



Voice of the Dinosaur

Newsletter of the
Kawartha Rock and Fossil Club

February 2013 ~ Volume 25 ~ Issue 2

CLUB ADDRESS:

1211 Kenneth Ave.
Peterborough, ON
K9J 5P8

PRESIDENT

Robert Montgomery
705-432-2039
info@hallprinting.com

VICE-PRESIDENT

Steve Wesley
705-743-9175
swesley@i-zoom.net

TREASURER (to Jan. 2014)

Ken Fox
705-742-6440
kfox71@cogeco.ca

SECRETARY

Bev Fox

FIELD TRIP CO-ORDINATOR

Ulrik Kullik
705-778-3787
ulrik.kullik@gmail.com

SHOW CO-ORDINATOR

Donald Doell Jr.
514-923-8545
donald.doell@collectorsmatrix.com

NEWSLETTER EDITOR

Bev Fox
705-742-6440
kfox71@cogeco.ca

PAST PRESIDENT

Mark Stanley

WEB SITE:

www.rockandfossil.com

WEBMASTER: Bob Moore

bobmoore11@hotmail.com

Member of the CCFMS



👏 Annual General Meeting 👏

January 8, 2013

At this meeting, elections were held. The outcome was:

President - Robert Montgomery

Vice-President - Steve Wesley

Field Trip Co-Ordinator - Ulrike Kullik

Secretary/Treasurer

Treasurer - Ken Fox

Secretary - Bev Fox

Recording Secretary - Stanley Nowicki

Show/Swap Chairperson - Don Doell Jr.

Newsletter Editor - Bev Fox

Webmaster - Bob Moore

The meeting was adjourned at 7:40 pm.

LAST REGULAR MEETING

January 8, 2013

This meeting was held following the AGM. The meeting was chaired by Mark Stanley. Minutes of the December 11, 2012 meeting had been distributed earlier via regular and email. These were accepted with amendments.

Treasurer's Report - Accepted as given.

Show Report - Arrangements were discussed and are well underway.

Tom Jenkins held another of his silent auctions.

NEXT MEETING

Date - February 12, 2013

Place - Orientation Centre, Peterborough Zoo

Time - 7:00 pm

Agenda - Regular business meeting

If you have not yet renewed your membership, go to our Web site, click on "Memberships", go to the bottom of the page and click on "Download membership form in Adobe format." and the form which appears, can then be printed out.

Tom Jenkins is still accepting clean, clear milk bags for Kids' auctions.

THE FOSSIL CORNER

Stromatolites

By Kevin Kidd

Stromatolite comes from the Greek –“stroma” meaning mattress/bed/stratum and “lithos” meaning rock. They are layered accretionary structures formed in shallow water by the trapping, binding and cementing of sedimentary grains by biofilms of microorganisms, especially cyanobacteria (commonly called blue-green algae). They provide the most ancient record of life on Earth by fossil remains, with some dating back over 3.5 billion years –yes billion –with a “B” -3,500,000,000 – pretty freakin’ old. There are a variety of forms: conical, stratiform (flat), branching, dome and columnar. A mucus layer often forms over mats of cyanobacteria. Debris from the surrounding habitat becomes trapped in the mucus and gets cemented by calcium carbonate to grow thin laminations of limestone. These laminations accrete (stack) over time as the cyanobacteria seeks sunlight, resulting in the banded pattern common to stromatolites (Figure 1).



Figure 1.

From my first ever collecting trip with Fred and the gang. From Ordovician and likely Gull River formation, Buckhorn , Ontario

Stromatolites were widespread during the Precambrian era, but are somewhat rare today. Examples from the Archaean (3.8-2.5 billion yrs. old) are presumed to be made from cyanobacteria, while Proterozoic (2.5 billion-542 million yrs. old) may also be made up of primordial forms of eukaryote chlorophytes (green algae). The oldest confirmed stromatolite of microbial origin is dated to 2.724 billion years, but a discovery in 2009 will likely push the record back to about 3.5 billion years. Very few examples actually contain fossilized microbes. Some stromatolites exhibit features that suggest biological activity, while others possess features more consistent with non-organic precipitation. Distinguishing between biologic and non-biologic stromatolites is an active area of research (Figure 2).



Figure 2.

Scientists from around the world studying a small stromatolite example at Atikokan, ON

Stromatolites are a major part of the fossil record for the first 3.5 billion years of life on Earth. They reached their peak at about 1.25 billion years ago, and then began to decline both in abundance and diversity. By the beginning of the Cambrian, 542 million years ago, they were down to about 20% from their heyday. The most widely supported theory for this decline is that the stromatolites fell victim to grazing sea creatures, implying that complex organisms were common over 1 billion years ago. Increases in stromatolite abundance following the end-Ordovician and end-Permian extinctions decimated sea life, along with their decrease as marine animals recovered, also seems to support this theory.

While cyanobacteria are relatively simple, reproducing asexually through cell division, they were instrumental in priming the environment for the evolution of more complex life. Cyanobacteria are thought to be largely responsible for increasing the amount of oxygen in the atmosphere through their photosynthesis. They use water, carbon-dioxide and sunlight to produce their food, and release oxygen as waste.

Modern stromatolites are mostly found in hyper-saline lakes and marine lagoons where extreme conditions due to the high salt levels exclude animal grazing. The most famous location is likely Shark Bay in Western Australia (Figure 3). There are also modern freshwater examples, such as at Laguna Bacalar on Mexico's Yucatan Peninsula and at Pavilion and Kelly Lakes in British Columbia, the former being widely researched by various organizations, including NASA, to better understand Earth's early stages and to aid in the search for life beyond our planet.



**Figure 3.
Modern stromatolites, Shark Bay in Western Australia.**



**Figure 4.
Large stromatolite at the top of limestone sequence, Hogarth Pit, Atikokan, ON**



**Figure 5.
Example from the base of the limestone contact with the granites, Atikokan, ON**



Figure 6.

Another example from Atikokan, ON. Stromatolites from this location are Archaean, and dated to between 2.65-3 billion years old.



Figure 7.

Polished stromatolite sphere from Bolivia. Often labeled as Precambrian, these may in fact be as young as cretaceous.

All photos from the Steep Rock Iron Mine in Atikokan, Ontario courtesy of Ray Bernatchez
Figure 1 & 7. - From personal collection.

THE MINERAL CORNER

Sphalerite

Compiled by Sue Kehoe

Nomenclature

Sphalerite is from the Greek word “sphaleros” meaning treacherous or deceptive since miners had a great deal of difficulty distinguishing it from other ores such as galena. It is also know by the name “blende” which derives from the German word “blenden” for deceive or blind.

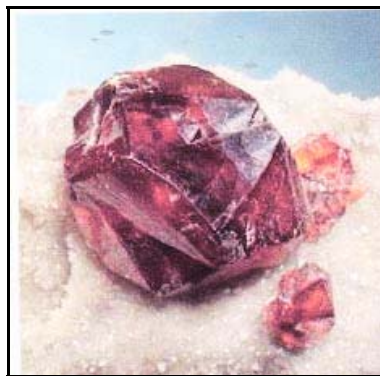


Figure 1.

Gemmy, 1.8 cm. Twinned, cherry-red sphalerite crystal from Hunan Province, China.

Chemical Composition

The basic chemical formula for sphalerite is ZnS or more accurately (Zn,Fe)S since it may contain up to 26% iron. It is a polymorph of ZnS with the minerals wurtzite.

Crystal structure

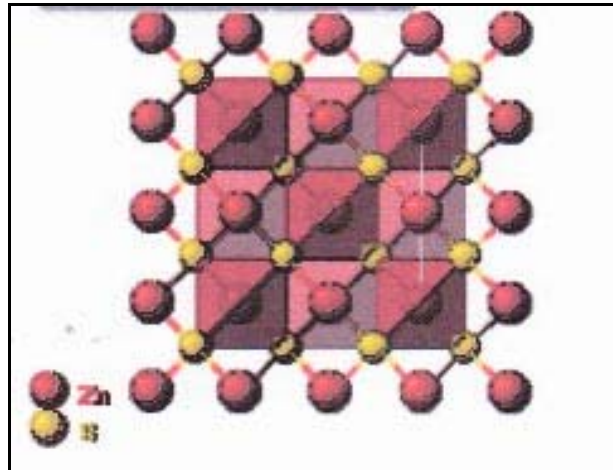


Figure 2.
Atomic structure.

Crystals may be cubic, tetrahedral, octahedron, complex, massive, granular and isometric. Often groups of crystals may show a curved surface. It is common for there to be striations on the crystals on the tetrahedral surfaces and this is often an identifying feature. Twinning often occurs as Spinel Law twins as shown on the diagram below (Figure 3) on the {111} face.

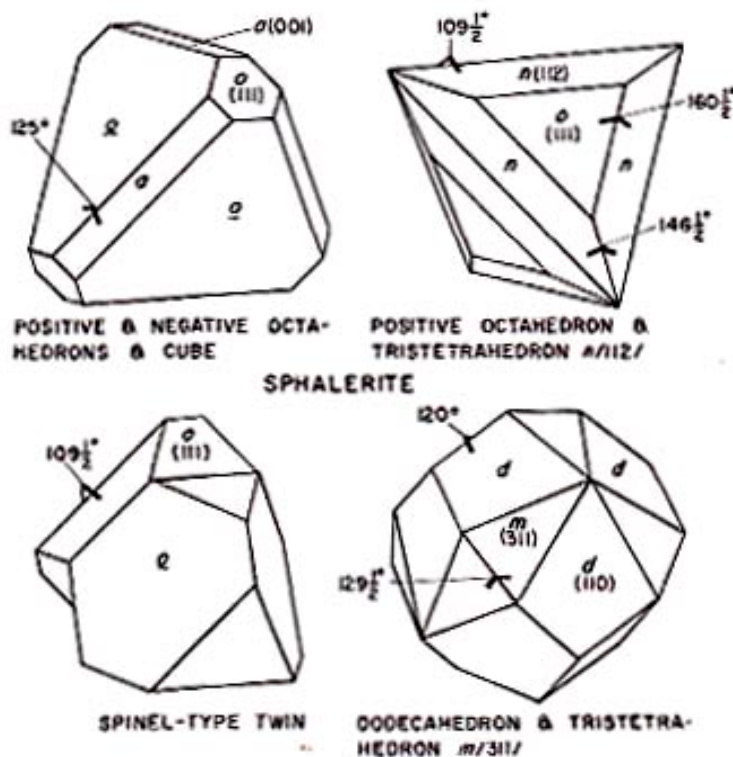


Figure 3.
Crystal shapes.

Physical Characteristics of Sphalerite

Colour:	Black coloured sphalerite has been known as “black jack”. Red coloured sphalerite has been known as ruby blende. Sphalerite also comes in yellow, green, and colourless.
Diaphaneity:	Transparent to translucent
Streak :	Whitish yellow to brown
Hardness:	3.5 - 4.0
Density:	3.90 - 4.10
Cleavage:	Perfect in six directions, parallel to dodecahedrons, on {110}
Fracture:	Uneven, brittle
Refractive Index:	2.368 - 2.42 (greater than diamond)
Birifringence:	None
Dispersion:	0.156 (higher than diamond)
Pleochroism:	None
Fluorescence:	In both long and short wave ultraviolet shows yellowish-orange and red. It is also triboluminescent (glows when crushed).
Lustre:	This is the best feature of gem quality sphalerite. It is greasy, adamantine, submetallic or sometimes resinous.

Occurrence

Sphalerite is found most commonly in hydrothermal veins, in ore vein deposits, in high temperature sulphide replacement deposits, in igneous veins and in contact metamorphic deposits. It is often associated with galena, calcite, druzy quartz, dolomitic marbles, pyrites, chalcopyrite, fluorite, magnetite and pyrrhotite. It has been found in meteorites and in lunar rock.

Recent scientific research indicates that sphalerite has formed in marine environment, low in oxygen and may be the result of bacteria action on plant matter. At the Dolomite quarry in Walworth, New York, where I recently collected, dolomite crystals are found in the fossilized remains of plants. Sometimes other treasures are also found within a mass of dolomite crystals including pale blue water clear fluorite, amber coloured calcite and reddish brown sphalerite. I wondered how a mineral such as a zinc sulphate occurred in this predominantly calcite-based environment. Our editor found a research paper that “ancient microorganisms may have contributed to the low-temperature (or early) stages of formation of the large stratiform sediment-hosted (and other) ZnS ore deposits.” Thank you Ken and Bev for answering my question on that.

Uses

Sphalerite is a major source of zinc ore. Zinc is used in galvanizing iron and steel. It is used as an alloy with copper to make brass which are often used as die casts. Zinc oxide is used in the production of phosphorus for fluorescent lights, cosmetics, plastics, paints, and print inks. It is also used as a catalyst in the processing of synthetic rubber. It is often found to be a source of cadmium, gallium and iridium. It can be faceted as a gem for the gem collector but is not commercial in use, difficultly with it being soft and having a tendency to cleave.

References

Gemstones of the World, p. 200, Walter Schumann, Sterling Publishing, New York.

Rocks and Rock Minerals, p.77, Richard V. Dietrich and Brian J. Skinner, John Wiley and Sons, New York, 1979.

“Rocks and Minerals of Ontario”, *Geological Circular 13*, p. 39. D.F. Hewitt and B.F. Freeman, Ontario Department of Mines and Northern Affairs, Toronto, 1978.

Mineralogy for Amateurs, pp. 294-297, John Sinkankas, Van Nostrand Co, Princeton, New Jersey, 1964.

Smithsonian Rock & Gem, p.129, Ronald Louis Bonowitz, DK Publishing, New York, 2005.

www.mindat.org

www.minerals.net

www.en.wikipedia.org

www.galleries.com/sphalerite

www.webmineral.com

“Formation of Sphalerite (ZnS) Deposits in Natural Biofilms of Sulfate-Reducing Bacteria”; Matthias Labrenz et al. *Science*, Vol.290, 1 December 2000, pp.1744-1747

Figure 1 - photo - www.en.wikipedia.org/sphalerite

Figure 2 - atomic structure - www.webmineral.com

Figure 3 - crystal structure - *Mineralogy for Amateurs*, p. 296, John Synkankas, Van Nostrand Co. Princeton, new Jersey, 1964.

2013 PETERBOROUGH GEM, MINERAL & FOSSIL SHOW

Saturday, March 2 and Sunday, March 3

10:00 am to 5:00 pm each day

This will be our club's 20th Annual Show. It will be held at the Evinrude Centre, 911 Monaghan Road in Peterborough, and will feature 25 dealers offering Minerals, Fossils, Rocks, Crystals, Faceted stones, Gemstone Jewellery, Stone Beads and much more.

[We need your help to make this Show a success!](#)

Our ever popular [Children's Sand Box](#) will be open both days of the Show. We need a very large volume of simple mineral & fossil samples. For those extra specimens that are too good to throw away, but are not good enough to put into your collection, this is a great way to put them into the hands of kids with the hope of sparking an interest in nature. The sand box is a very important part of the show because for many of the kids, this is their first exposure to collecting rocks. Please bring your donations to the Club meeting in February or contact Tom Jenkins.

The [Club Table](#) is located in the Display area. Its purpose is to serve as somewhere people can go to learn about the show and our club. This is our greatest opportunity to tell the public who we are and what we do. We need club members to man this during the show. All you have to do is answer any questions the public may have. If everyone could volunteer for one or two hours each day we can all help. Ken Fox will have the sign up sheet at the Club meeting.

Every year we hold our [Competitions](#) for the [Best Self Collected Minerals & Fossils](#) by a Club Member. These two separate competitions are limited to specimens that were collected in the previous calendar year. The specimen must have been self-collected and you had to have been a member when it was collected. Entries are limited to a single mineral specimen and/or a single fossil specimen per member. Your entries must be delivered to the display area by 9:30 am Saturday morning and picked up by 5:00 pm Sunday afternoon. All members are invited to cast your votes for your

favourite entries on Saturday morning. If you have collected something in 2012, then you are eligible to enter your favourite piece from 2012.

We will again be hosting our **Display Cases** for minerals, fossils and lapidary. Displays should be attractive and well labelled. These are not competitive displays so everyone should feel free to enter a display. Everyone is encouraged to fill a display case. If you feel that you only want to show one or two specimens, you are welcome, too. Just let the Display organizer know and he will assist you in placing them in a combined display with pieces from other members who only wanted to show off a few specimens.

Our displays are greatly appreciated and enjoyed by the public and your fellow collectors. From the feedback we have received, the displays have become a major attraction to other collectors who attend our show.

The Club has a limited number of display cases available for our members to use. **Please contact George Thompson to reserve a display case – phone: 613-395-5896 or email: truenorthminer@aol.com to reserve a display case.**

There will be **Silent Auctions** each day, auctions with specimens suitable for children, and other auctions for adults. We always need mineral and fossil samples suitable for both age groups, but especially for the adult auctions. While the auctions for this year's show are already organized and prepared, we still need donations for future years.

Our Club's annual **Live Auction** will be held Saturday at 4:00 pm. This is open to everyone who would like to sell rocks, lapidary equipment, books and anything else that is involved in our hobby. Please deliver your items to Tom Jenkins on Friday afternoon or Saturday morning **before 9:30am**. The Club charges a small commission to sell your items.

While our **Promotion Campaign** is well underway, we need your help with the placement of our small wire framed signs around the city. Steve Wesley will have the signs at the February meeting so **PLEASE** come to the meeting prepared to take a few of the signs home with you to be posted in your community one week before the show. They are simple, light weight, easy to erect and very effective. We will have a city map at the meeting to make sure we are organized and that all parts of the city are covered. In the past these signs have been one of our more successful methods used to promote the show. If everyone takes a few signs it will make it very easy to cover the entire city and neighbouring communities.

Basically, we need everyone to be involved with our Show. If you receive this Newsletter, attend meetings or take part in our field trips, you are already benefitting from the success of the show. By taking part and helping with the Show, you will be giving something back to the Club.

THE ODDITY CORNER

A prospector in Australia has dug up a 5.5 Kg. gold nugget that is estimated to be worth \$300,000.00. Apparently its valued lies not only in its size but also its rarity.

Google "Australian gold nugget" and you will find several sites discussing this, some with videos.

Thanks and a tip of the hard hat to Byron Berwick for bringing this to my attention.

THE EDITOR'S CORNER

My thanks to Kevin Kidd and Sue Kehoe for their unflagging devotion to providing the Newsletter each month with interesting articles and illustrations, to Bob Beckett for his article on the coming Show and to Byron Berwick for his interesting tip. Without people such as these the Newsletter would consist of only a page or two.

Member input is always appreciated. As you can see, it not only consists of articles submitted by members, but items that members might have read about or found on the Internet. So what are you waiting for?

COMING EVENTS 2013

From the CCFMS Website

- Mar 2-3** **20th Annual Peterborough Gem, Mineral, and Fossil Show.**
Sat. 10-5, Sun. 10-5.
The Evinrude Centre, 911 Monaghan Road, Peterborough, Ontario.
Admission: \$3.00 for adults, children 12 or under are free & must be accompanied by an adult.
Directions: From Highway 115 at Peterborough, take the Parkway to Lansdowne St., then East 4 blocks to Monaghan Rd., then North 1 block.
Or travel West on Highway 7 (Lansdowne St.), into Peterborough, turn right at the 6th traffic light onto Monaghan Rd., then North 1 block.
Contact: Robert Beckett at 705 740 4530
Website: <http://www.rockandfossil.com/>
- Apr 6-7** **41st Annual Brantford Lapidary & Mineral Society Show**
Sat. 10-5, Sun. 10-5.
Paris Fairgrounds, 139 Silver Street, Paris, ON.
Features: One of Canada's Largest Gem & Mineral Shows! Gem, Mineral, Fossil & Stone Dealers
Lapidary Equipment, Supplies,
Fine Jewellery, Supplies, Beads
Demonstrations, 'Mine for Gems' Display
Exhibits
Silent Auction Saturday & Sunday
"Dig Fossil Fish" Activity
Admission: Adults \$5, Children 12 and under - Free
Contact: robert@roberthalloriginals.com or Ernie Edmonds, 519-583-9457
Website: www.brantfordlapidarymineral.ca