



THE MINERAL VEIN

THE MINERAL SOCIETY OF MANITOBA NEWSLETTER

January 2007

The Mineral Society of Manitoba
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[http://www.umanitoba.ca/geoscience/
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2005 – 06 EXECUTIVE

President: Jack Bauer

Ph 204 632 6934

Vice President: Marion Foster

Ph 204 775 0625

Secretary: George Green

Ph 204 489 8495

Treasurer: Sherri Godard

Ph 204 231 0290

Field Trip Chairman:

Jacques Bourgeois

Ph 204 467 3282

Newsletter Editors: Marion Foster &
Marjorie Turton

Ph 204 775 0625

1199 Valour Rd., R3E 2W6

Email: 2mandm@mts.net

Past President

Margarette Marion-Akins

Ph 204 222 1080

Members at Large:

Tony Smith

Ph 204 489 23081

Chris Lammers

204 488 0087

Yvonne Searle

204 663 6637

Society News

Dues are \$10/year (\$15 for families) and are payable at the October meeting or by mail during October.

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 draw. 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, neighboring provinces and states.

CLUB MEETINGS

January 3 meeting

Here is an abridged version of Dr. Alan Bailes presentation

January 3, **Alan Bailes**, Chief Geologist of IEOM Manitoba Geological Survey provided us with a geological history of Manitoba. What a turbulent history it is. The concept of

terrain stability applies only to recent geological history.

The origin of Manitoba can be considered as in 4 steps:

1. Precambrian - where we find really old rocks and metallic ore deposits
2. Palaeozoic – industrial minerals and oil are found
3. Mesozoic – age of reptiles – industrial minerals
4. Cenozoic – young rocks – very little to none in Manitoba

The geological Survey, part of Manitoba's Science, Technology, Energy and Mines:

- Regional mapping and mineral deposit studies
- Provides information to mining industry, general public, and publications
- Consists of geologists, lab technicians, drafting technicians, library staff, administration, and publications.

Geological maps are used to guide wide land use, for example designate an area as a park in order to reserve the underlying sand and gravel deposits. Maps are also used to predict and protect against natural hazards; e.g. floods.

The mining industry is big users of the maps generated.

Mining is the second largest industry in Manitoba. It produces \$1 Billion/year, 3.2% of our GDP, 12.5% of our export, and 13000 spin-off jobs. Mining in Manitoba produces 23 % of nickel in Canada, 19% cobalt, 8% copper, and 100% tantalum and Cesium.

The Precambrian rocks are 4,600,000 years old and considered as divisible into 4 periods or Eons.

- Hadean Eon – where the earth formed as a solid planet, the interior becomes organized into layers and there is early crust formation which is largely recycled by convection and numerous meteoroid impacts.
- Proterzoic Eon – where modern earth process begins, start of plate tectonics, large mountain chains formed, life but no skeleton containing forms appearing.
- Tectonic Eon – continental mass floats on an ocean floor. Ocean floor gets recycled, Wilson cycle, constructive, destructive plate bonding,

In Manitoba, the Precambrian stayed intact from 1,700 million years ago to present. This is in spite of volcanic activity, meteoroid impacts, and earth upheavals. In 1910 – 1830-mya, active volcanism deposited copper-zinc and nickel sulphide. However the Precambrian moved around a lot. A one time we were at the earth's equator. We were also adjacent to land masses that are now quite distant. An example

of this would be the Superior Craton where the northwest portion drifted off because an ocean basin opened up.

Later, during the Proterzoic Eon (modern earth and life forms evolved), there were 8 major life extinction events; at least 2 of them can be attributed to meteoroid impact.. Don't forget the glaciers that covered most of Canada. The chimneys and other volcanic evidence were scraped flat.

Who would have thought that Manitoba was a hot bed of geological activity? The land looks flat and inactive. The geological survey with its modern technology has discovered much of Manitoba's geological underlying secrets and history. "All truth passes through 3 stages: ridiculed, violently opposed, once accepted its self-evident" - Schopenhauer.

If there are any errors in this report, they are mine not Dr Alan Bailes.

Marjorie Turton

VP Report

Feb.7, 6:45 there will be an Executive meeting

As VP one of my duties is to arrange for speakers at our monthly meetings The following is a list off speakers for the remainder of the year.

Marion Foster

CLUB MEETINGS

Wednesday, February 7, 2007.

Mostafa Fayek, Ph.D., from the Department of Geological Sciences, University of Manitoba. Dr. Mostafa Fayek will be presenting **Uranium Minerals**

and Deposits: Half Lives and Whole Truths.

Dr Fayek received double honors degree in Geology and Chemistry from Charleton University in 1989. He worked for two in mineral exploration Received Ph. D. degree at the U. of Sask. in 1996. Spilt time between the U. of New Mexico and Queen's University. Moved to California as a postdoctoral researcher. Took a joint faculty position in 2000 between the University of Tennessee and Oak Ridge National Laboratory. He was awarded a Tier II Canada Research Chair in 2006.

Dr Mostafa Fayek areas of research include uranium geochemistry, mineral deposits, archaeometry, and environmental research.

Wednesday, March 7, 2007

Jim Bambaruk will be giving a presentation on Gypsumville area. This will give us some background for a possible field trip.

Wednesday, April 4, 2007

Martin Lewadny
Subject to be determined

Wednesday, May 2, 2007

Shawn Robson,
Paleontologists Subject to be determined



FIELD TRIPS

June to September

Here is a brief summary of this year's Tentative field trips. Please note that some trips will have minimum and maximum limits. Some trips will also require advance registration and liability waivers to sign.

We would like to give everyone as much advance notice as possible for planning purposes. We will end up with a core of 6 field trips, as some will prove too difficult to set up at this time.

Please forward your name and phone number to Jack Bauer 632-6934 or e-mail jebaurer@mts.net or Jacque bourgeois 467-3282 mark it interested or confirmed..... It is a good thing to be in contact, when some trips are so dependant on the weather. Some trips may be post delayed or cancelled due to circumstances beyond our control.

U of M Wallace Building February 24, 1 PM Saturday, 2007. Tour will take 2-3 hours. The tour will include the Minerals collection from the Ferguson Museum of Mineralogy, Ed Leith Menagerie and other Paleontology displays and the seismograph. We will get also get a first hand tour of the instrumental laboratories where we could see the instruments purchased and donated by the Mineral Society of Manitoba. This may be an opportunity to get minerals identified, time permitting.

- **GOLD TRIP** an opportunity to look for and find real gold! **May ?, 07 maximum 20 participants.**
- **GYPSUMVILE** co-led by Mr. James Bamburak geologist Manitoba geological survey **June ?, 07 maximum ..20 participants.**
- **THUNDER BAY** led by Brian Bilkowski **minimum 8 participants maximum 20 participants July ?, 07**
- **TANCO** led by Jacque Bourgeois ? ? 07
- **SNOW LAKE** ed by Jack BauerAnderson lake garnets **August ?, 07**
- **MORDEN** led by Jacque Bourgeois **August ?, 07**
- **WILSON RIVER** cretaceous led by Jack Bauer **September ?, 07**
- **STONY MOUNTAIN** Archeology and Mineralogy weekend and Fall wind up at Oak Hammock **September 15-16, 07**
- **MORDEN CONVENTION** **September 27-29, 07**
- We are considering renting a 15 passenger van and share expenses, depending on interest for the Gypsumville field trip

Remember AGM in October

MINERAL VEIN BY E-MAIL

We have started to send "The Mineral Vein" by e-mail. The images of pictures are sharper and sometimes in colour. The newsletter is produced on Microsoft Word program. Those who would like to receive it by e-mail, send your e-mail address to us at: 2mandm@mts.net

Elaine Stevenson, Outreach/Special Projects Coordinator, Manitoba Science, Technology, Energy and Mines, thanks us for our participation in "Manitoba Rocks" and the Provincial Mining Convention. She said that again we were fabulous, the children enjoyed the Mineral and Fossil Cards and looking at our wonderful mineral samples. She also reminds us that **Provincial Mining Week takes place May 23 to 26 at the forks.** They are counting on us to support this event as well.

The MSM will once more again contribute to Mining Week with our Mineral & Fossil Cards and ever popular displays. In order to continue this activity, which is one of our **prime sources of funding**, we need **volunteers.** People who normally work during the week will have the opportunity to volunteer for 3 hour shifts on the weekend.

Yvonne Searle will be coordinating our participation on the event. For more information and to offer your service call her at 204 663 6637.

Rock Collecting

To start a rock collection, first determine whether your rock is igneous, sedimentary or metamorphic.

About Igneous Rocks

It's an old saying but still true as ever: the best geologist is the one who has seen the most rocks. At the most general level, rocks fall into three great categories, and they're pretty simple to tell apart. You won't even need a rock hammer or hand lens, though those are fun to have.

Igneous rocks are the first great class. "Igneous" comes from the Latin for fire, and all igneous rocks formed by solidifying from hot, molten material. This material may have been lava at the Earth's surface, or magma (uninterrupted lava) at shallow depths, or magma in deep bodies (plutons). Rock formed o Extrusive rocks cool quickly (over periods of seconds to months) and have invisible or very small grains. Intrusive rocks cool more slowly (over thousands of years) and have small to medium grains. Plutonic rocks cool over millions of years, deep underground, and can have grains as large as pebbles — even a meter across.

Because they solidified from a liquid, igneous rocks tend to have a uniform texture, without layers, and the mineral grains are packed together tightly. In many igneous rocks, large mineral crystals "float" in a fine-grained groundmass. The large grains are called *phenocrysts*, and a rock with phenocrysts is called porphyry more correctly, it is said to have *porphyritic texture*. Phenocrysts are minerals that solidified earlier than the rest of the rock, and they are important clues to the rock's history.

Some extrusive rocks have distinctive textures. Obsidian is a volcanic glass, formed when lava cools very quickly. Pumice and scoria are volcanic froth, puffed up by millions of gas bubbles. Tuff is a rock made entirely of volcanic ash, fallen from the air or avalanched down a volcano's sides. And pillow lava is a lumpy formation created by extruding lava underwater.

Igneous Rock Types and Composition

The main minerals in igneous rocks are hard, primary ones: feldspar, quartz amphiboles and pyroxenes (called "dark minerals" by geologists), and olivine along with the softer mineral mica.

The two best-known igneous rock types are *basalt* and *granite*, which differ in composition. Basalt is the dark, fine-grained stuff of many lava flows and magma intrusions. Its dark minerals are rich in magnesium (Mg) and iron (Fe), hence basalt is called a *mafic* rock. So basalt is mafic and either extrusive or intrusive. Granite is the light, coarse-grained rock formed at depth and exposed after deep erosion. It is rich in feldspar and quartz (silica) and hence is called a *felsic* rock. So granite is felsic and plutonic.



These two categories cover the great majority of igneous rocks. Ordinary people, even ordinary geologists, tend to use the names freely. (Stone dealers are even freer, calling any plutonic rock "granite.") True granite and true basalt are narrow subsets of these categories



It is a new year and new beginnings.

Welcome to all our old members

Welcome to our new members

Welcome to our visitors

We have a year of adventure ahead of us.

