THE ROCKET

deadline for next issue
March 13

February 2020
Club email: secretary.hrc@gmail.com
Newsletter email: Edrocket18@gmail.com

Next Meeting: Friday February 28 - 7PM Hastings Community Center Hall

PROGRAMS

Paul Pinsker has an engaging, educational and entertaining program for us: The Rockhounds Quiz. There are lots of prizes too. See you there!

Lapidary

Date & time.	Instructors	Backup instructors
Monday 6:30 pm to 9:30 pm.	Thomas Hui	Olivier Wong
Wednesday 1:00 pm to 4:00pm.	Vivian Rickey	Vera Schmedding
Thursday. 6:30 pm to 9:30 pm.	Sante Gasparin	
Saturday. 1:00 pm to 4:00 pm.	David Myers	

Metalwork

Date & time	Instructor	Backup instructors
Sunday 10:30 am to 1:30 pm.	Michael Ma	Diane Crowe
Monday 9:30 am to 2:00 pm	Michael Ma	Grazna Rougeau

Silversmithing

Date & time	Instructor	Backup instructors
Wednesday 9:00 am to 12:00 noon	Backup instructors	Marilyn Sztankovics
Saturday 9:00 am to 12:00 noon.	Crystal Chow	Vera Schmedding
		Vivian Rickey

Soapstone Carving Contact Linda Foy for opening Date & time

Members are reminded to have their **membership cards** with them at the rock shop in case current membership needs to be verified with the instructor.

Last meeting Programs:

Harley Waterson of the Richmond club gave us an informative and entertaining presentation called **"Petrified",** all about the petrification of substances into stone. He had lots of pictures, explanations and samples. It will be a presentation people long remember.

A note from Harley: A couple of people were interested in the locations I mentioned so here's a list:
Arizona petrified forest national park near Holbrook: https://www.nps.gov/pefo/index.htm/index.htm
In the town of Holbrook Arizona are other rock shops, including a couple off the freeway between Holbrook and the park.

Ginko Petrified forest park in Vantage Washington...where I-90 crosses the Columbia river
https://parks.state.wa.us/288/Ginkgo-Petrified-Forest
Near the entrance is a rock shop with lots of wood
https://www.facebook.com/Ginkgo-Gem-Shop-Rock-Shop-104227362315/

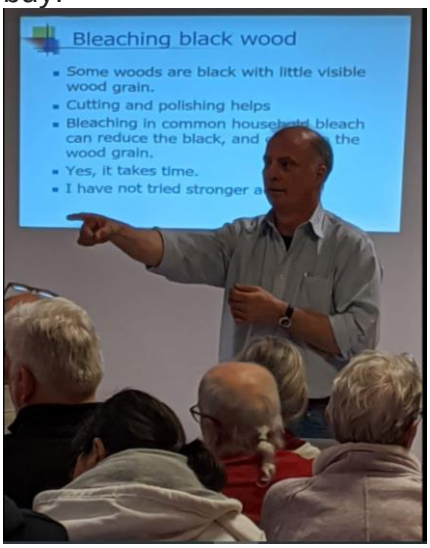
Holleywood Ranch fee dig for petrified wood near Sweet Home Oregon, just off I-5
http://www.holleywoodranch.com/

Dobell Ranch, just outside the Arizona Petrified forest park. Fee digging. I heard recently the ranch has split into two fee digs, the two Dobell brothers.
https://www.inspirock.com/united-states/holbrook/dobell-mineral-and-excavations-the-dobell-ranch-a1402536053 There is no specific web page for the Dobell ranch.

Precious Fire opal wood in southern Oregon: There are multiple fee dig locations in this area, here's one to get you started: https://www.royalpeacock.com/fee-digging

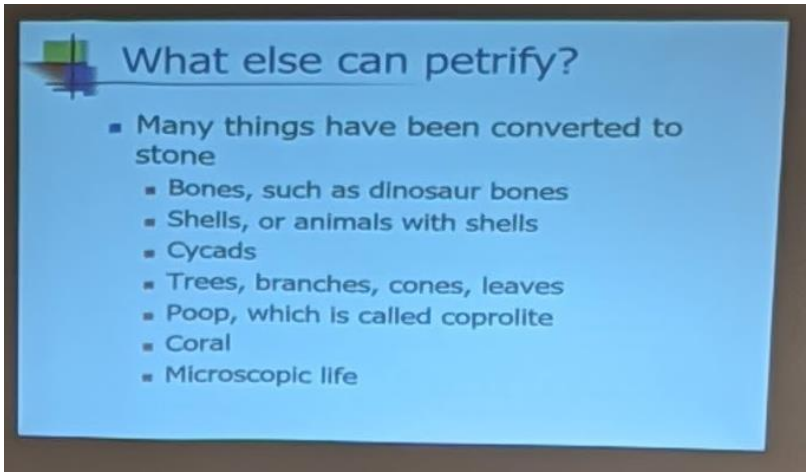
Fish fossils in Wyoming near town of Kemmerer: I have not been here, and there are other sites as well. http://www.fishdig.com/

Of course, there are rock shops, and vendors at shows with wood or other petrified materials you can buy.



Thank you for photos: Vivian and Nickell

Thank you for photos, Alison



Thank you for photo Vivian

FYI:

If anyone missed Paul Pinsker's October's presentation on "Weird and Wonderful Southern Alberta" AND would like to catch the new and improved version of the PowerPoint slide show THEN she/he should call Paul (604) 266-9184 about any additional particulars of seeing it on this coming Tuesday evening, Feb.25, at Minoru Park Library in Richmond.

Paul is presenting at the Richmond club meeting. Their meeting starts at 6:45, then do business and than a snack break at 7:45, with the presentation at around 8:00. We must exit the building by 9pm.

The Richmond Club meets at the Library/Arts Cultural Center Building in the Atrium. 7700 Minoru Gate, Richmond. There are several buildings in this community center area. Diagram for the following: https://richmondbclapidary.files.wordpress.com/2018/04/map-to-rgms.pdf

You can drive: when driving on Granville head west past #3 Road, pass Minoru and go to next pedestrian activated light (about 1 block). Turn right. Should see a two-level parkade to east of the arena. It is the entrance to the community centre. Library-Cultural Centre is farther east of the parkade. Park in the parkade.

Or, you can go to Brighouse Station (terminus) of Canada Line and walk.

Our Club Show

More information about the show will be at our general meeting.

Let's all pitch in to make it another great show

Upcoming Events of Interest: Shows

February 22 & 23 **Maple Ridge Lapidary Club**, Pitt Meadows Heritage Hall, Pitt Meadows

March 7 & 8 **Alberni Valley Rock & Gem Club**, Alberni Athletic Hall, Port Alberni

March 14 & 15 Hastings Centre Rockhounds, Hastings Community Centre, Vancouver

March 20, 21, & 22 **Victoria Lapidary & Mineral Society**, Leonardo de Vinci Centre, Victoria

April 3, 4, & 5 **BC Lapidary Society BC Gem Show**, Ag-Rec Building, Abbotsford

April 18 & 19 **Courtenay Gem & Mineral Club**, Native Sons Hall, Courtenay

May 2 & 3 **Richmond Gem & Mineral Club,** Richmond Arts & Cultural Centre, Richmond

June 6 & 7 **Kokanee & Selkirk Rock Clubs**, Castlegar Recreation Complex, Castlegar

June 6 & 7 **Ripple Rock Gem & Mineral Club**, Campbell River Community Centre, Campbell River

July 5 **Surrey Rockhound Club,** Sullivan Parking Lot, Surrey

July 17, 18 & 19 **1120 Rock Club of Kelowna & the Vernon Lapidary & Mineral Club**,
Rutland Centennial Hall, Rutland

Hastings Centre Rockhounds Survey

Anastasia has put together a survey, **Events/field trips: Hastings Rockhounds 2020,** for all club members to give the executive team insight into what trips you've taken with this and other clubs, and what future events you'd like the Hastings Centre Rockhounds to organize. She would like you to fill out the survey online. Because this newsletter is a pdf the hyperlink won't work. But you can copy the link and put it into your browser to get to the survey. Please fill it out as soon as possible. Here's the link: https://forms.gle/pndyWDAtdjc8KNiZ8.

Workshops

The silversmithing group really works together. They share ideas, solve challenges and appreciate each other's projects. This photo was taken in December. Someone probably got a nice present.

Projects

Anyone who has long hair or knows someone with long hair will be interested in this project created by Jennifer. I recently saw her wearing it.

Agate rough, oneofakindstones on etsy.com/au

This month's stone is

AGATE.

In the latest articles we've been looking at material that is more likely to be worked by lapidaries like ourselves, in our workshop.

Polished Montana agate

Last month we looked at the variety of quartz called chalcedony. Specifically, it was the **cryptocrystalline** (crystals too small to be seen by the naked eye) **quartz (**the chemical compound consisting of one part silicon and two parts oxygen - silicon dioxide (SiO_2)) that is transparent to translucent, looks like a solidified gel, and is called Chalcedony in the gem trade. Now we need to differentiate Agate as a variety of Chalcedony.

Agate is the name used for a translucent variety of chalcedony that is banded. Sometimes those bands are very hard to spot, but they develop around inclusions and often contribute to the naming of an agate specimen. Agate has always fascinated people. It is a natural wonder, looking like a work of art. No two specimens are identical; each has a different pattern and colour.

Not too surprisingly, agate is associated with the zodiac sign Gemini. The Old Hindu, Hebrew, Italian and Roman calendars assigned agate as a birthstone for May but ancient Polish and Russian calendars gave agate to June. The old Tibetan calendar gave agate to September. Agate is an alternate stone to celebrate a 12th or 14th anniversary. Some people specify Moss Agate for the 14th anniversary.

Theophrastus, (372-287 BC) a Greek philosopher and naturalist, was the first to describe and name a stone found along the river Achates (now known as Dirillo) in Acate, Ragusa Province, Sicily, Italy. The name was originally Greek "*Achates"* and we now say "Agate." It has been known for over 3000 years and in Theophrastus' time was valuable. By 77 AD when Pliny the Elder discussed agate it was more plentiful and had a lower value.

According to Geology.com "*Agate generally forms by the deposition of silica from groundwater in the cavities of igneous rocks. The agate deposits in concentric layers around the walls of the cavity, or in horizontal layers building up from the bottom of the cavity. These structures produce the banded patterns that are characteristic of many agates."*

According to a GIA (Gemological Institute of America) article on Moroccan Agates, which spoke of all agates, *"The shape and width of the zones and the general pattern of the agate all depend on the concentration of silica in the fluids, as well as the temperature, pressure, and timing of the fluid influxes. Other elements found in the fluids (Fe, Ti, Mn, and others) affect only the coloration of the agate zones. At the final stage of formation, mainly in the center of the void, idiomorphic quartz of different colors—brown, smoky quartz, amethyst, and rock crystal—can crystallize, sometimes accompanied by calcite, hematite, goethite, barite, and other minerals."*

Some sources say the bands of chalcedony alternate with microcrystalline quartz giving the cloudy, white colour. Others say the white bands are chalcedony. The difference depends on if you can see crystals. Many agates are hollow because the deposition of silica fluids is not complete. As mentioned above the surface inside those hollows is often quartz (eye visible crystals). We often call this surface "druzy quartz."

As mentioned in the article last month, Geology is a relatively new science… "*Chalcedony is a mixture of cryptocrystalline quartz and mogánite, another silica mineral related to quartz but with a different crystal structure."* Moganite was approved as a new mineral by the International Mineralogical Association in 1999.

Arizona Fire Agate

According to the GIA article on agates, scientists noted moganite intergrowths in agates since 1976. In 2004, other scientists noted that the maturation of the cryptocrystalline silica phases over tens of thousands of years *(the rock is becoming more chalcedony*) lowers the moganite content and may be a tool for estimating the age of the agate. Geologists do not currently have a reliable way of estimating the age of agate because agates are younger than their host matrix.

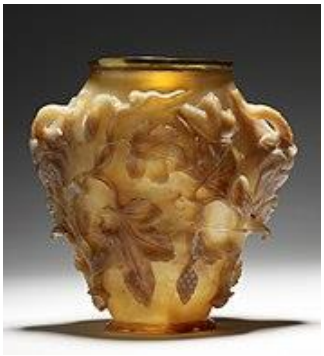
Agate is a complex rock.

Agates can sometimes form in sedimentary rocks with cavities. They can be seen in limestone, dolomite and shale with shells, tree branches or roots within them that decayed and left a space for silica-rich fluids to enter and be deposited forming chalcedony or agate. Our speaker at last month's meeting had examples of these agates.

Turritella Fossil Agate
KidzRocks on Etsy.com.au

Whichever type of rock the agate forms in, as time passes, the matrix holding the agates may disintegrate and free the nodules. Agates are extremely resistant to weathering and may stay as nodules in the soil or are deposited as gravel in streams and shorelines. The skin of these nodules is often a pitted green or brown iron oxide from the first layers laid down in the deposits.
Because of the way they form in cavities, agate masses can be several pounds and many inches in diameter. A Brazilian geode lined with amethyst, weighing 35 tons was exhibited at the Dusseldorf Exhibition of 1902. It had been broken, reassembled, and named the Amethyst Grotto.

Agates have a Mohs hardness of 6.5-7 which makes them hard enough for many uses and they take a wonderful polish. Industrial uses of agate focus on its hardness and ability to keep a polished surface resistant to chemical attack. Agate has been used for laboratory balances and pendulums, sometimes as mortars and pestles and as leather burnishing tools.



The "Rubens Vase"
(Byzantine Empire).
Carved in high relief from a single piece of agate,
Wikipedia

Agate was well known and used in the ancient world for tools, hardstone carving, seals and jewellery. It has been recovered from a number of ancient sites around the world. Ancient and modern uses are similar. Agates are cut into cabochons, beads, small sculptures, and functional objects such as paperweights and bookends. Agate cabochons are used in rings, earrings, pendants, and other jewelry objects. Agate beads are commonly made into necklaces and earrings. Some have been used as marbles. Carved agate bowls have been collected through various ages, usually by royalty. Mithridates, King of Pontus (135-63 BC) had a famous collection of up to 4000 bowls. Bowl collecting was again popular in the Byzantine era (330-1453 AD) and the Renaissance of the 14th to 17th centuries. Museums in Europe have many bowls in their collections.

When agate deposits in Germany were depleted in the 1800's they started to import material from Brazil. Then deposits were discovered in other location in South America, Europe, Australia and North America.

Even since the early days of Idar-Oberstein imports from Brazil, agates are often dyed. Agate is a porous material and takes colour enhancement treatments well. The intense pink, blue or green agates are often dyed. According to gemdat.org: "The material is sawn and shaped before dyeing. Immersion in a hot sugar solution followed by immersion in concentrated sulphuric acid and heating gives **black;** a **blue** colour, once called Swiss lapis, is produced by immersion in potassium ferrocyanide and subsequent warming in a solution of ferrous sulphate to give a precipitate of Berlin blue. Chromium alum or potassium dichromate may be used to give **green** or bluish green, and nickel compounds give a brighter, **apple green**. Impregnation with iron compounds and heating may give **reddish brown and red** colours. **Yellow** to greenish yellow is obtained by heating dry agate that has been treated with concentrated hydrochloric acid." Dyeing is usually a stable process and should be disclosed to buyers.

Another treatment used especially on carnelians is heating to cause iron impurities within the agate to develop a bright orange to bright red color.

Generally, agates are affordable. The pricing of agates and agate jewellery generally reflects the labour, artistry and distinctiveness of the stone. Custom pieces or stones from collectible locations are generally more expensive.

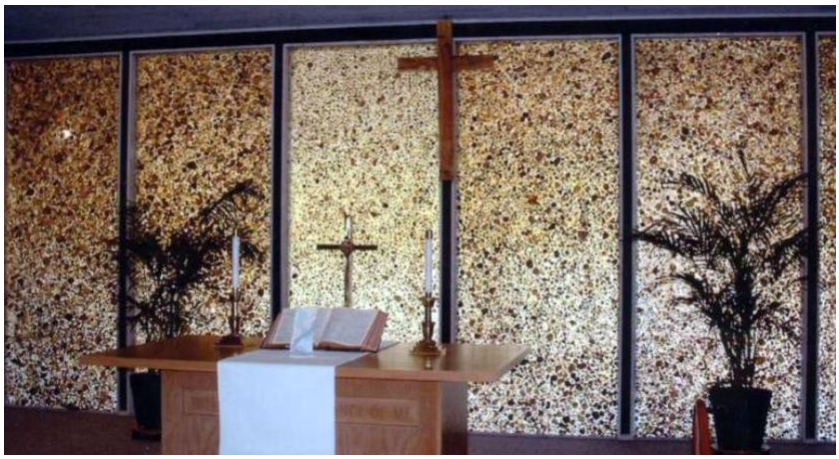
Mexican Crazy Lace Agate cabochon

Agates can be found all over the world. For example:

- Moss agates: *India; Scotland; United States Northwest.*
- Scenic agates: *Yellowstone National Park; Wyoming; Montana.*
- Banded agates: *Brazil; Uruguay; Madagascar; Mexico; United States*.
- Lace agate: *Mexico; Arizona; Namibia*.
- Fire agates: *Mexico*. Arizona, California and New Mexico
- Petrified wood: *Arizona; New Mexico; California; Washington; Oregon; various European countries; many other localities*

According to a Gemmology Canada - Special Issue: Gemstones of British Columbia, By Stephen Bertalan, A.G. (C.I.G.) Fine deposits of agate are found throughout the province. There is a great variety, ranging from fine blue agate, moss agate, banded agate, eye agate, and red agate resembling Mexican agate.

The variety and beauty of agates have inspired people for centuries, sometimes in new ways and uses. In Yachats, Oregon agates collected from local beaches were used to make the church windows.



Fortunately for us, agate is found all over the world and easily found by rockhounds. We can all collect specimens of agate's many varieties…our own pieces of nature's art.

For those interested in collecting agates, I've included some great contacts about agates. They have lists of various types of agates, but none are complete as new finds are still being made and named.

Roger Pabian's "Agate Lexicon" at University of Nebraska School of Natural Resources
http://snr.unl.edu/data/geologysoils/agates/agateslexicon.aspx

https://www.mindat.org/min-51.html

Geologyin.com see the postcard before the Agate article.