, representing questions 12, 13 and 14, all of which deal with people using the skeletal material. The numbers seen under "Professional staff using the osteological collections" are slightly deceptive in that all staff working with collections will incidentally have some contact with the skeletal material but those working intensively with the material are but a fraction of even the small numbers seen in this column. The last column, "Others using the osteological collection" consists primarily of students across the country and reflects the increasing demand on the collections.

Figure 2, "Canadian Bird Collections", shows much the same trends as mammals. The total number of specimens in collections (229,106) are larger than for mammals; and the number of complete skeletons (15,004) is almost double the number for mammals. However, of the latter figure note that about 80% are contained in a single collection, that of the Department of Ornithology, Royal Ontario Museum. Curiously, three collections actually show a decrease since the previous survey in 1969. The most revealing figures again are seen under the column entitled "Percentage of the species of the Province represented by at least one skeleton", which shows that as far as bird collections go the representation regionally is poorer than for mammals. A partial explanation for this may be (for those of you who are not familiar with specimen preparation), that one mammal when prepared will produce a skin and a skeleton, whereas bird preparation leads only to one or the other. Thus a special effort must be made to secure bird skeletons.

Another interesting factor to note in the bird data, and this is present in the mammal data but less noticeably so, is the fact that some collections, for example, the Royal Ontario Museum, report that 96% of the skins in their collection have a skeletal counterpart, but, that only 78% of the species occurring in the Province are thus represented.

This discrepancy is answered by looking at question number seven on the original questionnaire, "What geographic areas are best represented by the skeletal specimens?" For the R.O.M. I have "North America, Latin America, southern Africa", which explains the difference in the figures. For the Provincial Museum of Alberta the figures in the columns differ considerably (100% of birds in collections versus 36% of birds of the Province) yet they claim only Alberta is represented by their collections. The answer must lie in misinterpretation of one of the questions. Unfortunately there was also some problem with the National Museum Ornithology Department in this regard, as they answered these questions only with question marks, a regrettable gap in the data.

Again to put some perspective on the totals given above, here are some comparative figures. The A.O.U. estimated in 1969 that there were over 4,000,000 specimens in North American bird collections and over 142,000 skeletal specimens. The top five American collections at that time had more specimens each than are now housed in all Canadian collections. To get an idea of the effect these collections have had on wild populations, compare the above figures to the 1973-74 harvest of waterfowl alone by hunters in Canada - 3,355,494.¹

Comments on the last two columns of the bird sheet are much the same as for mammals - there are only a few professionals, nation-wide, working with osteological collections, but the demand, as seen in the "Others" column, is large and growing.

These data sheets represent what I have been able to synthesize of my survey for now. Persons wishing more detailed information on specific collections are invited to write to me, or directly to the appropriate curators. (See appended list).

CONCLUSIONS

What do these figures really mean? On a regional basis, they show us that museums in Canada for the most part lack adequate systematic collections for even the broadest scientific studies of birds and mammals. (I hate to think of the state of collections in other fields). When you get down to specialized, albeit peripheral, studies such as faunal analysis, the situation is worse yet.

I would like to quote from the American Society of Mammalogists Report and Recommendations from their 1973 survey:

"Systematic resources (preserved specimens and ancillary sources of data) maintained in collections

are of importance to workers in many areas other than those (such as taxonomy) directly involved with collection, preservation and description of the resources. Basic research in various scientific disciplines (such as ecology and anatomy) and applied research (for example, in biomedicine) depends on systematic knowledge and the resources on which that knowledge is based. Systematic research identifies the kinds of organisms, delineates the limits of their distribution, elucidates their interrelationships, and results in assignment of taxa to a hierarchical classification that is based on biological similarity and phylogenetic affinity. The results of systematic research are, and will continue to be, indispensable to the scientific community in our modern society. Therefore, continued support for systematic biology is essential if our present rate of scientific progress is to continue and if the systematic resources that have been acquired at considerable cost are to be maintained."

I would recommend the above-mentioned report to the attention of all those in positions of responsibility towards scientific collections in Canada.

There is much yet to be learned about Canada's fauna and the relationship of early and present Canadians to that fauna. The basis for study must be expanded. I am not speaking here of quantity, of numbers, I am speaking of purposeful, systematic collections supplying the needs of many scientists and scholars, and ultimately, all the people of Canada. Steps leading toward this would be, first of all, increased monetary support on a province-by-province basis, of expansion and long-term maintenance of collections. Secondly, a national inventory should be undertaken, along with a retrieval system with outlets in every province, so that the information gathered from scattered collections becomes accessible to all. I know that such an enterprise has been undertaken in regards to human history collections across the country under the sponsorship of the National Museums of Canada. I hope that the natural sciences receive this same benefit soon.

While the initiative has been taken on a national data system, we are still left with the matter of the poor condition of natural history collections in this country. Perhaps there is no more appropriate body than the Canadian Museums Association to study the problems associated with these collections, and to press the Federal Government for organized and concerted action.

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1. Canadian Wildlife Service, *Progress Notes* Number 42, September, 1974.

APPENDIX 1
CANADIAN BIRD AND MAMMAL COLLECTIONS

INSTITUTION	ABBREVIATION	INSTITUTION	ABBREVIATION
1) Curator of Zoology, Provincial Museum of Alberta, 12845-102 Avenue, Edmonton, Alberta.	P.M.A.	13) Curator of Bird and Mammal Collections, Zoology Department, University of Western Ontario, London, Ontario. N6A 3K7	U.W.O.C.
2) Curator, Museum of Zoology, University of Alberta, Edmonton, Alberta.	U.A.M.Z.	14) Curator of Bird and Mammal Collections, Biology Department, Queen's University, Kingston, Ontario,	Q.U.
3) Curator of Birds and Mammals, British Columbia Provincial Museum, Heritage Court, 601 Belleville Street, Victoria, British Columbia.	B.C.P.M.	15) Curator, Museum of Zoology, Carleton University, Ottawa, Ontario. K1S 5B6	C.U.M.Z.
4) Curator, The Vertebrate Museum, University of British Columbia, Department of Zoology, Vancouver, British Columbia.	U.B.C.	16) Curator, Zoology Museum, College of Ste. Anne De La Pocatière, La Pocatière, Québec.	C.S.A.P.
5) Curator of Birds and Mammals, Manitoba Museum of Man and Nature, 190 Rupert Avenue, Winnipeg, Manitoba. R3B 0N2	M.M.M.N.	17) Curator of Zoology, Redpath Museum of McGill University, P.O. Box 6070, Station 'A', Montréal, Québec. H3C 3G1	M.U.R.M.
6) Curator of Zoological Collections, Department of Zoology, University of Manitoba, Winnipeg, Manitoba. R3T 2N2	U. MAN.	18) Curator of Bird and Mammal Collections, Biology Department, Laval University, Québec, Québec.	L.U.
7) Curator of Zoology, The New Brunswick Museum, 277 Douglas Avenue, Saint John, New Brunswick.	N.B.M.	19) Curator of Bird and Mammal Collections, U. MONTR. Biology Department, University of Montréal, Montréal, Québec.	
8) Curator of Bird and Mammal Collections, Department of Zoology, Memorial University, St. John's, Newfoundland.	M.U.	20) Curator of Birds and Mammals, Saskatchewan Museum of Natural History, Wascana Park, Regina, Saskatchewan.	S.M.N.H.
9) Curator of Zoology, Nova Scotia Museum, 1747 Summer Street, Halifax, Nova Scotia.	N.S.M.	21) Curator, Biology Museum, Biology Department, University of Saskatchewan, Saskatoon, Saskatchewan. S7N 0W0	U.S.S.C.
10) Curator of Zoology, Acadia University Museum, Wolfville, Nova Scotia.	A.U.M.	22) Curator of Bird and Mammal Collections, Biology Department, University of Saskatchewan, Regina, Saskatchewan.	U.S.R.C.
11) Curator of Mammalogy, Royal Ontario Museum, 100 Queen's Park, Toronto, Ontario.	R.O.M.	23) Curator of Mammals, National Museum of Natural Sciences, Metcalfe and McLeod Streets, Ottawa, Ontario. K1A 0M8	N.M.C.
and Curator of Ornithology, Royal Ontario Museum, 100 Queen's Park, Toronto, Ontario.		and Curator of Birds, National Museum of Natural Sciences, Metcalfe and McLeod Streets, Ottawa, Ontario. K1A 0M8	
12) Curator of Bird and Mammal Collections, Zoology Department, University of Guelph, Guelph, Ontario.	U.G.		

Compiled by: J. Dubois
Manitoba Museum of Man and Nature

FIGURE 1

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CANADIAN MAMMAL COLLECTIONS	Specimens (skins) in main collection	Skeletal specimens	Separate osteological collection	Actively adding skeletal specimens	% of collection represented by at least one skeleton	% by a range of skeletons	% of species of the Province represented by at least one skeleton	Professional staff using the osteological collection	Others using the osteological collection
INSTITUTION									
ALBERTA P.M.A. U.A.M.Z.	1167 [4000] (6700)	141 (100)	Yes	Yes	36		59	2	9
BRITISH COLUMBIA B.C.P.M. U.B.C.	[6800] 8866 [8100] (9525) 9810	170 (150) 100	No Yes	Yes Yes	2 1		45 10	5 3	91 12
MANITOBA M.M.M.N. U. MAN.	[250] (6000) 6000 [1200] (1500) 3000	(300) 400 500	Yes No	Yes Yes	85 90	9	85 85	3 2	21 35
NEW BRUNSWICK N.B.M.	[50] (1018) 1075	1		No			< 1	2	
NEWFOUNDLAND M.U.									
NOVA SCOTIA N.S.M. A.U.M.	(720) 735 [100] (1367) 1438	10 32	No	Yes	8		6	3	2 152
ONTARIO R.O.M. U.G. U.W.O.C. Q.U. C.U.M.Z.	[30000] (68360) 75000 [600] [350] (850) [200] (150) [1600] (8500) 8600	(1500) 3000 143 (1000) 3000	No Yes No	Yes No Yes	10-15 90 40	(Yes) 20	30 35 54	4 2 3	75 80-90 2-3
QUEBEC C.S.A.P. M.U.R.M. L.U. U. MONTR.	[445] (1500) 3000 124	45 10	No No	Yes No	 3	 3	20 1		
SASKATCHEWAN S.M.N.H. U.S.S.C. U.S.R.C.	160 [1700] (2802) (250)	45	No	No	28		60	5	5
CANADA N.M.C.	[30705] (42500) 42577	1000	No	Yes	90	most sexes	90-100	4	31

[] — Survey of 1961-62 (Anderson et al. 1963, J. Mammal. 44:471-500)

() — Survey of 1973 (Choate, J.R. and H.H. Genoways, 1975, J. Mammal. 56:452-502.

FIGURE 2

CANADIAN BIRD
COLLECTIONS

INSTITUTION	Specimens (skins) in main collection	Skeletal specimens	Separate osteological collection	Actively adding skeletal specimens	% of collection represented by at least one skeleton	% by a range of skeletons	% of species of the Province represented by at least one skeleton	Professional staff using the osteological collection	Others using the osteological collection
ALBERTA P.M.A. U.A.M.Z.	(700) 2873 (3500)	327 (200)	Yes	Yes	100		36	0	6
BRITISH COLUMBIA B.C.P.M. U.B.C.	(13400) 14987 13982	(250) 407 120	No Yes	Yes Yes	41 <1		41 30	7 3	100 2
MANITOBA M.M.M.N. U. MAN.	(2400) 3266	65	Yes	Yes	<1		20	3	24
NEW BRUNSWICK N.B.M.	3780	5-10	No	No	<1		2	2	0
NEWFOUNDLAND M.U.	(Banding Program reported)								
NOVA SCOTIA N.S.M. A.U.M.	(550) 1000 (650) 1387	0 (35) 0	No No	No No				0 2	0 50
ONTARIO R.O.M. U.G. U.W.O.C. Q.U. C.U.M.Z.	(105000) (400) (5000) (350) 500 (750) 1026	(7000) 13000 (30) (50) 18 4	Yes No No No	No No No No	96 7 1		78 5 0	4 3 1	48 100 0
QUEBEC C.S.A.P. M.U.R.M. L.U. U. MONTR.	(1600) (1000) (3600) 4000 (2000)	(50) 13 0	No No No	No No No				0 0	0 0
SASKATCHEWAN S.M.N.H. U.S.S.C. U.S.R.C.	(3000) 3650 (2155)	10	No	No			3	5	0
CANADA N.M.C.	(58000)	(500) 800	Yes	Yes				6	14

STARTING A MUSEUM PLANT COLLECTION

David McInnes

One of the main functions of a museum is to preserve a representative sample of the world around it. A museum which includes natural history as one of its disciplines must collect and preserve specimens (animal, mineral, or vegetable). Collections of these specimens serve as a "library" for research and exhibit purposes.

The bulk of a botanical collection consists of dried plants, pressed flat and mounted on heavy paper, with the necessary information attached on a printed label (fig. 1).



The most important piece of field collecting equipment is the plant press. Things such as plastic bags, shovels, tree pruners, trowels, cameras, hip waders, notebooks, tape recorders, maps and compasses, boats and motors, long-handled rakes, sun tan lotion, field guides to flowers, mosquito repellent, and cars are useful, but may be regarded as luxuries rather than necessities.

The plant press consists of two flat boards 12" x 18" surrounded by adjustable straps. Some collectors prefer a press made of strips of wood because of the weight problem

of solid boards, but the principle is the same (fig. 2). Sandwiched between are alternating layers of corrugated cardboard, blotting paper, and old newspapers (fig. 3).

Armed with this single piece of equipment, one may venture out with some confidence that a reasonable start may be made on a plant collection for the museum.

Plants are where you find them. Manitoba has some 1,500 species of native plants in marsh, meadow, forest and prairie, and not that much is known about them. Any museum that could start and maintain a collection would be performing a useful service to the study of Manitoba's flora.

Naturally, any collector, including a museum, does not have the right to collect indiscriminately. You cannot collect from a national park, you must have permission to collect from a provincial park, and you should ask permission if you intend to collect on private property. Also, never collect more than you can handle - it is completely unforgivable to waste any of our natural resources, and our native flora are having a hard time competing with cultivated varieties without over-picking by amateurs. Rare specimens, such as the mocassin flower or ladyslipper, should be collected only with the greatest discretion.

Having successfully stalked and captured the plant you wish to add to the collection (any veteran botanist will be glad to demonstrate the proper technique), you should remove it gently from the ground with as much of its root system intact as possible - the roots may help in its identification. Clean as much dirt as you can from the roots by shaking gently or washing. Bulky roots may have to be left out.

Place the plant between the halves of a folded sheet of newspaper (fig. 4). Large specimens may have to be bent in a "V" or "W" shape to fit. In the case of very large specimens, you may have to cut off and discard most of the stem. Try to arrange the plant so that as many structures as possible will be seen in the dried specimen (upper and lower leaf sides, for example) for identification purposes later on.

Information regarding the date, location, collector's name, name of the plant (if known), and any other interesting facts (growing in shade or sun, depth of water if aquatic, side of slope, etc.) should be written on the newspaper. Until the dried specimen is mounted on a card and has its label attached, it should never be separated from its newspaper (fig. 5).

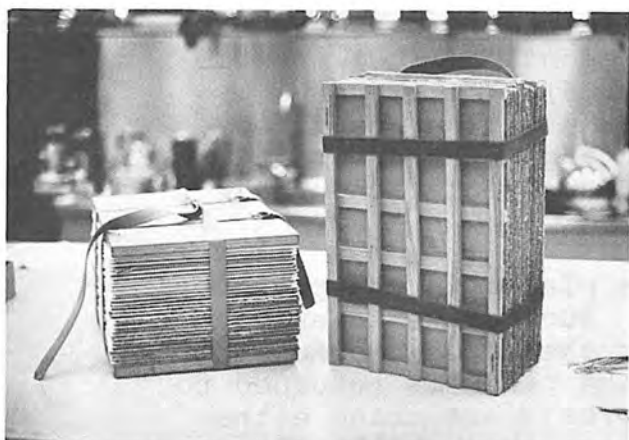


Figure 2

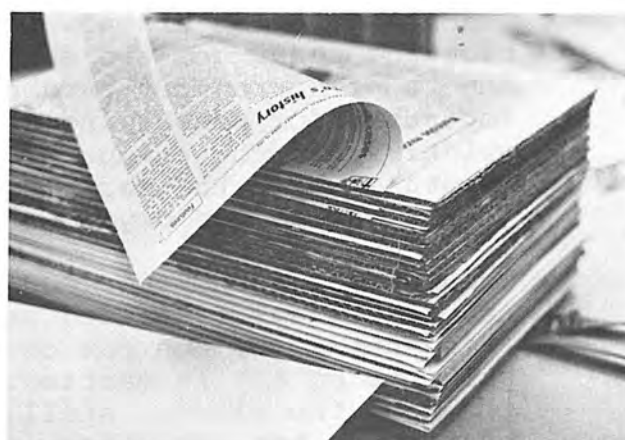


Figure 3

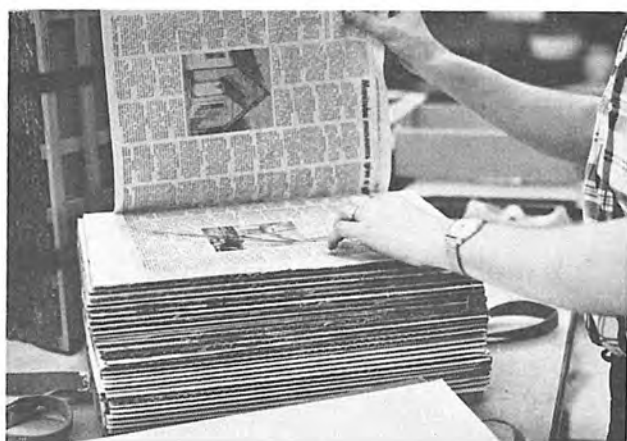


Figure 4



Figure 5

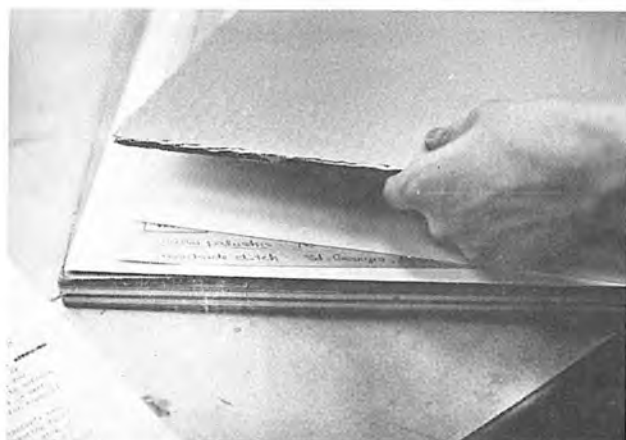


Figure 6

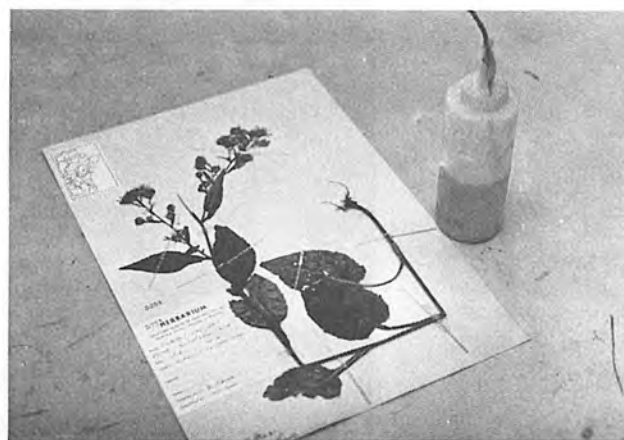


Figure 7

The newspaper should now be placed between two sheets of blotting paper and the entire bundle enclosed between two sheets of corrugated cardboard (fig. 6). It is very important for preserving colour that the plant be dried quickly, and the newspaper and blotting paper draw out moisture while the cardboard promotes circulation of air to help speed the drying process.

This sandwich of paper and plant is placed in the press, and the straps tightened securely. Successive layers are added until you run out of paper or the press becomes too bulky to be easily carried. When the press is returned to the lab, the plants, still in the press, are dried either by forcing hot air (from a hair dryer) through the cardboard, or by changing the blotters daily until the plants are thoroughly dry (the newspapers are never changed because of the information on them).

Specimens thus dried may be stored in cabinets in their newspapers, but they are less liable to be damaged in handling and better looking if they are mounted on herbarium paper. This is a high-rag content paper especially made for mounting botanical specimens. Plants may be held to the card by white cloth tape or by special herbarium glue (fig. 7). Never use scotch tape because it will eventually yellow and turn brittle.

Standard-sized labels are available for herbarium specimens. These should include, at the bare minimum, the information listed on the newspaper. There may be space for colour notes, and the name of the identifier, and the scientific name as well as the common name (fig. 8).



HERBARIUM
 MANITOBA MUSEUM OF MAN AND NATURE
 190 Rupert Avenue — Winnipeg, Manitoba, R3B 0N2

Name: Mamillaria
vivipara

Date: 18/6/75 Coll. No.: _____

Location: Hartney Manitoba
49°27'40" 100°40'0"

Habitat: From dry sandhills, very sunny
and hot area.

Notes: _____

Collected by: Keffen, Nowosad, Nelson, Perrin
 Determined by: Keffen, Nowosad, Nelson, Perrin

Figure 8

Proper identification is the next step. While the universities and some museums maintain plant collections, their staff are available only for the occasional identification and should not be expected to spend too much time on someone else's collection. There are courses in plant identification available for the serious collector.

Your museum may not be interested in maintaining a huge collection of plants from all across the province. However, if you have Indian material, you may want to have a sample of the medicinal plants used by a particular group; if you include pioneer artifacts in your museum, it might be interesting to have some of the native plants used by the early settlers.

Whatever reason you may have for starting a collection of botanical specimens, remember that there is a fair amount of work involved in maintaining it. However, there are benefits above and beyond the scientific ones - what better excuse to get out of the office on a sunny day than... "Time we had a few specimens from that meadow south of the lake."

CONSERVATION TRAINING AREA MUSEUM - HADASHVILLE

Henry Murkin

The Conservation Training Area Museum is located sixty miles east of Winnipeg at the Manitoba Forestry Association's 300 hundred acre forestry school. Situated near the picturesque Whitemouth River in a natural forest setting, this museum is visited by 9,000 Manitoba students and their teachers each year as part of their lessons at this unique outdoor classroom.

The museum building itself is a renovated railway business car donated by the Canadian Pacific Railway. The coach was moved in by truck along the winding forest road and mounted on a stretch of track previously prepared to receive it. Ed Schindler of Falcon Lake, at that time an instructor at the Area, undertook the extensive task of stripping the car, and rebuilding the interior to accommodate the exhibits. He was also responsible for designing and preparing the first displays.

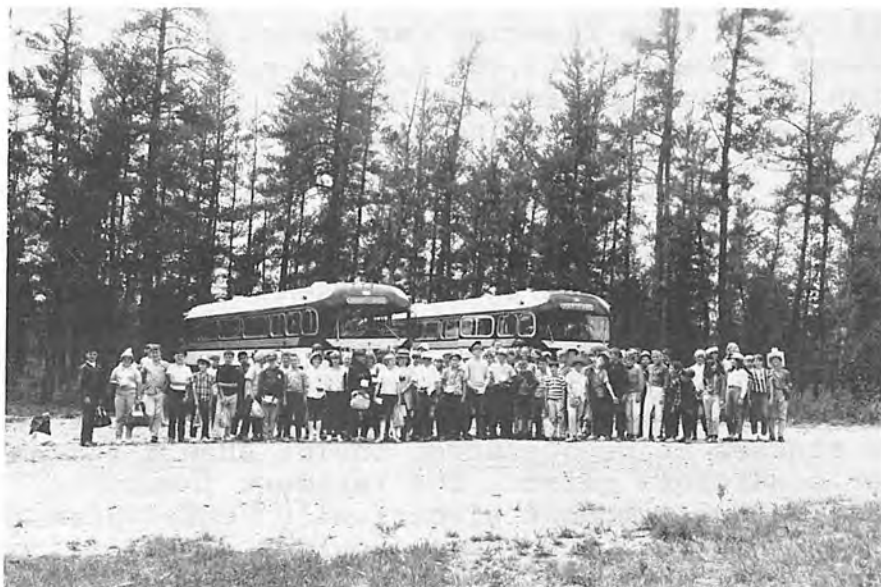
Since that time a number of people have made contributions to the museum and today we have on display native Manitoba mammals, fish, songbirds, upland game birds, predatory birds, waterfowl, insects, trees and flowering plants.



Railway coach to house museum was moved onto tracks at the Conservation Training Area in 1958



A young man demonstrating the use of an alidade which is used in locating forest fires



Students arrive by bus for a day at the Conservation Training Area

During the past year many new specimens were added to the museum as they were prepared by the instructors at the Training Area. A new display entitled "The Whitemouth River" has been started as a lesson in the ecology of a freshwater stream.

The site for the Conservation Training Area was granted to the Manitoba Forestry Association in 1957 by an order-in-council of the Manitoba Government for the purpose of youth training in conservation. Each spring and fall, classes arrive for a "day in the forest" from schools in Winnipeg and rural communities within a radius of 100 miles. Each group receives lessons from qualified resident instructors in tree identification, tree growth and development, forest fire prevention and suppression, and forest ecology. The museum plays an important part in the ecology lesson. An interesting aspect of our museum is that it is actually a teaching aid used by students and their teachers in their lessons on the natural history of Manitoba.

Many other facilities are used at the Training Area during the periods of instruction. One of the few suspension bridges in Manitoba spans the Whitemouth River and leads the way to a nature trail along which visitors become familiar with many native plants, and when conditions are favourable, with animals as well. They may view later in the museum those plants and animals which they may not see on the trail. They also have an opportunity to examine more closely those that they did find in their natural surroundings.

The well-known Tree Planting Car, which during 55 consecutive years travelled 265,000 miles over lines of both the Canadian Pacific and Canadian National Railways carrying the message of tree planting and conservation to scores of prairie communities, is now permanently situated at the Area and is used as a lecture hall and theatre. A model fire tower, approximately 15 feet high, containing equipment used in regulation government towers, provides visitors with a chance to use an alidade, anemometer, hygrometer, back pump, pulaski, etc. during their lesson on forest fire prevention and suppression. An identification game, housed in another building, provides an interesting way to test one's ability in tree recognition. A large auditorium allows classes to be conducted inside should inclement weather conditions exist. The resident instructors are housed in a fully modern electrically heated dormitory, and an administration cottage provides an additional housing and work area.

Visitors to the Area each receive a tiny spruce seedling to plant and carry home with them as a "living and growing"

reminder of their day in a forest. Complementing the courses at the Area is a visit to the Pineland Forest Nursery, through the co-operation of nursery personnel. Here, classes see the thousands of tiny trees being grown for various uses throughout the province, including intensive reforestation programmes carried on by the Provincial Government.

The Conservation Training Area and the museum are open to family groups during July and August during regular advertised tours. There is no admission charge of any kind to family or school groups for any of the services provided at the Area, nor for entrance to the museum.

The Manitoba Forestry Association is a non-profit, public service organization entirely supported by voluntary grants and donations. The museum has received financial assistance from the Manitoba Department of Tourism, Recreation and Cultural Affairs, but museum expenses on the whole are handled as part of the operating budget of the Conservation Training Area.



There is always something of interest to be seen along one of the several nature trails at the Conservation Area

PRESERVING TREES FOR DISPLAY PURPOSES

Harry Gyselman

Trees, particularly coniferous trees, can be made to keep their natural colour and appearance almost indefinitely after they have been cut.

Before you decide that this little article is going to solve exhibit problems or your annual pre-Christmas dilemma of whether or not to get a real tree, with its natural beauty and accompanying problems of dropping needles and fire hazard, or to settle for one of the obviously fake plastic creations, read on and see what is involved.

First - you have to get a tree. This means that you must have a friend or relative who will allow you to cut a tree on private land, or you must get permission from the provincial officials in charge of our public forests. At the Manitoba Museum of Man and Nature, we are very fortunate in the excellent co-operation which we receive from the Manitoba Department of Mines, Resources and Environmental Management (Forest Protection Branch). They not only give us permission to cut the necessary trees, but they are also more than co-operative in advising us of the most suitable localities to obtain the exact trees we require.

Second - you must have a large, strong tank, in which to preserve the trees. Ours is about 4' wide, 8' long, and 3' high. It is made of 3/4" fir plywood, framed with 2" x 6" fir, and reinforced with steel rods. It is also lined with Fiberglass.

Third - you must obtain the necessary materials for the preserving formula, - 50% glycerine, 25% alcohol, 25% water, with a dash of formaldehyde. Our initial batch of preservative was 200 gallons. If you have priced anti-freeze this past winter, you will have some idea of the cost of glycerine.

If you are still determined to preserve a tree, here is how to go about it. Bring your tree home as carefully as possible, and on the same day remove and tag the branches (with tags and ink which will remain legible through the next three steps). You must also tag the trunk of the tree with a corresponding number. As you remove each branch, place it carefully in the tank of preservative. If the branches are bent or deformed in the tank, they will take a "set" and remain deformed indefinitely. You can now relax for a while, the preservative takes six weeks to do its work effectively.

When the six weeks are up, remove the branches from the



Dipping branch in the preservative tank



Hanging the branch to dry



Painting the discoloured branch its original shade



Binding the branch to the tree with wire



The end result

tank, and hang them up to dry for a few days. At this stage, you will be very disappointed in the color of your tree, it will have turned a yellowish or brownish green. This you can easily remedy by spending the next two or three days painting the needles back to a natural colour. Most types of paint seem to work quite well - latex, oil base or alkyd. The exact colour is critical. It is a good idea to have a fresh twig of the same species of tree to compare it with.

After the paint has dried, it is a very good idea to make the tree fire-resistant. This can be accomplished by spraying with a commercial fire retardant chemical (two coats).

When the fire-retardant has thoroughly dried, you can start on the real fun part - that is putting the tree back together. We use two principal methods of reattaching the branches. For the majority of branches, the simplest and most effective method is to drill a suitable hole in the trunk, at the same angle as the branch was growing, whittle down the butt end of the branch (to a snug fit) and glue it in the hole. The second method, where it was not practical to cut the branch off right at the trunk, is to splice and glue. This means that you must shave the stub on the trunk to a long, flat taper, and the butt of the branch to a matching taper, then glue the branch in place, and bind with invisible wire.

The only type of glue we have found to be very effective, is a heavy-bodied contact cement. Ordinary glues such as plastic resin (white glue) or the other plastic adhesives, such as airplane cement, just are not effective on wood which has been soaked with glycerine.

Deciduous trees can also be preserved by this method, but the process of painting the leaves to a natural colour would be extremely time consuming. For this reason, we usually try to portray fall or winter scenes, where there would be only a few coloured, or dead leaves left on the trees and bushes.

The cause of all this work in preserving trees, is a thin layer of special cells at the base of each needle (or leaf) called the abscission layer. Any sudden and drastic reduction in the amount of sap reaching the needles, causes this layer to change, and form a weak area so that the needle is no longer firmly fixed to the twig. This reaction seems to take place within 24 hours after a tree has been cut - hence the need to have the tree in the preservative solution on the same day it is collected.

REFLECTIONS OF A LAPIDARY

Watson Crossley

I believe the suggested theme for the Spring issue of the Dawson and Hind quarterly is "Natural History in the province". Maybe that could be reversed and expressed equally as well as the "History of Nature". Looking from the window here at home this March afternoon, there is Nature to be seen all around. Trees and a stream bed are in the foreground. Beyond lie snow-covered fields with snow drifting across them. These fields stretch to the forest-covered Duck Mountains some three miles to the west. Those hills boast of wild life, ancient Indian trails and old camp sites. The fields themselves are the result of glacial deposits and the whole area is the western edge of ancient glacial Lake Agassiz.

Being moved to contribute a few thoughts for the occasion, and as one who has spent in excess of eighty years fairly close to nature endeavoring to interpret its historical background, may I be pardoned if I diverge somewhat before arriving at the specific subject that I set out to touch upon. That subject was to be "Rocks". Yes, rocks are a part of natural history, a part of nature which is all around us. Nature so beautiful and satisfying! Nature still building the natural history of the country!

In my minds eye, I think back over a life time and recall briefly the pictures stored therein. These are varied. There are pictures of various activities and pictures of the City. Invariably, however, the pictures that are the clearest and most satisfying are those closely related to nature. I recall sleeping along a lake shore at night, covered with a blanket, while a family of beavers on the rocks below continued their murmuring as they were feeding. I remember the call of a Loon at daybreak. I also picture, again in a blanket at night, being by an Indian camp site excavation, the moon shining and an owl in the tree above. I recall being upon a lake shore during daylight, seeking interesting stone specimens. The variations of nature are limitless, from the formation of the earth to the present. The basis of history - the motive that activated man's mind in the search for knowledge and understanding. There are many phases of nature, and strangely, or possibly not so strangely, a person becoming involved in one phase, tends to become involved or interested in other phases. Possibly one is upon a lake beach, or in a gravel pit, seeking interesting stone specimens. Maybe a piece of agate, petrified wood or just a pretty stone. What is it? How was it formed? What would it look like cut and polished? Possibly it is a piece of limestone containing evidence of a fossil in it. This opens another phase of the effects

of nature. Again, what is it? Where is it from? Of what age is it?

Should one's interest in rocks, etc., become somewhat keen, evidence would indicate the probability of the person being bitten by the so called rockhound "bug". The effect of being so bitten appears to be quite severe and there is seldom a remedy for the situation. One ends up known as a person interested in Lapidary. In plain words, a "Rockhound". Do not let this worry you too much. It is a most interesting and rewarding phase of natural history. If you live upon a farm, you might find yourself watching from the tractor seat, or while picking stones from the field, for anything by way of an unusual stone specimen. It helps break the monotony! If on a holiday trip, you will find yourself seeking specimens along the lake shores and in gravel deposits, and returning home with the car loaded to the springs with the weight of accumulated rocks. Nor is that the finish. There will then be the insatiable curiosity of wanting to know what a particular rock looks like inside when sawn and polished!

To the beginner in Lapidary, we are fortunate at this time that there are lapidary supply firms in all provinces where supplies and equipment are available. In most large centres, there are Rock and Mineral Societies set up, from which information and advice may be readily obtained. There is even such a Department in the Museum of Man and Nature!

Again for the beginner, possibly the first piece of equipment decided upon acquiring might be a "Tumbler" in which smaller stones may be polished by the tumbling method. These are readily available and are comparatively simple to operate. Not too expensive either. Following this, the decision may be made as to whether one wishes to proceed further by the acquisition of more sophisticated equipment such as a diamond saw, grinding and polishing equipment, etc. A considerable sum of money may be involved here should one decide upon going all the way. Some cheaper machinery might be advisable until one definitely decides how far they wish to go. Some home constructed equipment may even be made that may do a fair job at a considerable saving in cost. However, before doing this, I would recommend that this be discussed with an experienced person who has made use of machines of this nature. They may also have worked out various economies that may be made in operating.

Personally, when I became interested in rocks, there were no supply firms operating in Canada and few had any experience in cutting and polishing. One had to learn the

hard way - by trial and error. One learns from experience what type of rock will polish well and those which will not. By experience, reading, and on contact with others, one finally learns something of the origin of rocks, their names and their quality, etc. One learns that, in general, the harder and finer grained a specimen is the better the polish it will take. One soon learns to distinguish such rocks, even in the rough.

As to the type of collection one builds up, that will depend largely upon the individual. Generally speaking, Manitoba is not favored with a large variety of choice polishing rocks, such as agate-petrified wood, etc. As a result, some may wish to concentrate mainly on specimens from outside the province. To a considerable extent, I have personally preferred to make my main collection from our own provincial rocks adding to these such outside specimens as they may become available. After all, they are our own provincial rocks. I have found many visitors from outside the province all the more interested because they are our native specimens. I suppose, my personal collection presently exceeds five thousand cut slabs, labelled and indexed according to origin and type, etc. I also have a display of fluorescent rocks, displayed under both long and short wave Ultra-Violet lights. In addition to the rock specimens, my collection also has a fairly creditable assortment of fossils and Indian artifacts.

The formation of jewellery from the more select and interesting rock specimens will follow inevitably any operation in Lapidary activity.

No attempt has been made here to go into details as to the actual operation requirements of lapidary procedures. Such information is readily available from other operating persons, Rock Societies and numerous books available on the subject.

I can assure you with all confidence that such an activity will prove interesting and even fascinating. It will take you closer to nature and be educational in so doing. Above all, it will be an ideal "hobby" for your days of retirement which are well worth planning.

THE COLLECTION AND PRESERVATION OF STUDY SKINS

Barbara J. Fisher

The life-like birds and mammals peering from dioramas through glass eyes comprise only a small fraction of a large museum's specimen collection. The majority of specimens are prepared as study skins and are not on display. They are stored in closed cabinets in a controlled atmosphere to prevent their deterioration by light, dust, insect pests, and the generally destructive forces of continued exposure. When properly prepared and stored, they will last indefinitely.

Ideally, the fourfold purpose of a large museum is collection and curation, display, education and research, with equal emphasis being placed on each of these four areas. Education takes place through display and extension services, but interpretive display and education programmes would be impossible without the backing of research, for which properly curated natural history specimens or human history artifacts are necessary.

The main purpose of collecting is to document the environment through time and space. A study-skin collection may contain thousands of specimens which document the former existence of extinct species, and the presence of existing species. A museum's collections policy will vary with its size and purpose. An institute such as Washington's Smithsonian may well contain more than a million specimens from all over the world, while a provincial museum will concentrate primarily on collecting the species found in that province, and augment its collection with a small number of non-native species for comparative purposes.

The latter collections policy is in effect at the Manitoba Museum of Man and Nature. Mammals are collected systematically in order to determine which species occur in the province, their location and abundance, breeding habits, size, weight, appearance, hibernation and migration habits, and seasonal changes in pelage. Collecting also exposes such phenomena as albinism, melanism and mutations.

First, the area of the province to be researched is chosen and then surveyed for a good representative piece of habitat. An area, or quadrat, of this habitat is measured and marked.

Enter the field crew, a motley assortment of men and women ranging from professional biologists to technicians, seasonal help and maybe a keen volunteer. Clad in work clothes and sturdy boots, liberally sprayed with insect repellent and equipped with traps, baited with a tantalizing

mixture of peanut butter and bacon fat, topped with oatmeal, are set at fairly regular intervals over the quadrat. The majority of traps resemble a common mouse-trap but are slightly larger. These traps usually attract mice and shrews. A few larger traps are set, usually in trees, to attract squirrel-sized mammals. These traps are baited with walnut meats. For the larger mammal which may roam by and unwittingly sacrifice itself to science, one or two large steel traps of the conibear variety may be set and baited with meat. Each trap is marked with a wind-ribbon for easy retrieval.

The traps are set during the day, when most mammals are inactive, and must be checked early the following morning so that specimens caught during the night may be retrieved before they begin to decay or are attacked by carrion-eaters.

Freshly caught specimens are placed in plastic bags with a data slip recording the collector's name, date and location of quadrat, and stored in a cooler containing dry ice, until they can be placed in a freezer, where they will remain until they are prepared.

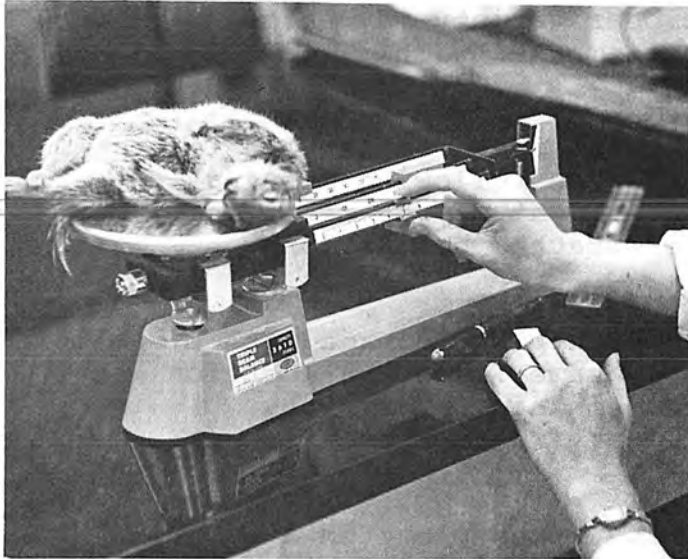
Ideally, preparation of mammal skins takes place in a laboratory equipped with hot and cold running water, an air hose, comfortable working space, good lighting, an assortment of dissecting instruments and any other piece of equipment or material which may be needed to do a good job. However, study-skin preparation has been done in a variety of less ideal locations including motel rooms, picnic tables, wet tents and moving vehicles. Under these circumstances, rain, mosquitoes, extreme temperatures and poor lighting often decrease the efficiency of the operation.

Assuming that ideal conditions exist, the preparation of a study skin proceeds as follows.

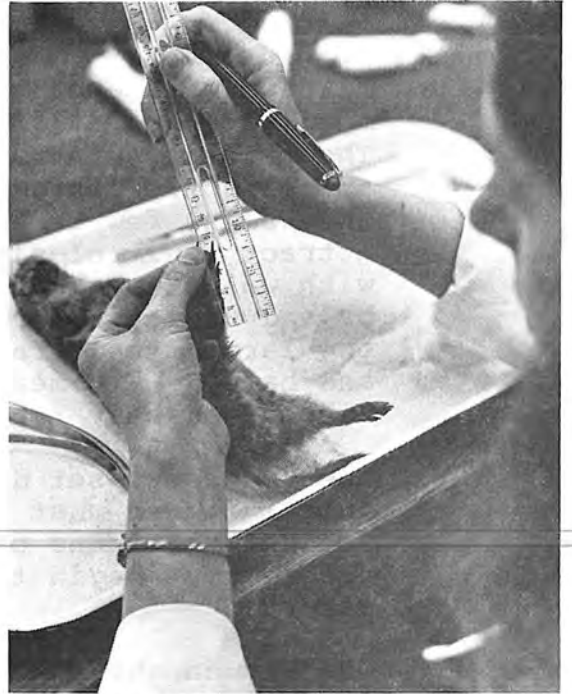
The specimen is removed from the freezer and allowed to thaw until pliable enough to handle. During the thawing, a dissecting tray is prepared with an ample pile of cornmeal, sharp scissors, blunt scissors, bone-snips, pointed forceps, blunt forceps, a scalpel, needle and thread. The following information is indelibly inscribed on a standard label with a draughting stylus and India ink: preparator's field number and name, collector's name (if different from preparator's), location and date where specimen was taken. Once the specimen is thawed, work must proceed quickly with a minimum of handling if the finished product is to retain the quality of the live mammal's coat.

The specimen is laid on its back on a ruler and the total

***from specimen to
study skin***



Weighing specimen



Measuring hind foot



Cutting away excess tissue



Cutting skin away from mouth



Rolling cotton to form body



Stuffing skin with cotton body



Placing wire in hind leg



Closing incision with sutures

for research purposes



Bird and mammal skins pinned to board for drying



Cataloguing a study skin



Study skins and skulls in drawer



Studying skeletal material

length measured in millimetres. Then the tail, hind foot and ear are measured and the specimen is weighed in grams. This data is recorded on the lower left-hand corner of the label.

The specimen is laid on the dissecting tray and the sharp scissors are used to cut through the outer skin from the lower abdomen to the bottom of the rib-cage. Cornmeal is used generously to keep the specimen and the preparator's fingers free from blood and grease, which must not be allowed to soil the fur. The handle of the forceps is inserted into the incision and used to pry the animal's body away from its skin. This last point is very important. The skin should never be pulled away from the body as it will certainly stretch and may easily tear. Working towards the animal's posterior, the skin is loosened from the muscles until the legs become visible. By grasping the foot and pushing it forward, the skin is removed from the leg. Blunt scissors or bone-snips are used to cut through the ankle bone, thus freeing the leg from the skin, but leaving it attached to the body. The other leg is skinned in the same manner. The sharp scissors are used to cut through the rectal tube and any tissue surrounding the base of the tail. At this point it is advisable to dip the specimen and fingers into the cornmeal so that both will be as dry as possible. The base of the tail is then pinched with the right thumb and forefinger and the skin at the base of the tail pinched similarly with the left hand. A quick, sharp pull succeeds in removing the tail from its covering skin, with all caudal vertebrae intact.

The skin is removed from the body by a series of motions not unlike those used to pull a sweater over the head, inside out. Again, plenty of cornmeal is used to absorb grease and liquids, and a scalpel may be needed to cut some tissues. The forelegs are skinned in the same manner as were the hind legs. The skin is continually rolled backward over the animal's head until the bases of the ears are exposed. These are easily cut with scissors. The next obstruction is the eyes. These can be cut around, but it is quite easy, with dry fingers, to pluck them out and carefully cut them off the skin. This prevents the large, gaping hole which sometimes results when a scalpel is used to cut around the eyes. The lips are cut away from the body with a scalpel or scissors, finally freeing the skin from the body.

The skin is inside out, so any fat is clearly visible. It must be removed by scraping with a scalpel and rubbing with cornmeal. It is most important that no fat be left on the skin; otherwise, it will not be possible to preserve the skin as desired. If necessary, the skin can be washed

in luke-warm soapy water, dried by rolling in paper towels and then tossing in a box of fine sawdust, and finally blow-drying with an air hose.

The next step is the stuffing of the skin. The lips are sewn together and the thread tied and cut. A piece of cotton batting of an appropriate length is tightly rolled until it resembles the mass of the original body. Forceps are used to shape one end to a point which is held tightly with the pointed forceps. The skin, still inside-out, is then rolled over the cotton body, starting at the mouth. The eyes and ears are arranged symmetrically, any wrinkled skin is smoothed and the cotton body is tucked into the posterior end of the skin. A thin wire is inserted into each of the limbs to give added strength and prevent their breaking. A slightly thicker wire is wrapped with a fine strand of cotton and inserted into the tail. The incision is sewn closed with a baseball stitch. The label is tied firmly above the knee joint on the right hind leg and the finished specimen is ready for pinning. The specimen is placed on a piece of soft board which will receive pins easily. The forelegs are drawn up close to the chin and secured with pins. The body is straightened and the tail held in place with pins placed in criss-cross fashion on either side of it, at both base and tip. The legs are drawn to the tail and pinned in place. When dry, specimens so prepared are easily stored and examined.

The length of time required for drying varies from several days for a mouse to several weeks for a larger mammal, such as a woodchuck. A heated drying cabinet, if available, speeds the drying process for large specimens.

After the specimen has been pinned, the body is dissected to determine its sex. If male, the testes are measured and their length is recorded on the label. If female, embryos, if present, are counted and measured and this data is recorded on the label. Placental scars may be visible, indicating that the female has recently reproduced. These are counted and their colour, indicative of their age, is noted. Evidence of recent lactation is also recorded.

The head is severed from the body, tagged with the preparator's field number and initials and put on a tray to dry. Eventually it will be placed in a colony of dermestid beetles where it will be defleshed by the larvae.

Specimens are catalogued and stored, along with their corresponding skulls, in an environmentally-controlled storage area where they will be well preserved but accessible for study purposes such as teaching and research.

Bird study skins are prepared in a manner similar to mammal skins, but the leg and wing bones are defleshed, wrapped with cotton and left inside the skin to give added strength. The skull is cleaned out, stuffed with cotton and left in the skin, which is then stuffed with a body of cotton wound around a stick.

Not all specimens prepared at the Manitoba Museum of Man and Nature are obtained by the systematic trapping described above. Many specimens find their way to the Museum via conservation officers, zoo staff and private citizens. Window-killed birds and road-killed mammals are frequently donated by people who are aware of the Museum's interest in them. Such specimens are a valuable addition to the collection if they arrive in good condition, complete with data. Birds and mammals which have been illegally shot or trapped and confiscated by conservation officers often end up as study skins, along with animals that die at the local zoo. The latter casualties, appreciated by the public while alive, can still be of use for study and comparison after death. They are usually exotic species such as muntjac, panda and wallaby, which the Manitoba Museum of Man and Nature would not normally acquire.

Large collections of study skins are valuable not only for research within a museum by its own staff; they are often used by graduate students and curators of other museums in their research. Trading of specimens between institutions is also a common practice.

The preservation of study skins is a means of collecting today for tomorrow. Long after many species of mammals and birds have been displaced or exterminated by man's activities, these collections will permit the continued study of the animals and their changing distribution.

MANITOBA NATURALISTS SOCIETY

Are you aware of what is going on in the woods, the prairies, and the marshes of Manitoba? Would you like to learn about the plants and animals of these wild places and share your discoveries with other people who have a common interest? If so, the Manitoba Naturalists Society may be what you are looking for!

It's a new name for an old organization, the Natural History Society of Manitoba, which was founded in Winnipeg in 1920. Members are people from all walks of life, and their numbers are growing daily.

The Society organizes a variety of field trips, evening programs, workshops and other activities to help its members develop their interests. Topics include informal study of birds, mammals, insects, plants, geology, photography, and a wide range of activities such as snowshoeing, cross-country skiing, canoeing, hiking and bicycling. As well, the MNS feels a strong obligation to keep members informed of environmental issues and takes an active role in dealing with these critical problems.

A growing number of young members has brought about a gradual development of a Junior Programme (for members under 16). Specific activities and outings are organized for the junior members and of course they are welcomed to all the other activities of the Society as well.

Activities occur practically on a weekly basis the year around. Programs are printed twice yearly in the spring and fall and include a general listing of scheduled activities. Additional events are announced in the *Bulletin*, our monthly publication, which provides current information and acts as a sounding board for the membership. Members also receive a copy of *Manitoba Nature*, produced in co-operation with the Zoological Society of Manitoba, which contains a variety of articles on natural history.

A word to beginners - everyone was a beginner at some point. MNS encourages people to come out. Outings are led by persons who wish to share their expertise. Whatever your age or interest in nature, you'll find much to do and enjoy in the Manitoba Naturalists Society and new friends who share your enthusiasm.

MEMBERSHIP BENEFITS:

- a) winter program series - illustrated lectures, films, etc.
- b) informal workshops
- c) field trips led by specialists
- d) a special program for juniors
- e) organized outings - canoeing, hiking, snowshoeing, etc.
- f) monthly *Bulletin*
- g) quarterly *Manitoba Nature*
- h) opportunity to participate in committee work and social events

MEMBERSHIP FEES:

Students and Senior Citizens.....	\$ 6.00
Individual.....	\$ 8.00
Family.....	\$12.00
Junior (16 and under).....	\$ 2.00
Non-Member single admission.....	\$ 1.00
Contributions below are in addition to membership fee:	
Sustaining.....	\$15.00
Supporting.....	\$25.00
Contributing.....	\$50.00

Donations in excess of the regular membership fee are tax deductible and a receipt will be sent. Memberships are annual from date of payment.

MANITOBA NATURALISTS SOCIETY OBJECTIVES

- To foster an awareness and appreciation of the natural environment and an understanding of man's place therein.
- To provide an association and a voice for those interested in natural history and the outdoors, and to cooperate with individuals with similar objectives.
- To arrange educational programs and field trips to promote an understanding of the natural environment.
- To stimulate research and to record and preserve data and material in natural history and allied subjects.
- To work for the preservation of an adequate representation of our natural environment.

For further information, contact the Manitoba Naturalists Society, 214-190 Rupert Avenue, Winnipeg, Manitoba R3B 0N2 - telephone 943-9029.

CARE AND PRESERVATION OF INSECT SPECIMENS

W.B. Preston

The importance of insects should not be underestimated for most of the living things on earth are insects and there is yet much to be learned about them. Species new to science are still being discovered at the rate of several thousand per year.

It is not within the scope of this article to provide detailed information regarding the making of an insect collection. This information can be obtained from some of the references listed in the bibliography. The main purposes of this paper are firstly, to enable persons who may receive insect specimens to satisfactorily preserve these so that they may be of some value, and secondly, to provide sources of information on this subject. If this paper should stimulate an interest in collecting insects, so much the better, for the study of insects can be a rewarding pastime, enhancing one's understanding and appreciation of the natural world.

Each specimen, to be of scientific value, must have certain essential data, consisting of three items: locality, date, and collector's name. The locality is given as the nearest town or post office. The date should be entered with the month written out or abbreviated, or as a Roman numeral - never an arabic number (e.g., July 8, 1975 or 8VII 1975, never 8/7/75). This will avoid confusion of the month and the day. Lastly, the name of the person who collected the specimen is entered. These three pieces of information go on the same label which is placed on the pin directly beneath the insect, or are written on the envelope or container in which the specimen is stored. If the specimen is stored in a vial of alcohol the label should be written with pencil or waterproof ink and be placed inside the vial, for labels attached to the outside frequently become lost. Without these three pieces of essential data the specimen is nearly valueless. Any additional data increases the scientific value of the specimen. On a second label I include such additional data as distance and direction from the nearest town, ecological and/or behavioural data (e.g., name of plant on which the insect was taken; taken at light, etc., in copulo, flying, etc.).

Depending upon what is to be done with them, there are several ways of preserving and storing insect specimens. I am assuming, at this point, a fresh specimen has been received or collected. If alive it must be killed, although it is possible to mail live insects in special mailing tubes. Cyaride bottles have been used traditionally for

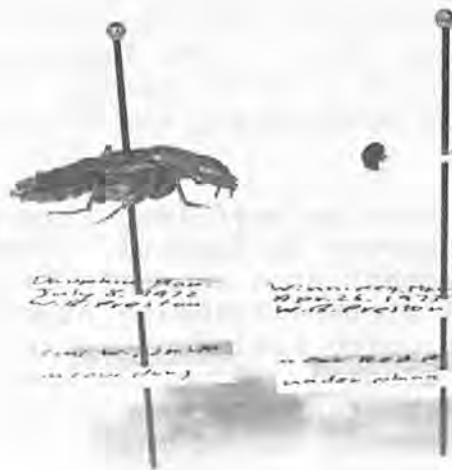
killing insects and are probably best for such insects as grasshoppers, butterflies, and moths, but must be used with extreme caution. There are a number of fluids, the fumes of which are suitable for killing insects. Probably the best one is ethyl acetate. Others include ether, carbon tetrachloride (use with caution), chloroform, benzene and ammonia. Lighter fluid or gasoline may be used in emergencies. Any of these killing agents should be used with great care as some are flammable and all are more or less toxic to humans. Most insects may be killed by freezing and some, such as beetles, may be killed with hot water.

If the specimens are to be sent to another museum the simplest treatment is to place them in separate envelopes, with the data written on each, allow a week or more to dry and then store in a cardboard box such as a candy box. The box should contain packing material, such as cotton, to prevent rattling around. It must be remembered that once the insects are dry they are extremely fragile. If there are many specimens with the same data, they may be layered in a candy box. To do this a layer of cotton is placed on the bottom, followed by a sheet of soft tissue paper. The insects are placed on this tissue and covered by another sheet of tissue, followed by a layer of cotton. Layer upon layer can be built up in this fashion until the box is full. The purpose of the tissue is to prevent the specimens from becoming entangled in the cotton. If the specimens are to be stored for any length of time some moth crystals should be added to the box to prevent destruction by dermestids or other pests. The specimens upon arriving at their destination can be relaxed and mounted.

Soft-bodied insects, such as mayflies, stoneflies and all larvae, should be preserved in alcohol. The usual preservative is ethyl alcohol at a concentration of 75 to 80%. However 70% isopropyl alcohol (rubbing alcohol is 70% isopropyl alcohol) is quite satisfactory and more readily available than ethyl alcohol. After 24 hours the alcohol should be replaced with fresh solution. Most insects, except scaly ones (butterflies and moths) and hairy ones (bees, flies) may be killed and preserved in alcohol. As mentioned earlier, the label should be placed inside the container.

It may be desired to mount the insects on pins, to be placed in a collection. Proper insect pins, made for this purpose, must be used. These are available from biological supply houses in several sizes, the most useful of which are no. 1's, 2's, and 3's, the former being used for smaller insects and the latter for larger specimens. In butterflies and moths the pin is placed through the centre of the thorax,

and in bees, flies and grasshoppers, to the right of the midline of the thorax. In beetles the pin goes through the right elytron or wing cover and in true bugs, through the right side of the triangular shield or scutellum. The reason for this manner of pin placement is to avoid obscuring structures such as bristles or markings which are necessary for identification of the insect. The head of the pin should be $\frac{3}{8}$ of an inch above the insect and the first label (with the essential data) should go $\frac{5}{8}$ of an inch above the point of the pin (unless, of course, the insect is a very large one). The second label should go $\frac{3}{8}$ of an inch above the point of the pin. A guide, or pinning block, can be made from a block of wood for placing specimens and labels in the proper position on the pin. The uniformity thus attained contributes to neatness of the collection. In order to arrange the legs and antennae and to support the body until dry the pin can be inserted into a one inch piece of styrofoam until the insect is resting on it. The label should be pinned near the insect and placed on the pin when the specimen has dried, usually after a week or ten days.



Use of pins in mounting insects:
 left, rove beetle pinned directly;
 right, small specimen mounted on a cardboard
 point. The labels are $\frac{1}{2}$ " by $\frac{1}{4}$ " in size

Specimens too small to be pinned are mounted on cardboard points. The points may be cut from index card and are $\frac{3}{8}$ of an inch in length and $\frac{1}{8}$ of an inch wide at the base. The pin passes through the base. Clear fingernail polish, a suitable adhesive, is applied to the tip of the point (usually bent sharply downward) which is then applied to the right side of the insect. This leaves the left side of the insect unobscured for examination during identification.

The specimens should be protected against ravages by pests, especially dermestid beetles. Naphtha flakes will last for a considerable time and will repel pests but are slow to kill pests that may already be present. Paradichlorobenzene crystals, on the other hand, will kill rapidly but do not last long. Some authors recommend a mixture of both. A small piece of Vapona strip can be used to fumigate a box of pinned insects and will last a considerable length of time. It should be noted that Vapona strips may stain whatever they touch, so should be placed in a holder of some kind. If specimens are to be shipped it is advisable to contact the recipient beforehand for packing instructions. The box containing the specimens should be packed in a larger box with plenty of shock absorbing material.

As mentioned earlier one purpose of this article is to provide a brief outline regarding care and preservation of insect specimens. The second purpose is to provide a list of references where much more specific information may be found. Some of the smaller publications listed are available free on request or for a small charge. I have not dealt with the preservation of other invertebrates and refer the reader to Knudsen, or Wagstaffe and Fidler.

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MUSEUM ADVISORY NOTES

EXHIBIT LABELS

Part II - Secondary Labels

In the last issue of the "Dawson and Hind", we looked at some methods of producing neat and cheap label copy for exhibit case titles. The subject for this issue is the secondary label, the smaller label which expands on the main title to give the visitor a better idea of what the exhibit is about, as well as heighten his interest in the subject.

There are several methods available, some of which are similar to those discussed for titles in part I of Exhibit Labels.

About $\frac{1}{2}$ inch to $1\frac{1}{2}$ inches is the right size for this type of label. Hand-lettered labels are not recommended unless your museum is blessed with someone who is very good at it. Plastic stencils are again useful. The method of using these and sources for them were discussed in the last issue (fig. 1).

One useful gadget that will repay its investment in next to no time is a lettering guide kit. These were once widely used by engineers, architects, and topographers, but they have gone out of style since lettraset came on the market (fig. 2). A museum might be able to pick up a second-hand kit very cheaply. A basic set would consist of a metal guide holder, a plastic lettering guide, and a scribe (fig. 3). To use, the guide holder is placed below

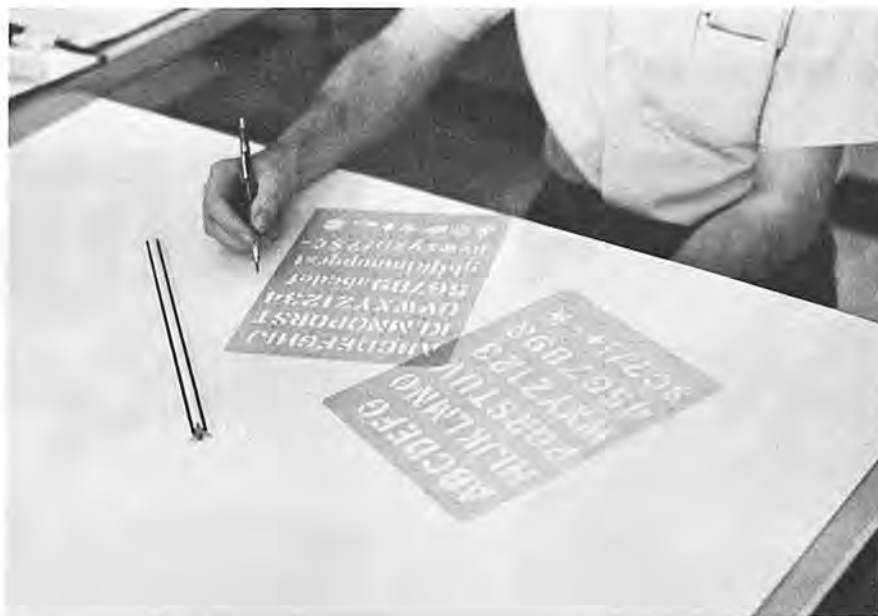


Figure 1 - Plastic stencils

lettering guide kit

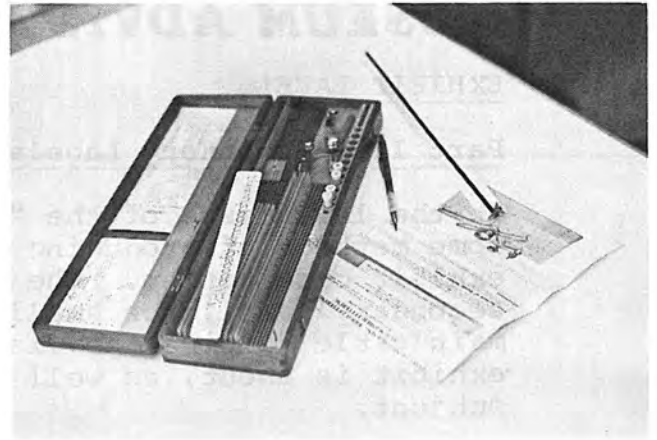


Figure 2

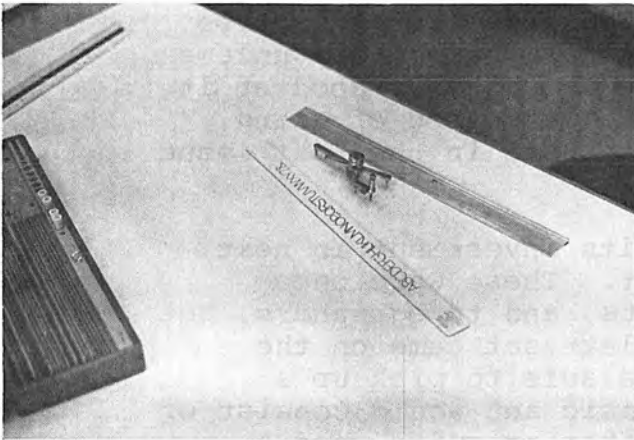


Figure 3 - guide holder, lettering guide, scribe



Figure 4 - using lettering guide kit

lettering template

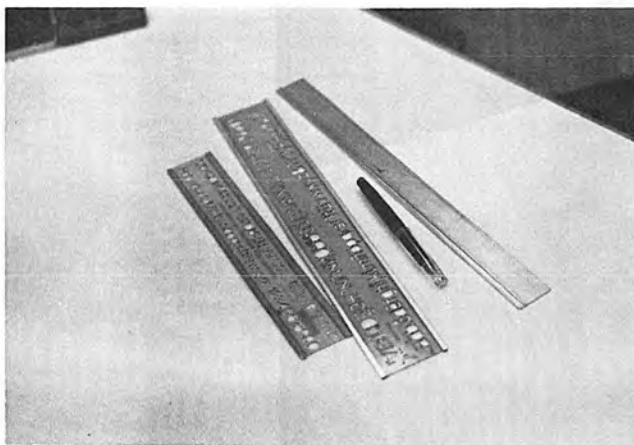


Figure 5 - template, pen, straight edge

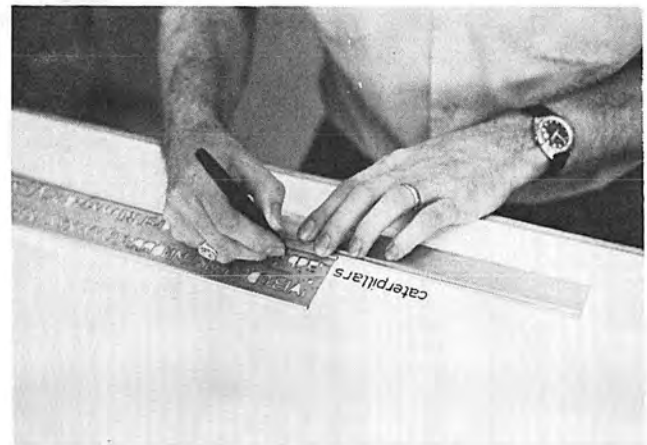


Figure 6 - using template



Figure 7 - Use of compatible styles of Letraset

letraset



Figure 10 - butting spacemarks

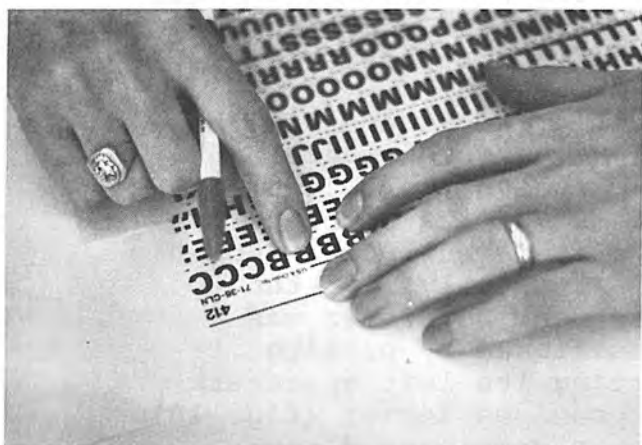


Figure 8 - Letraset spacemarks



Figure 11 - removing spacemarks with tape



Figure 9 - transferring letter



Figure 12 - rubbing with backing sheet

the line you wish to letter on. A guide pin on the lettering guide traces out the desired letter which is transferred to the paper by the scribe arm. The lettering guide is shifted back and forth on the guide holder as letters are needed. Spacing must be done by eye, as there is no provision for this on the guide (fig. 4). Guides are available which will produce lettering up to $\frac{1}{2}$ inch in height.

Another lettering guide system which is even easier to use consists of a heavy plastic stencil, a lettering pen with the appropriate nib, and a straight-edge guide (fig. 5). The principle of using it is much the same as that for the set mentioned earlier, except that the letters are made directly through the stencil instead of through a scribe arm (fig. 6).

Letraset, though fairly expensive, is very easy to use, and it gives professional results every time with a wide variety of lettering styles. Use a simple style, and one that is compatible with the style used in the exhibit title (fig. 7).

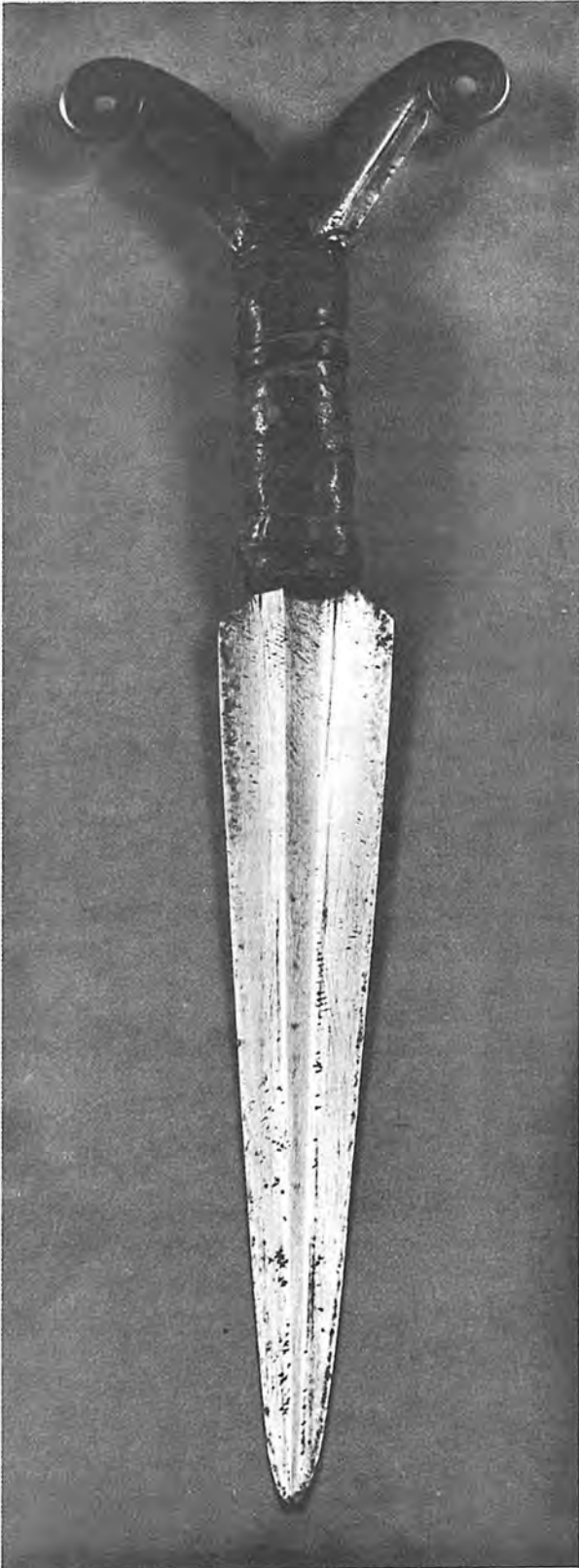
To use Letraset, remove the blue backing sheet and draw a pencil guideline about $\frac{1}{8}$ inch below where you want the word to go. Position the spacemarks (below the letter) on the line (fig. 8). Transfer the letter and its spacemarks onto the surface by rubbing lightly with a ballpoint pen or other blunt instrument (fig. 9). Carefully lift the sheet and check to make sure that the entire letter was transferred. The next letter is positioned by putting its spacemarks on the guideline and butting its left spacemark against the right spacemark of the previous letter (fig. 10). Continue until the word or sentence is completed (leave about half the width of an "N" between words). The spacemarks are removed by touching them with adhesive tape (fig. 11) and the guideline is erased. The blue backing paper is placed over the word and rubbed with a finger to ensure good adhesion (fig. 12). After a bit of practice with Letraset, you will find that you can space the letters by eye and not have to worry about transferring and removing the spacemarks.

For more information on Letraset, write Fraser Art Supplies in Winnipeg for the latest Letraset catalogue. The other products mentioned are available from either Fraser Art Supplies or Willson's Stationery.

Next issue, we'll look at methods of producing the object label.

David McInnes

STOLEN



DESCRIPTION: Knife, iron, double-edge beveled blade, the hilt wrapped with leather strip and terminating in a fork with curled ends.

CATALOGUE NUMBER: 848.12d

LENGTH: 37c.m. (14½")

ATTRIBUTION: Kutchin Indian, Yukon River, Alaska

DATE: 1862

This knife, from the collections of the Royal Scottish Museum, Edinburgh, Scotland, was stolen on March 12, 1976 from the British Columbia Provincial Museum while on display in a temporary exhibition entitled "The Athapaskans: Strangers of the North"

Anyone having information on the whereabouts of this knife is asked to contact the Director, British Columbia Provincial Museum, Victoria, British Columbia, (604) 387-3701 or the Director, National Museum of Man, Ottawa, Ontario, (613) 996-9284.

WHATSIT?

EDITOR'S NOTE: In the last issue we published a photograph from R.M. Beamish of Hamiota of an unidentified tool. Mr. Beamish received the following information, identifying the artifact, from V.N. Styrmo, Supervisor, Museum Section, Heritage Administration Branch, Ministry of Culture and Recreation of the Province of Ontario.

"With reference to the pictured "tool" in the "Whatsit?" column of the Dawson and Hind Winter 1975 issue, I believe it is a dressing tool for a carborundum grinding wheel.

In many cases carborundum grinding wheels become "hollowed" or "grooved" or "out of round" after extensive use and this tool is used to "dress" the grinder back into its proper shape although it also reduces the size of the diameter of the grinding wheel as well.

The tool is held against the grinding wheel when it is turning similar to sharpening a tool or grinding a piece of metal.

There is another "dressing tool" that used a series of hard steel "star wheels" approximately $1\frac{1}{4}$ " in diameter and $1/8$ " thick in place of the carborundum core shown in the one in the picture. A number of these "star" wheels (perhaps 8 or 10) are set on a common axle to form a series of hard steel points about 1" wide that revolve with the grinding wheel and dress it similar to a carborundum dressing tool. The advantage of the "star" wheel tool is that it lasts longer than the carborundum core and it does not require the complex collar and threading needed to expose the working face of the carborundum core as it wears down.

I hope the foregoing will be helpful to you, unfortunately I don't have any pictures or illustrations, however, I believe any blacksmith or machine shop operator can give you any further explanations or demonstrations."

V.N. Styrmo

MUSEUM FOCUS

DALNAVERT (Macdonald House Museum)

Tim Worth

Dalnavert has been accorded another award for excellence in heritage conservation. The "Award of Merit" has been given by the American Association for State and Local History. Dalnavert was one of three recipients in Western Canada; the other two recipients are in British Columbia.

In a continuing attempt to serve the public interested in our type of museum artifact, Dalnavert hosted a series of lectures in March. These lectures covered a range of topics: Stained Glass; Early English Porcelain; Clocks; Canadiana; Kitchen Utensils and Tools; English Domestic Silver and the Winterthur Museum.

In May, under the auspices of Dalnavert, an audio-visual presentation of early Canadian postcards was presented. This was a Canada Council funded programme which is being presented across Canada; often featuring slides of postcards which depict scenes in the local area of the presentation.

Dalnavert has been lucky enough to obtain the services of an on-job trainee for a three-month period. Mr. Jean Dupont is proving to be of invaluable assistance to our staff and we hope he will benefit from his experiences at Dalnavert.

PIONEER HOME MUSEUM OF VIRDEN AND DISTRICT

Grayce M. Hegion

Two Good Ideas for Small Museums. Since obtaining the services of our Curator, Mrs. Ruth Craik, we have observed many instances of small museum success, not possible formerly when operating with volunteer staff. Some of these instances come to mind:

1. At Virden's three-day exhibition last summer, we purchased a display booth (rental \$15.00) in which we depicted many facets of our Pioneer Home Museum. A partially-completed quilt was exhibited on a quilting frame, complete with needles, pins, thread and all. Raffle tickets were sold on quilts made in the museum, and the draw was made at our MUSEUM DAY in September. Museum brochures were handed out free to the public, as well as the A.M.M. green museums brochure. The display booth also exhibited early irons and kitchen ware and a buffalo robe was on the floor. A big horn gramophone and its cylinder records, and many other household items gave the visitor to the Fair an idea of what they would see on a visit to the Pioneer Home on King Street. As a result of this booth, manned by willing

volunteers, attendance at the museum for Fair Week broke all records; it kept our summer staff of hostesses very busy and compensated for the hours of work they had put in to make a very attractive Fair Booth. This type of publicity had been tried the first year of our museum's operation. However, it had not been too successful as we were not well known, which proves that it is wise to "try-try-again".

2. During Fair Week in every town there is the traditional parade with bands and marchers and floats and horses. Last summer our Virden museum entered a float in the summer parade - and it was breathtaking for it was a truly Victorian parlour (on a rack hauled by a tractor). The live mannequins wore Victorian dress and struck Victorian poses as they passed the crowds of summer Fair visitors. Before you peeked into the "parlour" - there - on the front of the float, our happy Curator, Ruth Craik, posed in an ancient Sitz hip bath, blowing bubbles and waving to the crowd. (That's dedication!). The effort put into creating a parade float, or setting up a Fair booth, is well worth it, but you must choose from your museum artifacts which are hardy enough to stand the moving and handling.

For museums in smaller centres, think about the publicity, good will, and the benefits to your town and community when you participate as we have done in the exciting days of the Summer Fair!

UKRAINIAN CULTURAL AND EDUCATIONAL CENTRE

The Board of Directors of the Ukrainian Cultural and Educational Centre has purchased the New Pathway Building, 184 Alexander Avenue, in Winnipeg. The Ukrainian Centre has occupied the fourth and fifth floors of the building during the past four years, but plans are now finalized for renovation and occupancy of the entire building.

The budget for this project is estimated at \$315,000. The Federal Government, under its Museum Assistance Programme, has approved a grant of \$150,000. towards the renovation of the interior of the building, the Ukrainian National Federation of Canada, St. Boniface Branch, has pledged \$50,000. and the Provincial Government, Department of Tourism and Recreation, has assigned \$25,000. for this purpose.

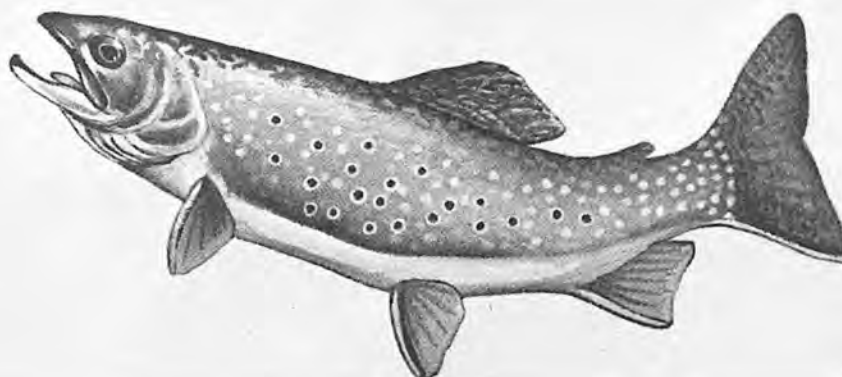
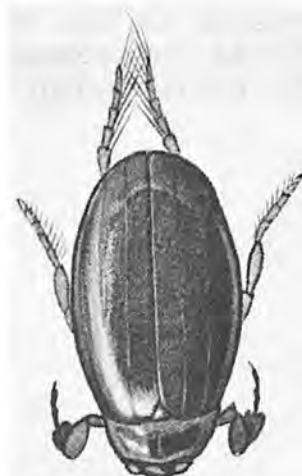
A Committee is being organized to solicit funds from various groups and members of the community to raise the remainder of the money needed.

EX LIBRIS

ANIMALS OF MANITOBA by Dr. Robert E. Wrigley. Published by the Manitoba Museum of Man and Nature, Winnipeg, 1974; 158 pages (\$3.50 soft cover).

Dr. R. E. Wrigley, Curator of Higher Vertebrates at the Manitoba Museum of Man and Nature, has compiled and written this short but very informative book on animals in Manitoba. He was assisted by several museum colleagues, each an expert in his own field, in the animal accounts and the gathering of the information.

The book is divided into six main sections - mammals, birds, reptiles, amphibians, fish, and insects. There is also an additional section for those in the category of miscellaneous invertebrates. The entire book is profusely illustrated with 123 sketches by the renowned wildlife artist, Jim Carson. These beautiful sketches seem to bring to life the vivid printed descriptions of the various animals.



As Dr. Wrigley states, there are several excellent field guides available which cover several of the groups mentioned in his book. These guides, however, are often restricted in content to a particular group or they cover large geographic areas dealing primarily with species not native to Manitoba.

Each animal description covers information such as physical description, habitat, mating habits, life expectancy and enemies, etc. The animals described in the book were selected on the basis of illustrating the diversity present within the groups and also because of their general occurrence within easy access of everyone.

In my own opinion Animals of Manitoba definitely achieves its aim - that of not being a key to the diverse wildlife of the province but of being a guide which approaches far more closely the needs and interests of school students and amateur naturalists.

If you are a dedicated sportsman, fisherman, insect enthusiast, student of biology, naturalist or just plain interested in the relationships formed between animals and their environment, a copy of Animals of Manitoba will not be a disappointment to you.

Warren Clearwater

NOTES FOR CONTRIBUTORS

We invite you to submit articles for publication in the *Dawson and Hind*. We would appreciate if you would bear in mind the following guidelines:

1. We would prefer all articles to be *typewritten* and *double-spaced*. We realize this is not always possible; and under such circumstances we will accept handwritten articles *only if they are legible and double-spaced*.
2. As a rule of thumb, articles should be a *minimum* of four double-spaced pages; or a *maximum* of 20 double-spaced pages.
3. If possible and appropriate, we welcome photographs to complement articles. *Black and white* photographs are the most suitable for reproducing although colour photographs can be used.
4. Please *do not cut or crop* photographs.
5. All photographs must be *identified on the back*.
6. Photographs will be returned only if requested, *in writing*, by the contributor.
7. Should an article include a bibliography, please list author, title, publisher, location and date of publication (as well as name of journal, if applicable).

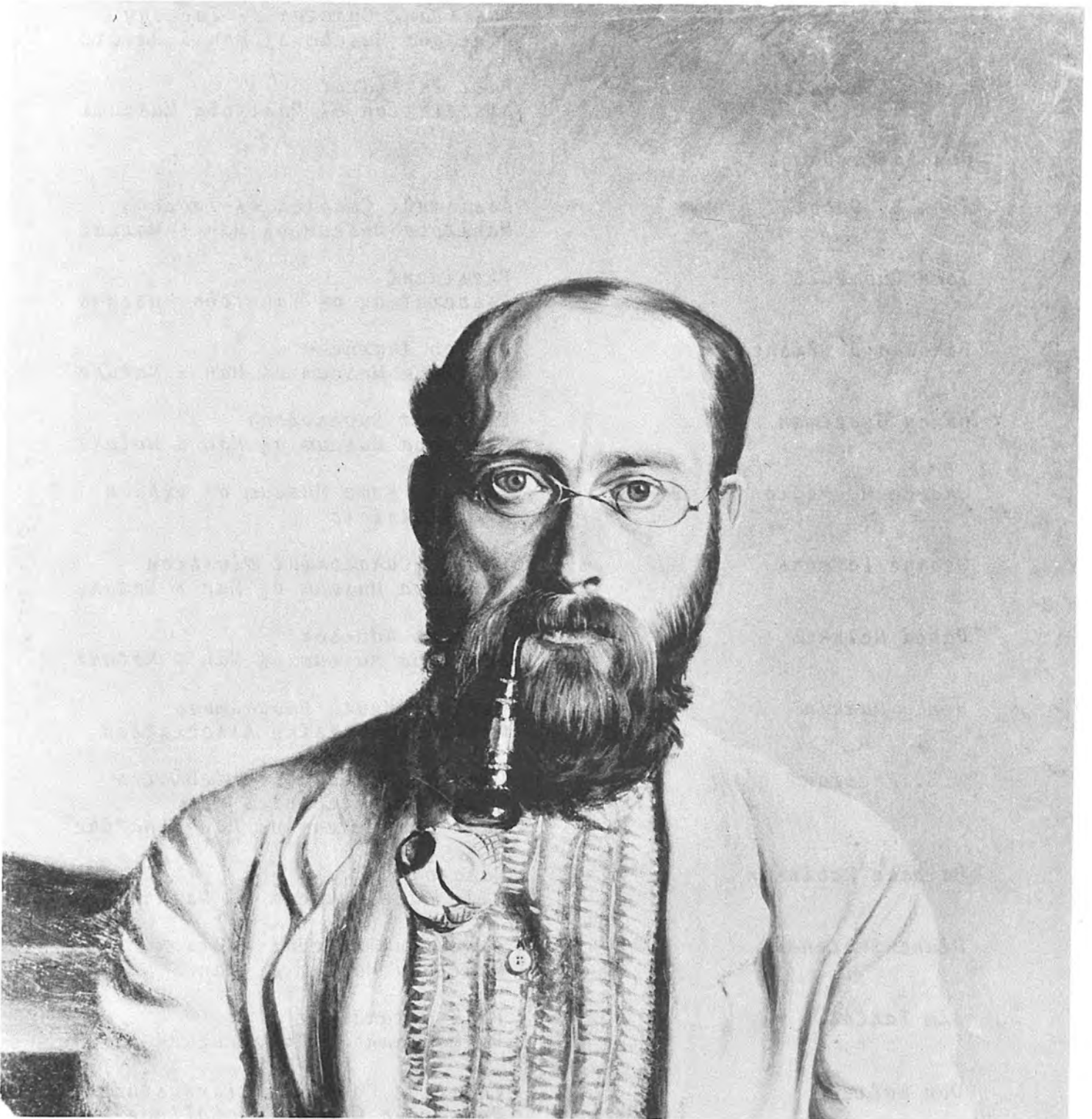
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(courtesy: Public Archives of Canada)
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WILLIAM GEORGE RICHARDSON HIND (SELF-PORTRAIT)

(courtesy: B.C. Provincial Archives)

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