April 2022

The Cutting Edge

Monthly Newsletter of the Ottawa Lapsmith and Mineral Club

In this month's Newsletter:

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President's Message

The executive is proceeding with a half sized or full sized Nepean Sportsplex show the weekend of September 16-18. The number of interested vendors will determine the size. The contract has been signed. According to scuttlebutt, the shows that have opened to date have reported good attendance. A Norwood (Peterborough) show is planned for May 28-29. The Bancroft Gemboree is going ahead for the long weekend in August. The Sudbury show is still in limbo. Both Montreal clubs are planning shows for the fall. Further details to be announced.

Consignment payments from the last auction were delayed due to illness.

Kerry Day
OLMC President

OLMC VP Showcased Club at Earth Gala 2022

The OLMC was invited to speak to the Earth Gala on March 18, which hosted around 100 geology and earth science undergraduate students.

Club Vice-President Matthew Poirier made a ten-minute presentation about the club, its historical background, its activities pre-Covid, how it has adapted online, and its plans forward now that restrictions are easing up.

Rainbow Minerals is offering a space for Club Members to sell their creations and their stones for a day on Saturdays 10 AM to 4 PM. They will provide one 30'' X 96'' table with a tablecloth and lamps at each end, and a small stand that can be used to hold a cash box or something of similar size. They will announce your booth on their website. There is no charge and no commission.

Jean-Guy Bradette will be there selling cabochons on Saturday, April 9.

Contact Ash at Rainbow Minerals to coordinate a time.

MIG ONLINE Meeting

Date: April 11 at 7:00 pm.
Guest speaker: Brad Wilson, Alpine Gems
Topic: Canadian Gem Tourmaline – Who Knew?

OLMC members can join the Mineral Interest Group and receive invites to the meetings. Contact John Montgomery montgomeryjr50@gmail.com

Donations and Sales

The club has a **GoFundMe** page, if anyone wants to donate to on-going storage costs and for the future workshop rent. We very much appreciate donations.

https://www.gofundme.com/f/help-the-ottawa-lapsmith-and-mineral-club

Auction dates are subject to change. Official dates will be announced in an e-mail.

Japan's Legendary Sessho-seki Stone Splits in Half

Around March 7, a volcanic rock in Japan suddenly split. The famous stone is called Sessho-seki ('killing stone').

Local media said cracks appeared in the rock several years ago, possibly allowing rainwater to seep inside and weaken its structure.

Old myths say the stone contains the evil spirit of Tamamo-no-Mae, spews poisonous gas, and kills anyone who touches it.

The stone was registered as a local historical site in 1957. It was mentioned in a novel, a play and an anime film. With its separation into two roughly equal parts, some on-line commenters said the demon spirit is now resurrected.

Japan's Sesho-seki stone, as seen in better days

https://www.theguardian.com/world/2022/mar/07/japans-killing-stone-splits-in-two-releasing-superstitions-and-toxic-gases

The archaeological team moved the stone to Graciela Ainsworth conservation department in Edinburgh for analysis. Image: University of Aberdeen

Pict-o-gram: Pictish Symbol Stone Recovered

Archaeologists unearthed a rare Pictish symbol stone near the location of carved stone monuments called Aberlemno, in Scotland. The 1.7 metre-long 1,400 years old stone was found in a farmer's field as part of a test dig by a team from the University of Aberdeen.

It features Pictish symbols including triple ovals, a comb and mirror, a crescent and V rod and double discs. It appears to show different periods of carving with overlying symbols

Professor Gordon Noble said there are around 200 of these monuments known. Sometimes they are dug up by farmers ploughing fields or during road construction, so most of the surrounding area is too disturbed for good study.

Aberlemno is already well known for its Pictish heritage from its unique Pictish standing stones. The most famous of these stones is a cross-slab thought to depict scenes from the 7th century Battle of Nechtansmere, which contributed to the creation of Scotland.

https://www.dailymail.co.uk/sciencetech/article-10589225/

Blood-Sucking Cephalopod Found in Montana

The cephalopod fossil is the earliest known ancestor of vampire squids and octopuses. It has been dated to 330 million years ago, pushing back the age of the group by 82 million years. Oddly, the fossil named "Syllipsimopodi bideni" has ten arms, indicating these animals lost two working tentacles at some time. All previously reported fossil vampyropods preserving the appendages only have eight arms.

Vampyropod evolutionary history is patchy because they are soft-bodied animals with an internal shell of chitin. In special fossil formations known as Lagerstättes, soft tissue is occasionally preserved, and this is where this new fossil was found.

https://www.sciencealert.com/the-oldest-known-vampire-cephalopod-swam-earth-s-seas-330-million-years-ago

Photo of an octopus; Credit: Xavi on biology. stackexchange.com

Scientists Propose New Mechanism for Oxygen Build-Up in the Atmosphere

On March 14, MIT scientists announced a new hypothesis that oxygen finally started accumulating in the atmosphere 2.3 billion years ago due to interactions between certain marine microbes and minerals in ocean sediments. These interactions helped prevent oxygen from being consumed, allowing more oxygen to accumulate in the atmosphere. Their study is the first to connect the co-evolution of microbes and minerals to Earth's oxygenation.

The scientists used mathematical and evolutionary analyses to show that there were microbes that existed before the "Great Oxidation Event" (GOE) that had evolved the ability to interact with sediment in a way that used up organic carbon without oxygen. If the microbes possessed the ability to only partially oxidize organic matter (POOM), the "POOM" would become "sticky," and chemically bind to minerals in sediment in a way that would hinder further oxidation. The oxygen that would have been consumed to fully degrade the material would instead go to the atmosphere.

The research team found in existing literature a bacterial group called SAR202 that partially oxidizes organic matter in the deep ocean today. These microbes use an enzyme called Baeyer-Villiger monooxygenase (BVMO). They did have genetic ancestors with the gene for the enzyme dating back before the GOE.

https://www.nature.com/articles/s41467-022-28996-0

OLMC Jewellery Challenge

The February Jewellery Challenge was to design and fabricate a chain. Contestants could use any inspirational material. The only restriction was the finished product must be wearable. Bonus points were awarded for making a link between the project and a favourite song that references chains or unchaining.

Because of where they are worn, close to the heart, chains are an ideal symbol of love and the ties that bind. They are formed with circles that are linked together with no beginning and no end – just like our hopes for eternal love.

Of course, chains also have had less than positive connotations in the context of

Angèle Aubin: *As seen on your favourite celebs…*

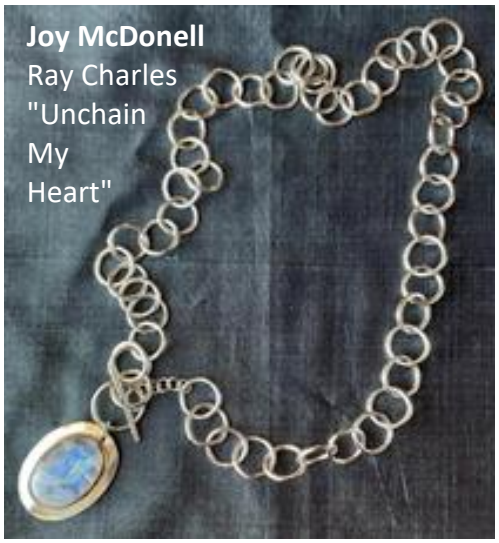
Karl Schutt: Fetter-and-Three-Link Curb Chain

Csilla Ekes: Simple hammered bar-link chain connected with round jump rings, assembled with a handmade toggle clasp

Pat Moore
Xavier Rudd
"Ball & Chain"

Vera Rehill:
Fleetwood Mac,
"The Chain"
I can still hear you saying you would never break the chain

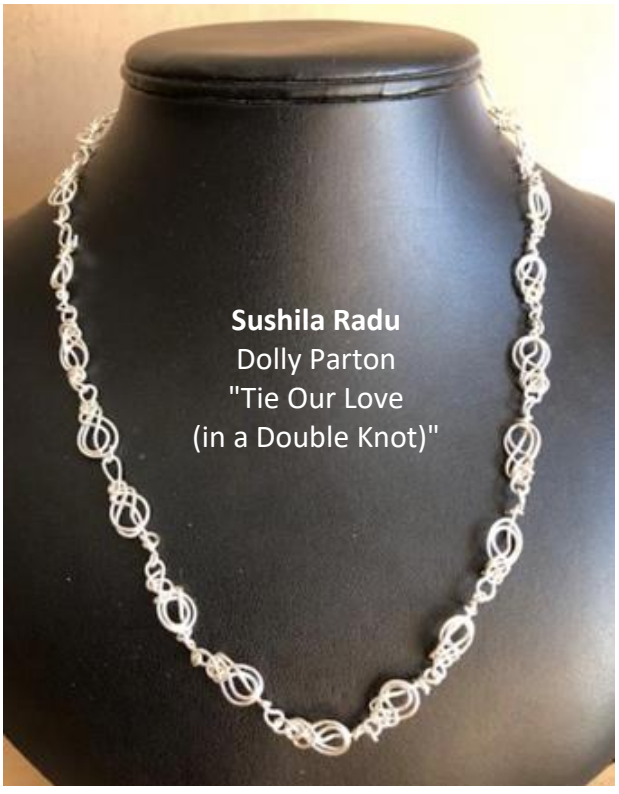
Mary Laurienzo:
Pretenders, "Back on the Chain Gang"



Joy McDonell
Ray Charles
"Unchain
My
Heart"

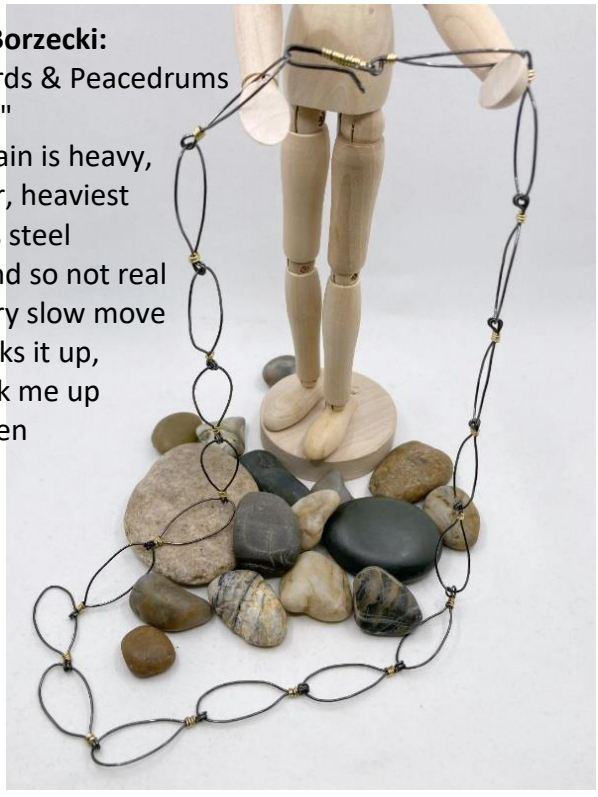
Vicki Jasperse
Tears for Fears "Woman in Chains"
Well it's a world gone crazy…

Tanya McCormick



Sushila Radu
Dolly Parton
"Tie Our Love
(in a Double Knot)"

Janet Borzecki:
Wildbirds & Peacedrums
"Rivers"
The chain is heavy,
heavier, heaviest
Cold as steel
Blue and so not real
In a very slow move
she picks it up,
she kick me up
And then
rattles
rattles
rattles
rattles



What is the strongest material on Earth?

~~~ A Listicle Stolen Shamelessly from BigThink.com ~~~

10. Spider Silk is remarkably thin and sticky and has a higher strength-to-weight ratio than most conventional materials like aluminum or steel. Darwin's bark spiders have the toughest silk measured to be ten times stronger than kevlar. 454 grams of Darwin's bark spider silk would make a strand long enough to circle the Earth.

9. Silicon carbide is a chemical mix of silicon and carbon found naturally in the form of moissanite. Silicon carbide grains have been mass produced since 1893. They can be bonded together through a high-pressure but low-temperature process known as sintering.

8. Silica nanospheres measure from 50 nanometers in diameter to just 2 nanometers. They were first created 20 years ago at the U.S. Department of Energy's Sandia National Laboratories. These nanospheres are hollow, self-assemble into spheres, and can nest inside one another.

7. Diamonds remain the most scratch-resistant material known to humanity. Metals like titanium are less scratch-resistant, and even extremely hard ceramics or tungsten carbide cannot compete with diamonds in terms of hardness or scratch-resistance.

6. Wurtzite boron nitride is extremely rare, but 18% harder than diamond. Formed during volcanic eruptions, it has only been discovered in tiny quantities. Boron nitride can be amorphous (non-crystalline), hexagonal like graphite, cubic like diamond (but slightly weaker), and the tetrahedral wurtzite form.

5. Lonsdaleite is 58% harder than diamond. It is formed from meteors with a lot of carbon (graphite) subjected to great heat and pressure from crashing into the Earth's surface. The result is a compact hexagonal crystal lattice. Technically, real examples of Lonsdaleite contain enough impurities to make them softer than diamonds.

4. Dyneema is a thermoplastic polyethylene polymer with a high molecular weight. Its molecules are extremely long chains, with a mass in the millions of atomic mass units. It has been called the strongest fiber in the world. Despite being lighter than water, it can stop bullets and has 15 times the strength of a comparable amount of steel.

3. Palladium microalloy glass was developed in 2011. It contains five elements (phosphorous, silicon, germanium, silver and palladium), where the palladium provides a pathway for forming shear bands, allowing the glass to deform like plastic rather than crack. It is the hardest material to not include carbon.

2. Buckypaper is a thin sheet of carbon nanotubes in a hexagonal shape. Each individual nanotube is between 2 and 4 nanometers across. It is one tenth the weight of steel but has hundreds of times the strength. It is fireproof, conduct heat very well, and has tremendous electromagnetic shielding properties.

1. Graphene is a hexagonal carbon lattice that is only a single atom thick. Like buckypaper, it is very strong and is a great conductor of both heat and electricity, plus it is nearly transparent.

https://bigthink.com/starts-with-a-bang/strongest-material/
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Our Ottawa Gem, Mineral & Jewellery Show and Sale is Back!

Dear OLMC members,

We are pleased to announce that we signed the contract with the **Nepean Sportsplex** to host our traditional Gem Show on **September 17 & 18, 2022**. At this time, almost everything remains to be done. We have already contacted many of our past dealers, and we will establish formal contracts in the coming weeks.

If you want to participate in the show as a dealer or if you know of someone who would be interested, please let us know. Ideally, we will be able to select a good and diverse group of dealers to set up an attractive show covering all the interests of the club's members and OLMC friends!

Similarly, we need groups of volunteers for the various tasks ahead of us, during the show, and afterward. We will establish the lead for each group next month. We welcome everyone who can help at this point; don't hesitate to tell us your interests or if you want to recommend someone.

Stéphane Jetté, Show Chair, E-mail: showchair@olmc.ca
Vema Ho, Show Dealer Chair, E-mail: dealerchair@olmc.ca

We look forward to working with all of you to set up a wonderful 2022 Show!

OLMC Meeting Schedule

April 2022

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1 	2 
3 	4 	**5 Silversmith video call 19:00**	6 	7	8	9 
10	**11 MIG video call time 19:00**	12 	13	14 	15	16 
17 	18	**19 Silversmith video call 19:00**	20 	21	22 	23
24	25 	26 	27	28	29 	30

OLMC Classified Ads

Faces of Pyrite

Pyrite (iron sulfide FeS2) has a cubic structure, but square prisms are more likely than perfect cubes because the rate of growth of the crystal faces is different on each face. In extreme cases, this feature can create pyrite wires, which can lead to balls of radiating pyrite crystals (nodules). The next most common natural crystal of pyrite is the (imperfect) pentagonal dodecahedron.. The least common crystal form is octahedra.

One very common natural form is framboids: 0.01 millimeter diameter globular aggregates of crystals less than 0.001 millimeters. They are found all sorts of rocks, especially sedimentary stone. The oldest framboids may be from 2.9-billion-year-old sediments from South Africa.

Disc of pyrite

OLMC Membership Application

New Membership ☐ Membership Renewal ☐

Individual – $20 ☐ Family (2+ persons in the same residence) – $30 ☐

Other Services:

☐ Annual workshop access fee: $90 per year (replace workshop usage fee of $3/visit)
☐ Newsletter advertisement: $25 per year for members
☐

Ten quarter pages per year over ten newsletters, which can be combined for fewer, larger ads. Businesses wishing to advertise in the newsletter pay $55 (family membership + advertising fee)

☐ Locker Fee: $25 per year (depends on locker availability)
☐ Cabochon Course: $60 – **required for all members who want to use the lapidary machinery**. More information can be found at http://www.olmc.ca

Names(s): _____

Address: _____

City: _____ Province: _____

Postal Code: _____ Telephone: _____

Please specify how you would like to receive OLMC's newsletter:

☐ By e-mail _____
☐ By mail

Do you require a receipt? ☐ Yes

Payments are payable **by cash or cheque only** to **Ottawa Lapsmith and Mineral Club**.

Please mail your membership form and fees to:

Ottawa Lapsmith and Mineral Club
P.O. Box 59028 Alta Vista
Ottawa, ON K1G 5T7

Please note that all membership information is used only for administrative purposes.

Administration use only:

Card provided: ☐ Yes Supervisor signed: ☐ Yes Date: _____

Questions? Please contact us by phone 613 700-4637 or email workshop@olmc.ca

You can also go on our Facebook page: http://www.facebook.com/OttawaLapsmithMineralClub