



# The Cutting Edge

Monthly Newsletter of the Ottawa Lapsmith and Mineral Club

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## President's Message

2023 will be the year the club returns to normal. I for one have had enough of these viral waves. A new workshop is in the cards for the spring. It is probably a little too early to be looking around. My interest will pick up come March.

We now owe \$37,500 on our old workshop. Our subtenant is covering the cost but the debt is on our books. Jean-Guy is keen on turning the club back into a nonprofit corporation (we are currently an Ontario for profit corporation). We have to be debt free to make the transition.

We are now carrying a healthy bank balance of ~\$70,000, ~\$40,000 of which was profit from our September show. This gives us a lot of flexibility. There is talk within the executive of scrapping all of our old silicon carbide grinders and going all diamond.

The OLMC is an all volunteer club. If you wish to be part of the decision making we will be having an election of officers in the spring. Our treasurer Rita Hudec is stepping down. Our secretary Bob Boisvert will be happy to step down and I will be retiring as President in 2024. There will be plenty of openings for the next generation.

Kerry Day  
OLMC President

All members are invited to submit articles, proposals, and thoughts that could be included in the newsletters. Also, feel free to send your Classified ads by e-mail to: [news@olmc.ca](mailto:news@olmc.ca)

## MIG Meeting

**Date:** January 16, 7:00 p.m.  
**Presenter:** Dr. Paula Piilonen  
**Topic:** The Bugaboo Castles aquamarine deposit, southeast British Columbia

OLMC members can join the Mineral Interest Group to get invites to meetings. Contact [montgomeryjr50@gmail.com](mailto:montgomeryjr50@gmail.com)

## Membership Renewal Reminder

Membership cards that were purchased before 2022 expired on December 31. Please renew your membership before January 31, so that you can keep receiving announcements, invites, and the newsletter.

See the club web site for more information about membership:

<https://olmc.ca/programs.html>

## Wonderful Results of the November Auction

The auction was a success. It brought in income of \$2356.88 for the club, and \$1440.75 income for members selling items through the auction, for a grand total generated at \$3837.43. There were 80 participants, 42 unique auction winners, 532 bids and 8,776 page views. The auction committee was happy to see many new names in the list of the auction winners, which means there is growing interest in club activities.



*A diffractometer with oil for gemstones had an opening bid of \$50. After a gruelling 37 bids, it eventually was sold to "monkey1222" for \$99.50.*



*This Lortone tumbler was originally \$20, and eventually sold for \$85.50 to "yvesp76" after a hefty round of 34 bids.*



*This beautiful slab of fossiliferous limestone opened at \$5, but after a 28 bids was sold for \$35 to "kjmorrow".*

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## Leprechaun Nightmare: Pile of Celtic gold stolen

Police have launched an international hunt for the thieves who stole 483 Celtic gold coins and a lump of unworked gold from a Bavarian museum in late November. The bowl-shaped coins were made from Bohemian river gold around 100 B.C., and were discovered during an archeological dig in 1999 near the town of Manching, Germany.

The gold was looted in nine minutes without raising alarms because telecoms cables had been cut. There was no guard at the museum that night.

The head of Bavaria’s State Criminal Police Office said there were “parallels” between the heist in Manching and the theft of priceless jewels in Dresden and a large gold coin in Berlin in recent years. Both have been blamed on a Berlin-based crime family.

<https://apnews.com/article/travel-europe-germany-e6bb0cdbc6f161fb3212c0fb1171a34a>

## Ancient Neolithic structure uncovered in Prague

In September 2022, archaeologists in the outskirts of Prague, Czech Republic, started uncovering a roundel built around 7,000 years ago.

Roundels are large circular structures that were constructed between 4600–4900 BC, when tools were made of bone and stone. They are among the oldest monumental buildings in Europe.

Archaeologists were surprised to discover intact remains of the palisade troughs for the original central wooden structure.

Around 200 roundels have been found all over central Europe, with 35 of them located on the territory of the Czech Republic. This particular roundel measures 55 metres in diameter and has an unusual floor plan with three separate entrances, and it is well-preserved.

<https://english.radio.cz/archaeologists-prague-uncover-ancient-neolithic-structure-8760696>



*The recently uncovered roundel, with cars for scale; Archaeological Institute of the Academy of Sciences*



## Two new minerals found in Somali meteorite

While studying a 70-gram piece of a 15-tonne meteorite found in Somalia, University of Alberta researchers discovered two new minerals. An investigation for a potential third mineral is in progress.

*Left: The El Ali meteorite in 2020; Credit: Chris Herd, University of Alberta Department of Earth and Atmospheric Sciences*

Chris Herd, a professor in the department of Earth and Atmospheric Sciences, said the discovery means the chemistry of the rock is different from everything found before. The two minerals have been named elaliite and elkinstantonite. The minerals had been synthesized in a lab in the 1980s, but this is the first discovered natural occurrence. The El Ali meteorite was found in 2020 in Somalia. It is one of 350 known Iron IAB meteorites (iron, phosphorus, oxygen), and is the ninth largest meteorite found on Earth. <https://globalnews.ca/news/9309682/alberta-2-new-minerals-meteorite-somalia/>

## Benin Bronzes will be returned to Nigeria

In November, the Horniman Museum in south-east London agreed to return 72 items including so-called Benin Bronzes to Nigerian ownership, the first UK museum to officially take such action on this scale.

Six artworks will return to Nigeria now, while the rest are still on loan in London.

A large-scale British military expedition had forcibly taken the Benin artworks in 1897, when they had attacked and occupied the city.

Nigeria's National Commission for Museums and Monuments (NCMM) has issued formal repatriation requests to museums across the world. London's British Museum has 900 items from Benin.

Nick Merriman, director of the Horniman Museum, said "I think we're seeing a tipping point around not just restitution and repatriation, but museums acknowledging their colonial history - and that's better history, I think."

In 2026, the Nigerian government will open the Edo Museum of West African Art in Benin City, to house the largest collection of Benin Bronzes ever assembled.

The Benin kingdom was renowned for its elaborately decorated collection of sculptures, created over 600 years by specialist craftsmen working for the royal court in the kingdom's capital. The Benin Bronzes are a series of plaques that used to decorate the palace walls. They include beautiful human and animal figures, ceremonial objects made from ivory and brass, and royal regalia.

<https://www.bbc.com/news/entertainment-arts-63783561>



*A square bronze pendant or ornament looted from Benin City in 1897; Photo Credit: Horniman Museums and Gardens*



*Lodolite Quartz, photo provided by Cynthia Smith*

## Lodolite quartz

Lodolite is a trade name for quartz from Minas Gerais, Brazil, with mineral inclusions of the chlorite group. The literal translation means "mud stone" from Spanish "lodo" for "mud, sludge". Depending on the type of chlorite, the attractive looking inclusions appear in various colours including brown, green, orange, white, pink, or purple.

# Soldering Basics

from "The Bible of Jewellery Making"

Silversmiths 2021-10-21

Soldering is another example of diffusion. When heated to the melting point, the atoms in the liquid will diffuse very rapidly into the surface of the still solid metals it is touching. When allowed to cool back to solid, this diffused joint creates a very strong bond between metals. Brazing is another name for what metalsmiths call hard soldering.

**Soft Solder:** Soft soldering uses an alloy of tin, lead or other low melting metals. Soft solder flows at about one-third the temperatures needed to cause the crystal spaces to open. The holding power of soft solder comes from its ability to fuse onto clean metal. Soft solder is composed of low strength metals, so it cannot be filed flush without weakening the joint. This is not true of gold or silver solder.

**Gold:** Gold parts can be joined with silver solder, but to achieve a colour match, a gold-based alloy is usually used. Gold solders are available in many colours and melting points. Any gold of a lower karat can be used as a solder. 10K will be a solder for 14K; 14K will solder 18K, etc. "Repair solder" will be a karat or two lower than the metal it will join. "Plumb gold solder" assays at the stated karat and uses other alloy materials to lower its melting point. When ordering, specify the colour and karat of the piece you are working on, and ask for nominal or plumb solder.

**Brazing:** In brazing, the parts being joined are heated to a temperature approaching their melting point. A non-ferrous metal, like brass or a silver alloy, is introduced and drawn into the host metal by capillary action. The dividing line between soldering and brazing is placed at 800 F (430 C). What jewellers call silver soldering is properly called silver brazing.

**Zinc Content:** The amount of zinc in silver solder controls its melting point. When making solder, care must be taken to avoid overheating, because the zinc will go off in a vapour and change the proportion. Because of this vaporization, each time solder becomes fluid, its melting point is raised. Overheating a previously soldered joint will burn out the zinc, and can leave a pitted seam. Prolonged exposure to pickle can also make seams visibly pitted because

## Rules for Soldering

1. The pieces must make a tight fit.
2. The joint and solder must be clean: no grease, finger oils, tape, pickle, buffing compound or pencil makers
3. Use flux to protect the metal from oxidation. Reflux for each reheating.
4. All the pieces being soldered should reach soldering temperature simultaneously. Heat the adjacent areas to reduce the flow of heat away from the joint. Account for heat sinks such as binding wire, steel mesh, locking tweezers.
5. When possible, position the torch so as to draw solder through a joint. Generally, avoid directing the flame at solder. Instead, allow heat to travel through the piece. Solder flows toward heat.
6. Use just enough solder to fill the joint. Don't settle for whatever piece is handy. It takes less time to cut the correct size piece of solder than to remove excess later.
7. When soldering an enclosed area, provide an escape for the steam trapped inside. If not vented, this will expand and can cause the piece to explode.
8. Metal temperatures are judged by colour changes that are best seen in a dimly lit area. Whatever your lighting is, keep it consistent.

the pickling acid attacks zinc. This is why you should not leave fabricated objects in the pickle overnight.

### Solder Preparation

Clean a piece of sheet solder with sandpaper or Scotch-Brite. With scissors, make a row of cuts no more than one millimeter apart, perhaps 10 millimeters deep. Uncurl the strips with pliers. Cut across this, catching the pieces on your finger and letting them drop onto a sheet of paper. By cutting at different intervals, you will have a range of solder sizes. Because solder will tarnish, do not cut up more than a month's supply.

### Surface Maintenance

Like any other tool in the shop, soldering surfaces need periodic attention to provide consistent service. The greatest problem is the build-up of flux glass, especially when paste flux is used. To avoid this, apply flux while holding the work in your fingers instead of when it is sitting on the soldering block.

Most surfaces will become irregular after normal use. Use a piece of coarse abrasive paper to dress a soldering block or rub two blocks against each other. Work over a waste basket and wear a respirator. Fire bricks can be trimmed with a hacksaw blade.

### Common Soldering Problems

Problem	Reason	Solution
Incomplete or unsoldered joint	Not enough heat; metal was dirty; no flux; prolonged heating	Avoid playing the flame directly on the solder
Solder balls up	Metal or solder may be dirty	Reflux and try again
Solder jumps to one side of joint	One side is hotter than the other	Keep the torch moving so all parts heat equally
Solder spills out into a large puddle	Too much solder; too high a heat	Use smaller pieces of solder; level the heat as you approach the flow temperature

### White Metal Contamination

Lead/tin alloys (like soft solder) will create pits in gold, silver, copper or brass when heated above 500 F (260 C). When scraping or filing won't work to remove white metals that have accidentally adhered to a workpiece, soft solder can be chemically removed.

Mix 3 oz. glacial acetic acid with 1 oz. hydrogen peroxide. Heat, but do not boil. Brush onto the affected area and allow several days to work. The tin will be converted into a white powder that can be brushed off.

### Firescale: The Jeweller's Bane

Firescale is an insidious deposit of cupric oxide that grows within the structure of some copper alloys such as sterling and low karat gold. It is also called Fire Coat, Fire Mark, and Fire Stain. When copper-bearing alloys are heated in the presence of oxygen, oxides are quickly formed. Cuprous oxide (CuO) is a black surface layer that can usually be dissolved in pickle. Cupric oxide (Cu<sub>2</sub>) is a purplish compound that forms simultaneously within the metal. This is firescale.

### Prevention of Firescale

Strictly speaking, the only way to eliminate firescale is to heat the metal in an oxygen-free environment. This is the solution used in industry, but it is rarely appropriate for the craftsperson. It is possible to minimize the growth of firescale by following these suggestions:

- Avoid prolonged heating -- use a "hit and run" soldering technique
- Use a big enough flame to get the job done efficiently. A small flame can cause rather than prevent firescale because it extends the soldering time.
- Use enough flux. Flux absorbs oxygen and prevents it from combining with copper. Flux will become saturated, so be sure you have enough.
- Do not overheat when soldering. There is no advantage to keeping the work hot after solder has flowed. Silver and gold alloys should never need to go above a medium red when soldering.

## Bright Dipping

If firescale has formed, it can often be removed by dipping the work in a strong solution of nitric acid and water. After all soldering and rough finishing are done (but before stones are set), attach the piece to a wire and dunk it for only a few seconds into a 50/50 solution at room temperature. Firescale will turn dark gray. Rinse and scratch brush. Repeat until the scale is gone, neutralize the piece in baking soda and water, then polish. Wear rubber gloves, protective clothing, and a respirator.

## Depletion Gilding

A commercially popular solution is to electroplate a coating of oxide-free metal over an object to cover scale. This is especially good for work that is subject to little wear. In the studio, a process called depletion gilding can be used on sterling and karat golds to simulate this action without special equipment. Copper in the alloy is converted to copper oxide by heating and this is then selectively removed in pickle. In essence, the alloys are broken apart, leaving a thin coating of pure silver or gold on the surface.

After all soldering and finishing is complete (but before patination or stone setting), heat the work until a gray oxide forms, then quench it in clean pickle. Repeat the procedure 3 to 5 times, rinsing in water and lightly scratch brushing each time. Remember to protect yourself against splashing pickle.



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## Workshop Schedule

January 2023						
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1 	2	3	4	5	6	7 <pre>public class HelloWorld {     public static void mai         System.out.println     }</pre>
8	9	10 Silversmith video call 19:00	11	12	13	14
15 	16 MIG video call 19:00	17	18	19	20	21
22	23	24 Silversmith video call 19:00	25	26 	27	28
29	30	31				



# OLMC Membership Application

New Membership

Membership Renewal

Individual **\$20**

Family (2+ persons in the same residence) **\$30**

**Benefits:**

Monthly Newsletter

Newsletter advertisement: \$25 per year for members or \$55 for businesses  
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Silversmith online meeting 2/month

Mineral Interest Group online monthly meeting

OLMC online auctions

OLMC field trips

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Administration use only

Card provided:  Yes  No

Supervisor signed:  Yes  No

Date: \_\_\_\_\_