



THE MINERAL VEIN

Official Newsletter of

THE MINERAL SOCIETY OF MANITOBA JANUARY 2015

JANUARY PRESENTATION SUMMARY

By Marjorie Turton

This being the first meeting of the New Year, we had an old favorite giving us this year's first presentation. James D. Bamburak, M.Sc., P. Geo. Industrial Minerals Geologist who works with Manitoba Resources Geological Survey, Sedimentary Geoscience Section spoke on Strategic and Industrial mineral potential of Rice Lake and Bird River greenstone belts.

Jim is a favorite and has been unselfishly obliging in providing informative and interesting talks, even while recovering from the flu.

Believe it or not greenstone has a green hue. Greenstone belts are basically metamorphosed volcanic belts. It is mainly altered basalts and derogated volcanic or sedimentary rocks. The name comes from the green hue imparted by the colour of the metamorphic minerals within the rocks. Chlorite, actinolite and other green amphiboles are the typical green minerals. A greenstone belt is typically several dozens to several thousand kilometres long and although composed of a great variety of individual rock units, is considered a 'stratigraphic grouping' in its own right. These belts are normally colored green on geological maps.

The terms strategic and industrial minerals are virtually self-evident. Strategic minerals are of course a market driven interpretation. These are minerals that are relatively rare, unique, or virtually inaccessible, especially during war time, e.g. magnesium found in dolomite and used in production of steel. Industrial minerals are those minerals used in industry and especially in commodities.



Dr. H. Paul Gilbert spent much time studying these green belt areas of Manitoba and contributed much to knowledge. Studies have been made in honor of him.

What follows is a somewhat garbled notes taken of his presentation. We need to bring either flash drives or additional computers to provide accurate informative reports.

East Central Manitoba-Uchi Domain in Manitoba includes Rice Lake greenstone belt. This is part of the Precambrian shield and has been long known as a gold belt. It may also have massive sulfates.

However Rice Lake greenstone belt (and immediate vicinity) does not appear to contain a large number of strategic and industrial mineral deposits. There are minor soapstone/talc occurrences especially along the east side of a north tending gravel road north of PR 304 near Curries Landing. This is adjacent to a park so mining is not advisable. **(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

February 4, 2015: The next MSM regular monthly meeting begins at 7:30 p.m. at the Manitoba Museum. "Rare Earth Elements" - Chris Pedersen (Avalon Inc.)

March 4th, 2015: MSM regular monthly meeting begins at 7:30 p.m. at the Manitoba Museum. "Stepping Stones. The path from Liaison to Collaboration" - Linda Murphy (Aboriginal Liaison - Manitoba Geological Survey)

April 1st, 2015: MSM regular monthly meeting begins at 7:30 p.m. at the Manitoba Museum. "Travels in the Ordovician of the Hudson Bay Lowlands" - Dr. Graham Young (Manitoba Museum)

May 6th, 2015: MSM regular monthly meeting begins at 7:30 p.m. at the Manitoba Museum. "Amethysts" - Bram Hasler



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.

JANUARY PRESENTATION SUMMARY (CONT.)

There are also minor quartz veins and crushed stone quarries but the most significant known industrial mineral is a large Paleozoic outlier of silica sand that contains frac sand. Seymourville Frac Sand industry is on the east side of Lake Winnipeg . Frac sand is used in the extraction of underground oil operation known as fracking. This frac sand is micro sized and known to escape from the seams of tanker cars. Cars filled lose up to one half of their contents through such seepage. Yet oil extraction companies, especially in Alberta require lots and lots of frac sand.



Phyllite sample

There is also a Phyllite quarry along that road. Phyllite is a type of foliated metamorphic rock created from slate. Fine-grained mica flakes is in a preferred orientation. Unlike slate, phyllite has a definite sheen and a wavy or crinkles appearance. It also splits into black, gray, or light greenish gray sheets much like slate. It would impressive as a decorative stone. No one has taken up with this idea yet.

The outlier, comprised of the Ordovician Winnipeg Formation, is situated southeast of Seymourville, near the western end of the exposed belt. The English River basin, lying immediately to the south of the Uchi Domain, contains a high purity quartz deposit near Happy Lake, a quartz mountain. And, the basin also has the potential for discovery of a cobalt deposit, similar to that present at Werner Lake, located a short distance over the provincial boundary, in northern Ontario.

However, in striking contrast to the above, the Neoproterozoic Bird River greenstone belt (and immediate vicinity), south of the English River basin, is known to host an impressive array of strategic and industrial minerals – many of which have been produced (tantallite, spodumene and pollucite) or recognized at the world renowned Tanco pegmatite mine at Bernic Lake. Tantalite is an ore of tantalum, spodumene a lithium source, and pollucite a source of cesium. Russia tried to purchase much but the U.S.A. put embargo on cesium in that it was initially employed to power rockets. The largest current end-use of nonradioactive caesium is in caesium formate-based brine drilling fluids for the extractive oil industry. Aqueous solutions of caesium formate ($\text{HCOO}^- \text{Cs}^+$)—made by reacting caesium hydroxide with formic acid—were developed in the mid-1990s for use as oil well drilling and completion. The function of a drilling fluid is to lubricate drill bits, to bring rock cuttings to the surface, and to maintain pressure on the formation during drilling of the well.

The high density of the caesium formate brine with the relatively benign nature of most caesium compounds, reduces the requirement for toxic high-density suspended solids in the drilling fluid - a significant technological, engineering and environmental advantage. Caesium formate is not sold but leased out and returned after use. There is a slight loss in recovery. Losses are penalized. Tanco mine, mainly under Bernic Lake, has a constant concern of the lake breaking in.

Tanco produces 100% of Canada's caesium.

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JANUARY PRESENTATION SUMMARY (CONT.)

In addition, the belt includes the Archean Bird River Sill (a differentiated mafic to ultramafic layered intrusion) that contains one of North America's largest deposits of low grade chromite. The chromite could be used to produce a ferrochrome-nickel master alloy to replace stainless steel scrap in the production of stainless steel.

Anomalous values of platinum and palladium have also been discovered in the sill. The western end of the exposed belt is also covered by Ordovician Winnipeg Formation silica sand. In the past, a suitable environment for uranium precipitation was noted in groundwater sampling near the Brokenhead River, a short distance to the south of the belt.

The end of the meeting was filled with examination of the samples James brought and many questions put to him.

SPACE NEEDED!

The club is in need of a place to store some of the display items that have been kept in Yvonne Searle's basement for the past few years. These include assorted minerals and fossils for glue cards, the Robertson collection of minerals and other minerals that John Biczok has left behind. She also has 2 bins of table covers left from the last mineral show. She would also have some miscellaneous articles.

All in all these items require a warm dry storage space of about 6 ft. x 6 ft. So, if you have a suitable space and can help out please let us know as soon as possible so they can start the seemingly endless job of de-cluttering their basement!



MINING CONVENTION SUMMARY

By Marion Foster

The Mining Convention was held on November 19, 20 and 21. A big thank you to the volunteers who shared their time and energy representing the Mineral Society: Wendy and Ron Anthony, Lisa Grabowski, George Green, Jack Bauer, Marjorie Turton and Marion Foster as well as Bob Kitlar and Scott Jonatanson who assisted with set up.

Many of us enjoyed the Premier's luncheon on Thursday and Buffalo burgers for lunch on Friday. We all received a Convention "kit". Another perk is getting to meet and talk to many people, including potential speakers and members.

Because of the construction we were away from the activity and somewhat isolated, hopefully this will improve next year.

Would like to extend a big thank you to Gerry Benger from the Midland Facility for storage and transportation of the fluorescent mineral display.



CHRISTMAS PARTY SUMMARY

The Annual Christmas Party was held on Sunday December 7th at the Canad Inns Garden City.

The weather was much better this year and over 30 people attended the event.

A delicious ham & roast beef buffet were followed by Tony Smith's Traditional Auction.

\$1,101 was raised at the Christmas Raffle. All proceeds from the auction will go towards the annual Geology Student Prize Award.