



# THE MINERAL VEIN

*Official Newsletter of*

**THE MINERAL SOCIETY OF MANITOBA**

**MAY 2016**

## **APRIL PRESENTATION SUMMARY**

**By Marjorie Turton**

We had the pleasure of hosting Christian Bohm to give us a very informative presentation on the services offered by the Manitoba Geological Survey. Christian Bohm received his diploma degree in structural geology and Ph.D. in geochronology and isotope geology from ETH Zurich, Switzerland. He did his post-doctoral research and taught at the University of Alberta prior to joining the Manitoba Geological Survey in 2002. He claims that he may be the oldest in the survey group.

In Manitoba his main focus has been on the Precambrian evolution of the Archean Superior and Hearne cratons by using geological mapping, geochemistry, structural, isotope and geochronological methods. Since 2009 Christian has been Head of the Precambrian Mapping section, and since January 2013 Acting Director of the Manitoba Geological Survey. He is past President of the Precambrian Section of the Geological Association of Canada, and current Executive Director of the National Geological Survey Committee as well as the Committee of Provincial and Territorial Geologists in Canada.

In spite of his many credentials he was pleasantly surprised that the number of people gathered to hear him was way much larger than he expected. He then explained that he would not be presenting on plate Tectonics as there are much more knowledgeable people on the subject at the U of M and the Mining Department.



Christian Bohm, Manitoba Geological Survey Director

Therefore Christian Bohm proceeded to expand on the Manitoba Geological Survey and Public Geoscience.

It is surprising as to the array of things the Manitoba Geological Survey has “their fingers in”. Geoscience is not exploration per say or so much as teaching; it is all of that and more.

The unlocking of Manitoba’s resource potential is predominately done by mapping: on foot, by airplane, by drone, by canoe and by researching past stories and diaries. While in the field they are also experimenting. In one case the use of a particular tape was attached to a person’s hat supposedly to ward off mosquitoes. Unfortunately it didn’t work.

**(Continued on page 3)**

## 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.

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### UPCOMING EVENTS

**May 4, 2016:** MSM regular monthly meeting begins at 7:30 p.m. at the Manitoba Museum. Our guest speaker will be Aura Diaz, a 4th Year Geology Student, who will talk about her research on "Thermodynamics of Sea Ice in the Arctic throughout the analysis of sea ice energy balance obtained from field data and controlled lab experiments". Hope to see you there!

### May 22 to 29 2016: Manitoba Mining Week

**May 28 & 29** Archaeology, Rocks and Mineral Event at Oak Hammock Marsh . Mineral displays, gold panning, daily rock auctions, special presentations, flint knapping demonstrations, craft for kids and more.

**June 12, 2016: MSM Annual BBQ** at Ron and Wendy Anthony's place Hot dogs and hamburgers will be provided by the club. Feel free to bring a side dish, salad or dessert to share. RSVP by phone or via email: (204) 774-5613 or ranthony@mymts.net



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 (CONT.)

Field work provides data and maps on all natural resources; rare earths, present useful potential and economically reserves. Without the resource data, resource extraction could not be attempted. Geoscience is a long term investment that requires continual updating. Geoscience enables land use planning, enables health and safety planning regarding the environment, reduces costs and risks of exploration.

Mining adds 3 billion dollars to the Manitoba economy. It represents 7% of the province's GDP and 8% of its exports. Mining is the principal driver of the North's economy. Whereas eco-tourism provides a limited economy.

In the last few years, the economy was suffering, as resource pricing is low. There are uncertainties concerning the environment regarding regulations, protected areas, disputed land claims, and socio-economic agreements.

In 2015, Manitoba ranked 12<sup>th</sup> in the world for its database. The new young geologists coming into the department bring new ideas, new procedures, and are frequently able to do mapping immediately. However, they lack experience on field work. Geoscience entails many different aspects :

Mineral potential - identifying minerals, oil & gas, public infrastructure , land claim negotiations, land use

Environment – climate changes impact assessment

Public Health and safety – natural hazards, surface ground water, toxic substances

Education – public awareness, outreach, mineral education

Policy – polices concerning natural resource development, technology

Survey – Precambrian, mapping, mineral deposit investigation, nature & evolution of Precambrian in Manitoba

Sedimentary – stratigraphy and surface geology for industrial minerals

Geoscience – info cartography, data base, 3D maps  
Client services – tech. publications, mineral education and outreach, mineral resource library, MMR website

Lab & Drill Core Facility – rock prep, storage and viewing

Operations – finance, administration, expediting  
Divisional Functions – mineral policy, business development, crown-aboriginal consulting

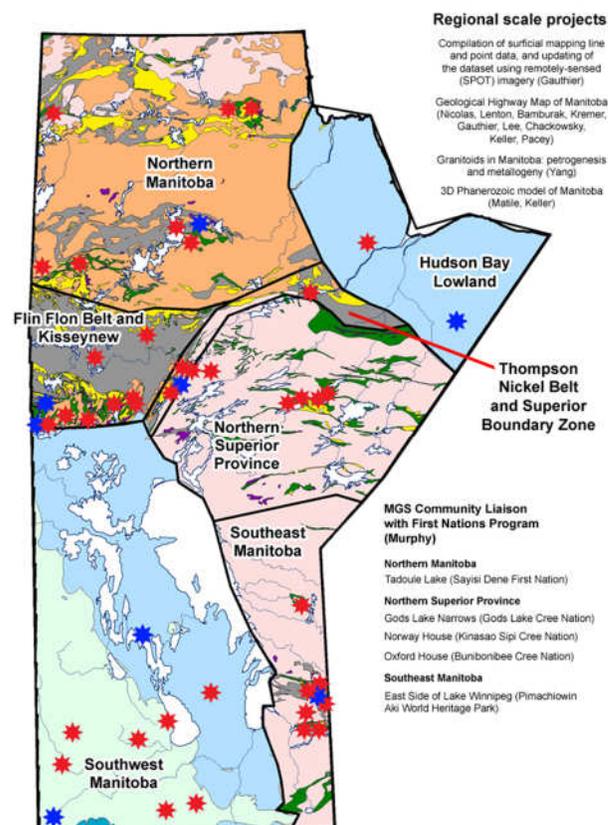
The first geological map of mineral resources in Manitoba was produced in 1927 by the Department of agriculture. Manitoba mines produced a map in 1937.

Manitoba mines have on their website an excellent interactive geological map of Manitoba. Clicking on a indicator point procures a library of information.

To access the map, go to the Mineral Resources | Province of Manitoba website at :

[www.manitoba.ca/iem/geo/index.html](http://www.manitoba.ca/iem/geo/index.html)

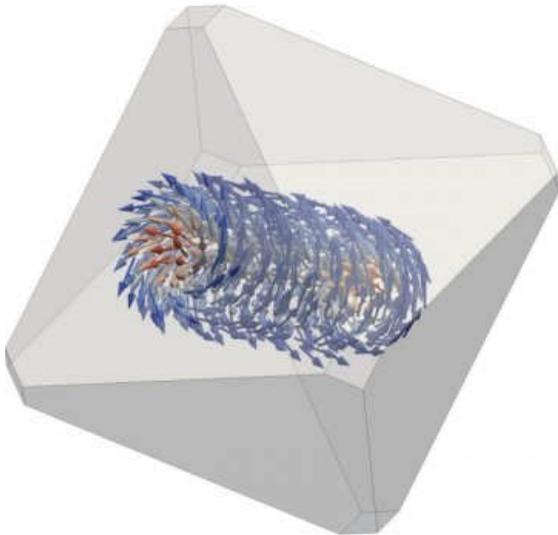
Click on the Geological Survey Activity Tracker then click on a red star on the provincial map to access project summaries which include a brief description, plans for the upcoming year and all completed outputs with links to digital products available for free download.



## MAGNETITE REVEALS EARTH'S HISTORY

Excerpt from Science Daily

Magnetic nanovortices in magnetite minerals are reliable witnesses of the earth's history, as revealed by the first high-resolution studies of these structures undertaken by scientists from Germany and the United Kingdom. The magnetic structures are built during the cooling of molten rock and reflect the earth's magnetic field at the time of their formation. The vortices are unexpectedly resilient to temperature fluctuations, as electron holographic experiments in Jülich, Germany, have verified. These results are an important step in improving our understanding of the history of the earth's magnetic field, its core and plate tectonics.



Model showing the three-dimensional vortex structure of magnetite nanocrystals

The earth's magnetic field performs important functions: it protects us, for example, from charged particles from space and enables migratory birds, bees, and other animals to navigate. However, it is not stable, and constantly changes its intensity and state. Several times in the past it has even reversed its polarity -- the north and south poles have changed places. Scientists in the area of paleomagnetism use magnetic minerals to investigate the history of the earth's magnetic field and its formation from molten metal flowing within the earth's core, the so-called geodynamo. Furthermore, the movement of continental plates can be monitored with the aid of such rocks.

## FIELD TRIP ITINERARY 2016

By Jack Bauer & Marjorie Turton

### 1. Gillis Quarry, (May 14)

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: Jack Bauer, 204-632-6934  
or jebauer@mymts.net

### 2. Souris, (June 4)

Regarded as one of North America's largest deposits of semi-precious gems, this twelve acre glacial deposit is known for **agates**, but the site has also yielded **epidote, jasper, petrified wood** and other varieties of stones.

Contact: Marjorie Turton, 204-775-0625

### 3. Bird Lake / Cat Lake area, (July 8 to 10)

Our objective is to collect **garnets** from outcrops, South and East of Bird Lake and West of Booster Lake. A pre trip to the area will confirm accessibility. Campsites are subject to availability. Confirmation deadline for this trip is July 15

Contact: Jack Bauer, 204-632-6934  
or jebauer@mymts.net

### 4. East Braintree (August 6)

Join us as we explore this locality to find **peristerite**, an iridescent variety of **albite**. Its color sheen is similar to Labradorite but not as pronounced.

Contact: Marjorie Turton, 204-775-0625

### 5. Snow Lake, (August 26 to 28)

This 3 day trip will include a visit to the new concentrator, as well as metallic mineral collecting sites for **galena, sphalerite, pyrite, chalcopyrite**, etc.

Confirmation deadline for this trip is August 20.

Contact: Jacques Bourgeois, 204-467-3282  
or j\_bourgeois@yahoo.com

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.