THE MINERAL VEIN

Official Newsletter of

THE MINERAL SOCIETY OF MANITOBA

April 2015

APRIL PRESENTATION SUMMARY

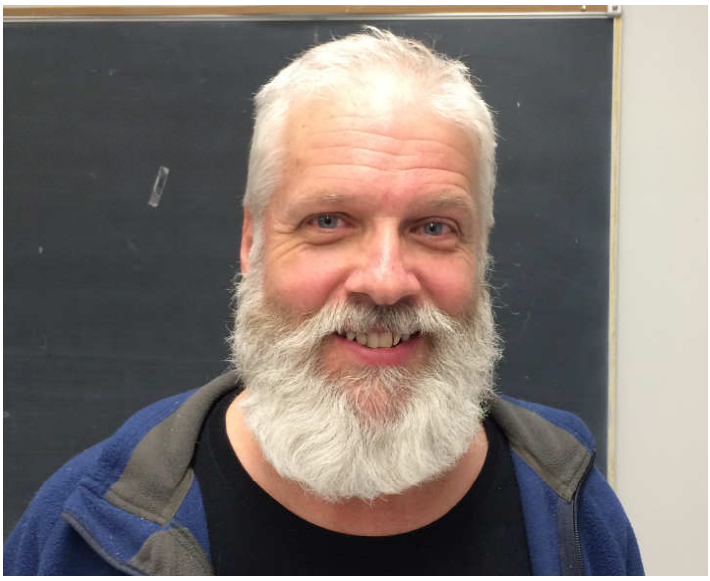
By Marjorie Turton

This Wednesday April 1, we had the good fortune to have Dr. Graham Young, curator of the paleontology and geology departments of the Manitoba museum. The presentation was on traveling in the Ordovician regions of the Hudson Bay Lowlands. August 2014 was his 10th field trip to Churchill. His first field study trip was in 1996. The presentation was mainly a travelogue of this last trip. The Churchill region is part of the Hudson Bay coastal lowlands, a poorly drained area underlain by Precambrian and Paleozoic rocks.

The vicinity east of the town is characterized by outcrops of Precambrian Shield, gravel ridges, lakes, old beach lines that were part of the former coast of Hudson Bay, and lowland area. Outcrops of Precambrian rocks also form the western boundary of the Churchill River near its mouth. In 1879, Dr. Robert Bell of the Canadian Geological Survey named this dark grey quartzite occurring on both sides of the mouth of the river "the Churchill quartzite".

Traveling to the Hudson Bay Lowland is not for the squeamish. The rail system frequently breaks down because of the terrains but it does allow the passengers the ability to view the countryside more leisurely. The alternative is to fly in. Calm Air flies up north. The road from the airport was ordinarily paved but is now gravel.

The terrains consist of rocks (boulders), low spruce, and wetlands. The rocks contain many fossils. This is one of the reasons that Dr. Young goes there. Up the Churchill River (magnificent landscapes) one finds fossils in the rocks.



Dr. Graham Young

Dr. Sam Nelson, geological survey of Canada, did a lot of the survey initially by float plane and also by canoe and on foot. All the type sections of the rocks were named after the place names of the rocks.

When the field crew reached Churchill, they stayed at the Churchill Northern Studies Center.

Founded in 1976, the Churchill Northern Studies Centre is an independent, non-profit research and education facility located 23 km east of the town of Churchill, Manitoba. They provide accommodations, meals, equipment rentals, and logistical support to scientific researchers working on a diverse range of topics of interest to northern science. In addition to research, the Centre facilitates a wide range of educational programming ranging from general interest courses for the visiting public to university credit courses for students. Food was reported to be excellent and cost to stay there was a mere $75 a day. **(Continued on page 3)**

THE MINERAL SOCIETY OF MANITOBA
c/o The Manitoba Museum
190 Rupert Avenue
Winnipeg, MB, R3B 0N2

mineralsocietyofmanitoba.weebly.com

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Yvonne Searle, *ph. 204-663 6637*

The Mineral Vein is published monthly from September to June.

Meetings are held on the first Wednesday of each month from September to May inclusive at the Manitoba Museum in room P47 on the Planetarium level. They begin at 7:30 PM and feature announcements, an invited speaker and a raffle. Members are encouraged to bring along any new, interesting specimens, or specimens appropriate to the speaker's topic.

Field Trips take place from May to September to interesting sites in Manitoba or neighbouring provinces and states.

Membership: A single membership is $15 while a family membership is $20. Memberships run from October to October.

Table of Contents

UPCOMING EVENTS

May 6th, 2015: MSM regular monthly meeting begins at 7:30 p.m. at the Manitoba Museum.
"Geocaching and Earth Caching" - Jacques Bourgeois
Explore Earth Science in a fun way via geocaching. A modern day worldwide scavenger hunt using GPS technology.

June 2015
The executive will meet in the next few weeks to plan and organize the annual end of season BBQ.
Stay tuned for more information.

Founded in 1971, the Mineral Society of Manitoba is dedicated to promoting the study of minerals, rocks and fossils for their scientific and recreational value.

The Mineral Society of Manitoba hosts monthly meetings covering a variety of mineral related topics. In addition, the Mineral Society organizes summer field trips to collecting localities, and hosts educational exhibits about minerals and fossils.

APRIL PRESENTATION SUMMARY (cont)

The Centre is ideally situated along the Hudson Bay seacoast at the meeting of three major biomes: marine, northern boreal forest, and tundra. To the east lies Wapusk National Park which protects the inland denning area of the polar bear. Farther to the southeast lies the Hudson Bay Lowland, the largest peatland in North America.

Polar bears appearing are always a possibility; therefor the Churchill northern studies building are built at a slant, preventing bears from climbing up on the buildings. Although most of traveling to the study areas is done by helicopter a monitor complete with rifle accompanies you everywhere. The monitor is a necessity regardless of the season, because polar bears can appear any time. They may view humans as food.

The **Hudson Bay Lowlands** are a vast wetland located between the Canadian Shield southern shores of Hudson Bay and James Bay. Many wide and slow-moving rivers flow through this area toward the salt water of Hudson Bay: these include the Churchill, Nelson and Hayes.

The best way to get around the area

This is the largest wetland in North America, and one of the largest in the world. The region can be subdivided into three bands running roughly northwest to southeast: the Coastal Hudson Bay Lowland (a narrow band along the northern coast), Hudson Bay Lowland (a broader band extending to slightly south of the Ekwan River), and James Bay Lowland (all the rest of the southern/eastern lands, making up close to 50% of the total Lowlands area).

The entire area was covered by ice during the last glaciation, and the peat lands have accumulated over the last ten thousand years. Plants from more temperate regions mix with arctic species. A majority of the wetland is peat bog, although saline marshes occur along the coast, and marshes and wet meadows occur along the major rivers. The wetlands provide important habitat for migratory birds including shorebirds (e.g., Yellow Rail) and waterfowl (e.g., snow geese). Large mammals include polar bear and wolverine

The area was covered in ice during the last ice age, and then flooded as the ice receded, leaving behind plains that are slowly rising out of the ocean due to post-glacial rebound. Peat lands, both bogs and fens now cover much of the landscape, with other kinds of wetlands along rivers and the coast. The climate of the region depends largely on the water surface of the bay, which heats rapidly in the summer, breaking ice and bringing rains to the lowlands. In the winter the bay freezes over again, bringing freezing temperatures and winds. The vegetation is mostly conifer forest and peat land, with typical sub-arctic and boreal plants.

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APRIL PRESENTATION SUMMARY (cont)

Churchill, Manitoba, Canada is known as the accessible arctic. Located along the southern edge of Canada's arctic, Churchill is surrounded by the wildlife and habitat of three distinct eco-zones: arctic marine, arctic tundra and boreal forest. It is home to the most accessible population of polar bears, both for adventure travel and scientific research. The town of Churchill lies underneath the aurora oval, resulting in over 300 nights.

South of Churchill the Churchill river is broad, but it is very different from the estuary you see at Churchill. Here the water rushes over its bed, with many treacherous shallows, boulders, and long stretches of rapids. It's difficult to imagine that one is in the northern part of Manitoba. The land appears flat but then the river cuts a deep trough through the land. There are cliffs beside Bad Cache, no place for the helicopter transport to land at Portage Chute. However a little further downstream there is a flat platform of bedrock extends from the cliffs on the river's northwest bank. It is a perfect natural helicopter landing pad which they used. Still that far inland there is still a risk of meeting polar bears even this far inland.

Portage Chute represents the beginning of Ordovician geology for this part of the Hudson Bay Lowland. South and west of here, everything is Precambrian for hundreds to thousands of kilometres. In fact, the granitic rock on which the helicopter rests is Precambrian in age, while the limestone cliffs are Ordovician (Portage Chute Formation, Bad Cache Rapids Group, Katian [Upper Ordovician, in the range of 450 million years old]). This is one of the most spectacular geological contacts in the world. The surface that was eroded for more than a billion years, starting in a time when there was no complex life on this planet, while the bedrock that was deposited as carbonate sediment on an ancient tropical seafloor during a time when marine life was reaching the peak of its first great diversification. The water is pristine with little or no vegetation in the water.

Precambrian rock makes up the riverbed all the way to Bad Cache Rapids, some 20 kilometres away, while the Ordovician cliffs extend much farther than that! Those Ordovician cliffs includes a great variety of groups, and it is notably defined by gastropods, cephalopods corals, brachiopods, and parts of trilobites.

Surprise Creek falls (50 years apart)

The Churchill Rocket Research Range National Historic Site is located a few kilometres east of the town of Churchill, Manitoba, on the shores of Hudson Bay. The installation is an immense wedge-shaped piece of land with facilities for launching, tracking and retrieving the rockets. Until the site closed in 1985, the area known as the range head provided the working base for launching and tracking rockets for research into the upper atmosphere. There are three indoor launching pads joined by walkways as well as the auroral observatory and radar tracking stations located nearby. **(Continued next page)**

APRIL PRESENTATION SUMMARY (cont)

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Churchill Rocket Research Range was built by the United States Army under the aegis of Canada's Defence Research Board in 1956. It launched its first rocket for research into the upper atmosphere in October 1956. Over the years, Canadian programs participated increasingly in rocket research at this centre, and it became a National Research Council of Canada (NRC) facility in 1964. This was the only facility in Canada for launching sounding rockets. The Black Brant rocket, designed and built in Canada, was first launched from this center in 1959.

Pictures were great and many questions were asked. Dr. Graham Young has always inspired us to become interested in his many pursuits.

FIELD TRIP ITINERARY 2015

By Jack Bauer & Marion Foster

1. Thunder Bay, **June 12 to 14**.
We will collect **amethyst** and will explore some geological features of the area if the weather does not support good amethyst collecting. An evening BBQ is planned for Saturday, the 13th, weather permitting. Please register if you intend to go, with current contact info.
Confirmation deadline for this trip is June 7.
Contact: Jack Bauer, 204-632-6934 or jebauer@mymts.net

2. Gillis Quarry, (June)
We will be looking for **Ordovician fossils** such as sunflower corals, brachiopods, gastropods, cephalopods and the elusive trilobites. Fossils of snails and nautiloids can sometimes reach giant proportions.
Contact: Marion Foster, 204-775-0625

3. Bird Lake / Tulabi Lake area, July 10/11.
Our objective is to collect **garnets** from outcrops, East of Tulabi and West of Booster Lake. A pre trip to the area will confirm accessibility. Campsites are subject to availability. Please register if you intend to go, with current contact info. Confirmation deadline for this trip is July 5.
Contact: Jack Bauer, 204-632-6934 or jebauer@mymts.net

4. Lake Manitoba Narrows, (Mid August)
Paleo Excursion.
Contact: Marion Foster, 204-775-0625

5. Holland, MB. (September or October)
This trip to collect pyrite nodules. is tentative and subject to low water levels for a successful trip. This will likely take place in the fall.
Contact, Jack Bauer for details.

All field trips are subject to the weather cooperating. Some field trips may require participants to sign a liability waiver as a condition to gaining access.
Field trips are also subject to sufficient participation (and may be cancelled), so keep in touch prior to an upcoming trip. Advise trip leader of any unexpected changes.
Good Luck, and have a good summer.