



# THE MINERAL VEIN

Official Newsletter of

**THE MINERAL SOCIETY OF MANITOBA**

**FEBRUARY 2018**

## **JANUARY PRESENTATION SUMMARY**

By Jacques Bourgeois

Unfortunately, I was unable to attend the presentation by Mike Beaugard this past month Global Ice Age Glaciation via Canada, the Land of Big Ice but I understand it was quite interesting. He first defined the direction to cold on Earth: up in altitude and North or South in latitude.

When hiking upwards from sea level to colder elevations, one pass through the treeline into permafrost and into alpine glaciers. Going north in Manitoba for example, one would walk through the boreal forest, the cross the treeline into the tundra (underlain by permafrost) then another 1500-2500 km of frozen ground to ice caps atop mountain ranges in Nunavut and finally to the summer ice pack / winter ice cover of the Arctic ocean. Going south, one can only sail and eventually met the ice fortress of Antarctica covered by continental ice sheets and surrounded by floating ice shelves and ice-pack covered ocean. Antarctica's ice sheet extent is just a bit bigger than the former glaciated North America extent!



Mike Beaugard presenting to the group

There are approximately 198,000 alpine glaciers from the poles to the equator. Ice caps are found on top of polar mountains and high mountain ranges and ice sheets are mainly found in Greenland and Antarctica. Since the last glaciation, 80% of the ice sheets in the northern hemisphere have melted leaving only Greenland, Ellesmere and Baffin islands, the BC-Yukon-Alaska corner and the Tibetan plateau covered in ice.

He mentioned the fact that evidence points to cyclic global glaciation and the fact that the vast majority of Canada is a cyclically glaciated landscape.

The global ice age dynamics created new opportunities such as population migrations. During glaciation, the world ocean level falls 100-120 vertical meters, forming land bridge and exposing continental shelves whereas during the warm interlude, the ocean rises 100-120 vertical meters, drowning shallow ...



Hanging glacier and ice-capped mountain on Baffin Island.  
Government of Nunavut

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### UPCOMING EVENTS

**February 7, 2018:** MSM regular monthly meeting begins at **7:30 p.m.** at the Manitoba Museum. This meeting will consist of a Rock Swap and a discussion about the tentative upcoming summer field trips.

**March 7, 2018:** MSM regular monthly meeting begins at **7:00 p.m.** at the Manitoba Museum. Our guest speaker this month will be Dr. Eva Pip, retired University of Winnipeg biology professor and water quality expert. Her talk will be "Fakes! Mine Fields and Pit Falls for the Innocent - How Not to Get Fleeced". If you are a mineral, gem or fossil collector, or even a museum, you have some fakes in your collection! In this presentation, we will learn about the different kinds of fakes, the clever ways we can get swindled, the various methods and materials that are used to hoodwink the unsuspecting collector, and how to identify things that are no as they appear. Advice and strategies are offered on how to protect ourselves when we invest our hard-earned, tightly budgeted rock collection dollar, gleaned from a long lifetime of unfortunate experience and buying mistakes!

**April 4, 2018:** MSM regular monthly meeting begins at **7:30 p.m.** at the Manitoba Museum. Speaker to be announced.



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.

### THE MINERAL SOCIETY OF MANITOBA

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*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.

## FIELD TRIPS 2018

By Jack Bauer

For the February meeting, we would like for the members to help decide what field trips should be planned for 2018. What type of trips the members are interested in doing and if they have any suggestions for future trips.

Here are the tentative trips suggested. Dates and departure times are yet to be determined. We would like members to sign up for the 2018 trips that they would be interested in for this year. We will also put a list of trips together, for future consideration.

1. **Winnipegosis, Manitoba** - Three days within the last two weeks in August.

Field Trip leader: Kathryn Lapenskie

This trip will involve a 6 plus hour drive, past Dauphin, one way and will be best if it is spread over a period of three days. This is a new site that we will be visiting, so at this point, I am not sure how much walking is involved yet or what type of camping facilities are available in the area.

We will be looking for well preserved Ordovician fossils at this location.

2. **Steep Rock, Manitoba** - Three days, some time in July.

This is an old trip location with new opportunities. Danial's neighbor and new member, is going to help us rediscover the Steep Rock area.

Field trip leader: Danial McKay

The old limestone pit has always been a good collecting area, until the pit began to flood. Our new member has a cottage with lots of room to set up campsites. He will also be able to gain access for our group, to the old pit and any other pit we may want to visit in the area.

Here we will be looking for Devonian fossils, fish parts, large Crinoid stems, Barite crystals, Pyrite and Marcasite crystals. This trip has the potential to becoming a very large and exciting trip, as we will be joined by a "Fat tire bike group". So I would recommend that you bring your off road bikes, if you can. This will be a good opportunity to explore some potentially unexplored areas.

3. **Red River Flood Way Selenite Dig** - Two to four weeks (to be determined) Late summer/fall.

Field trip leader : Jack Bauer

Because of the success of last year's dig, we have been asked to do it again!

4. **Gillis Quarry in Garson Manitoba** - One day, weekdays, 4 to 6 hours. Half hour North/East of city.

This is a family friendly trip, as walking is minimal because we can drive right to the rubble pile.

Here we will be looking for well preserved Ordovician fossils, like various corral fossils, curved and straight cephalopods and potentially large trilobites.

5. **Mariash Quarry in Stony Mountain** - One day, 4 to 6 hours, 20 minute drive north of the city.

Here we will be looking for Ordovician fossils.

6. **Souris Gravel Pit in Souris Manitoba** - One day, 4 to 6 hours, 2 hour drive SW of Winnipeg.

A light rain will not hurt this trip. This is also a family friendly trip.

Here we will be looking for Agates, petrified wood and more.

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## THANK YOU!

It has come to our attention that the projector the Mineral Society of Manitoba is using, was donated by Bill and Yvonne Searle. It would appear, they did not receive a formal "Thank You" by the Mineral Society executive, for this donation.

To make amend, we would like to formally thank them for the donation and as well as their many years of dedicated volunteering, for the Mineral Society.

Long term members, who continuously volunteer their time should wholeheartedly be recognized for their contributions, and their many years of support. Without volunteer support, the Mineral Society could not exist.

A big **Thank You** to Bill and **Yvonne Searle!** Your contribution is to the Society is invaluable!

## JANUARY PRESENTATION SUMMARY (CONT.)

... continental shelves and flooding land-bridges. This created the Neolithic migration during which time populations moved across continent over the various land-bridges. When the world ocean level rose, hundreds of generations of seaside-loving population migrated inland at a rate of approximately 2 vertical meter per century over a period of 3000 years. During today's static world ocean level (for 11,600 years and counting) humanity has gone from prehistory, to writing, technology, science globalization and space travel all the while taking modern sea level for granted. Earth, however, is not a steady-state world during an ice age and 80% of the human population currently within vertical reach of a warm earth world ocean level.

He went on to explain the fact that all glacial ice is gravity-driven. Snow compacts into ice and glacial ice acts like liquid water. When an alpine glacier reaches a thickness of 50 meters, it starts to trundle away. Every glacier is a non-stop one-way conveyor belt of ice that advances, melts or recedes according to temperatures. Ice caps and ice sheets flow away from the central elevation with the highest ice creating terminal moraines, outwash plains or giant meltwater lakes. There are many signs of glaciation around us. They vary from small scale features carved in bedrock to altered terrain and landforms.



Raised beaches in steep terrain, Bathurst Inlet, Nunavut. Government of Nunavut

For example, the 3 centres of the Keewatin ice-sheet were located by looking at striations (parallel scratches) on bedrock made by stone-carrying flowing ice by JB Tyrrell and the GSC party working

north of the treeline. These scratches on bedrock can be observed across Canada. Glacial striations, upside-down "rockboats", grooves and whalebacks rocks are all small-scale glacial features carved in bedrock. Aretes (sharp-edged rock ridges), cirques (mountainside bowls cut by ice), hanging glaciers and valleys, fjords, tarns (ponds of water that fills former cirques), flat-topped mountains and nunataks (pointy mountains above ice level) are all alpine ice cap glacial landforms in bedrock carved by glaciers and ice caps.



Scraping bottom on remnant ice cap at top of mountain on Baffin Island. Government of Nunavut

Other features such as the depositions and landforms created with glacial till are found everywhere. Glacial till consists of unsorted ice-transported glacial grind (clay, silt, sand, gravel, cobbles and boulders) and is found from coast-to-coast beneath tundra, prairie, soil and lakes. Alpine moraines (lateral and terminal) and continental moraines (100's of km) are great depository of glacial till. Some glacial features are only found in areas covered in permafrost such as pingos (giant cones), mudboils (sandy-clay puddle-sized glacial till frost-heaved to surface), thermokarst (melting permafrost) glacial till and sand polygons.

He finished his presentation with a compilation of meltwater depositional landforms associated with continental ice sheets such as dumplins, eskers and the ones left by the isostatic rebound by earth crust after the weight of the thick continental ice sheet is removed such as raised beaches, marine seashells found inland and giant meltwater lakes.