



Voice of the Dinosaur

Newsletter of the Kawartha Rock & Fossil Club

January 2020 – Volume 32 – Issue 1

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LAST REGULAR MEETING

Dec 10, 2019

Minutes from Steve Wesley:

Tom Jenkins ran a silent auction during the entire meeting. If you have any specimens you wish to donate to the March show please contact Tom.

Pete Midgley has found an insurer who will provide coverage for dealers at the March mineral show for as little as \$95.00 for 3 days. If you are interested please contact Pete.

Bob Beckett still has some books from the club's library available for purchase and will reduce price on these if you are interested.

Bob mentioned that we could consider donating club funds to an earth science-related scholarship by doing it through a university such as U of T or Queens. This would save us from having to go through the administrative hoops. We can discuss this further at a future meeting.

Ken Lyon gave a fascinating presentation on "Some Geological Features of The Land Between in Peterborough County". The Land Between is an ecological transition zone between rocks of the Canadian Shield and the St. Lawrence Lowland. Email Ken if you would like a copy.

George gave a talk on Mica in all its forms and on the many collecting areas in eastern Ontario. His notes on Mica are included in this newsletter.

NEXT REGULAR MEETING

TUESDAY, Jan 14, 2020

7:00-9:30 pm (Doors open at 6:30)

Riverview Park & Zoo, Peterborough

Rotary Education Centre, just past main entrance next to Guest Services

Our January meeting agenda and featured presentation have yet to be announced, as well as the mineral and fossil of the month.

MEMBERSHIP RENEWAL

It is that time of year again. A Membership Application/Renewal form is attached with this newsletter. Please send your cheque or money order soon!

KRFC NEEDS YOUR HELP!!

As Kevin Kidd noted in the last newsletter, the Club cannot function without the help of volunteers in several important roles. With the start of a new year it's time for the annual elections. ALL positions on the Board of Directors are open to new people taking them over. It always seems like the Board is re-elected by acclaim, and this is not sustainable. The Club NEEDS your input in order to move forward, and all we ask is for a bit of your time. If you've been enjoying your membership for a few years now, why not take the next step and help move the Club in a positive direction. We have around 90 members and surely some new people can step up.

President – George has just finished the 4th year of a three-year term. Our Club by-laws stipulate a three-year maximum for all positions.

Vice-President – We didn't have one last year.

Treasurer – Jodie has just finished the 4th year of a three-year term.

Field Trip Coordinator – Again, we didn't have one last year & that's why there haven't been any trips.

Newsletter Editor – Ken Lyon is taking over from Kevin Kidd pending confirmation at the annual meeting.

Show Coordinator – Mark Stanley has taken over from Vaughan, but in doing so gave up his position as Program Director.

Program Director – The person who takes on this role is responsible for finding the speakers for our monthly meetings and picking the mineral and fossil of the month. If you're a regular at shows and/or have a lot of friends in the hobby, this may be the perfect job for you.

Secretary – As noted by Kevin, Steve Wesley is doing a great job, and has been filling this particular role for less time than other Executive members have been doing theirs. Steve has been serving on the Board for quite a while in various other roles, though, and has earned a break if he wants one.

ALL positions are open for new volunteers and we can have a vote if necessary. We also could really use somebody who can give us an active online presence. We have a website and a Facebook page, but neither has been updated in a long time.

MICA

By George Thompson

Mica is among the principal rock forming minerals consisting of 58 individual species.¹⁾ They are sheet silicates of silicate tetrahedra, also called phyllosilicates from the Greek word "phyllos" meaning leaf.²⁾

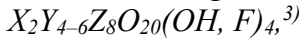
Phyllosilicates:

Phyllosilicate sheets are interlayered with other elements, principally metal atoms.²⁾ The sheets are weakly bonded together. Consequently, phyllosilicates tend to have a platy, tabular, or flaky habit, a single pronounced cleavage along the layering, low specific gravity, relatively low hardness, and considerable flexibility of cleavage layers.

Phyllosilicate groups include serpentine which includes lizardite and chrysotile asbestos, kaolinite, talc and micas.

Mica Crystal Chemistry:

Micas have the general chemical formula:



in which

X is K, Na, or Ca or less commonly Ba, Rb, or Cs;

Y is Al, Mg, or Fe or less commonly Mn, Cr, Ti, Li, etc.;

Z is chiefly Si or Al, but also may include Fe³⁺ or Ti.

Structurally, micas can fit into two different classes.

- Dioctahedral: Y = 4
- Trioctahedral Y = 6
- Interlayer – Deficient Micas Very fine grained micas typically referred to as “clay micas”

Chemically, there are also two classes

- Common Micas X ion is K or Na
- Brittle X ion is Ca

Micas are monoclinic but show pseudohexagonal crystal shape. The cleavage is perfect in one direction.

Mica Types and Occurrence:

Micas occur in all rock types; sedimentary, metamorphic, and igneous.

Types of mica include:²⁾

- Muscovite - usually colourless or silvery white, found in igneous and metamorphic rocks
- Glauconite - usually green or blue-green, imparts colour to shallow marine greensand rocks
- Phlogopite - pale yellow to reddish brown, found in igneous rocks and metalimestones
- Biotite - usually black or brown, common in igneous and metamorphic rocks, Bancroft area is famous
- Lepidolite - typically pale lilac, found in granitic pegmatites, most common lithium-bearing mineral
- Vermiculite - often golden brown, expands when heated
- Zinnwaldite - gray-brown, found in hydrothermal veins and granitic pegmatites

The largest known mica crystal occurred at the Lacey Mine near the village of Perth Road, and measured 10m x 4.3 m x 4.3 m and weighed approximately 330 tonnes.³⁾

Mica Uses:

Traditionally, mica was used for the windows in wood fired cook stoves common in houses before the adoption of electric stoves. Many of the early mica mines in the Bancroft to Ottawa region existed to supply this need.

Mica is used as an electrical insulator. Its high heat resistance, chemical stability, and electrical properties make it an ideal gasket material for industry. Mica can resist temperatures up to 500 degrees

C. It also provides an alternative to asbestos due to its superior safety properties. It is used as a backing for electric heating elements in products such as hand driers.

Mica has decorative uses as well. One company, Asheville Mica, produces a line of mica sheets useful for manufacturing lamp shades. They also produce ground mica of various sizes for decorative purposes. Finely ground mica is used in joint filling compound for drywall. It is also used as a paint filler. If it is slightly coarser, it can add a sparkle effect in the paint. In plastics, it is used as an extender and filler. In drilling, it is used in the drilling mud because it can fill in porous rock and thus improve drilling performance.

Expanded vermiculite is used for thermal and acoustic insulation, packing material, and horticulture.

References:

- 1) Mindat.org
- 2) Bonewitz, R.L., (2008) *Rock and Gem: the definitive guide to rocks, minerals, gems, and fossils*. Smithsonian Project Consultants, M. Carruthers and R. Eftim. Dorling Kindersley Limited, New York, NY. 360p.
- 3) W. A. Deer, R. A. Howie and J. Zussman (1966). *An Introduction to the Rock Forming Minerals*, Longman, ISBN 0-582-44210-9.
- 4) Rickwood, P. C. (1981). "The largest crystals" (PDF). *American Mineralogist*. 66: 885–907.

IN THE NEWS

World's Oldest Known Fossil Forest

CNN, Dec 20, 2019

Evidence of the world's oldest forest, dating back some 385 million years, has been discovered in an abandoned sandstone quarry in upstate New York, according to a new [study](#) published in *Current Biology*. The find was made in Cairo, about 40 miles south of Albany. The fossilized tree root systems provide a snapshot of one of the planet's great transitional periods, between an earth with no forests and an earth covered in forests.

<https://www.cnn.com/2019/12/20/us/fossil-trees-new-york-worlds-oldest-trnd-scn/index.html>

COMING EVENTS

Saturday, Feb. 29 and Sunday, Mar. 1:

Kawartha Rock & Fossil Club 27th Annual Show

10:00 AM to 5:00 PM each day. Located at the Evinrude Centre, 911 Monaghan Road, Peterborough, Ontario
Admission is \$4.00, Children under 12 free.

Saturday Apr. 4 & Sunday Apr. 5:

Brantford Lapidary & Mineral Society 48th Annual Gem & Mineral show

At the Paris Fairgrounds, 139 Silver St., Paris ON. 10am-5pm both days. Admission: Adult \$6, children 12 & under free.

For more info see: www.brantfordlapidarymineral.ca

ONGOING EVENTS

Robert Hall Originals Events

Throughout the year: Lapidary & Jewellery Classes

Hours: Monday to Friday: 9 am to 5 pm, Saturday: 10 am to 4:30 pm, closed Sundays

Location: 138 Sugar Maple Road, St George, Ontario N0E 1N0

For more information, please contact: 519-448-1236 or 1-800-360-2813,

inquiry@roberthalloriginals.com

Robert Hall Originals website: www.roberthalloriginals.com

EDITOR'S CORNER

Greetings everyone! My name is Ken Lyon, and I am taking over from Kevin Kidd pending confirmation at our annual meeting. Many thanks to Kevin for all of his great work over the years!

By way of introduction, I live in Peterborough with my wife. Before Peterborough, we lived in Calgary and Oakville. I am a hydrogeologist by trade with a specialty in contaminated sites. I would say I am semi-retired as I still do contract consulting.

Being a member of KRFC has been fun because it helps me go back to my roots in geology. I have forgotten a lot since going to school many years ago. Besides, back then it was a lot of dreary memory work and I get more out of listening to the personal experiences that are shared at our meetings.

I am happy to get contributions to the newsletter. It could be general articles, write-ups on collecting trips, recent news about minerals, fossils and rocks, or all kinds of things.

Best regards and I hope that I get to meet more of you either at our meetings or the upcoming Annual Show.
Ken



Gros Morne National Park, NL