Maplewood Rock and Gem Club

2022 April

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General meeting: April 18

Our meeting is at the clubhouse at 7 pm on April 18. For a while longer we are requiring people to wear masks in the building.

Bring a rock or mineral for our Show and Tell. This is your chance to share that cool crystal you found on a mountain or at a rock and gem store.

Also, you will probably want to bring cash or a check to buy raffle tickets and to bid in our silent auction.

You can acquire beautiful or interesting specimens at our silent auction and from the raffle where we have many winning tickets each month.

Polished coaster for Show and Tell

Rose quartz
This is an example of a rock that you might see in the silent auction.

Banner photo

The cabochan above is snowflake obsidian. The snowflakes are spherulitic cristobalite crystals.

Image by Memecry2
License: CC BY 3.0

Maplewood Rock Show

We are holding a Rock Show on August 13 and 14. Mark those dates down on your calendar and look for details in upcoming newsletters.

Jim Miller's knapping display

Laura Hayes at her booth in a rock show

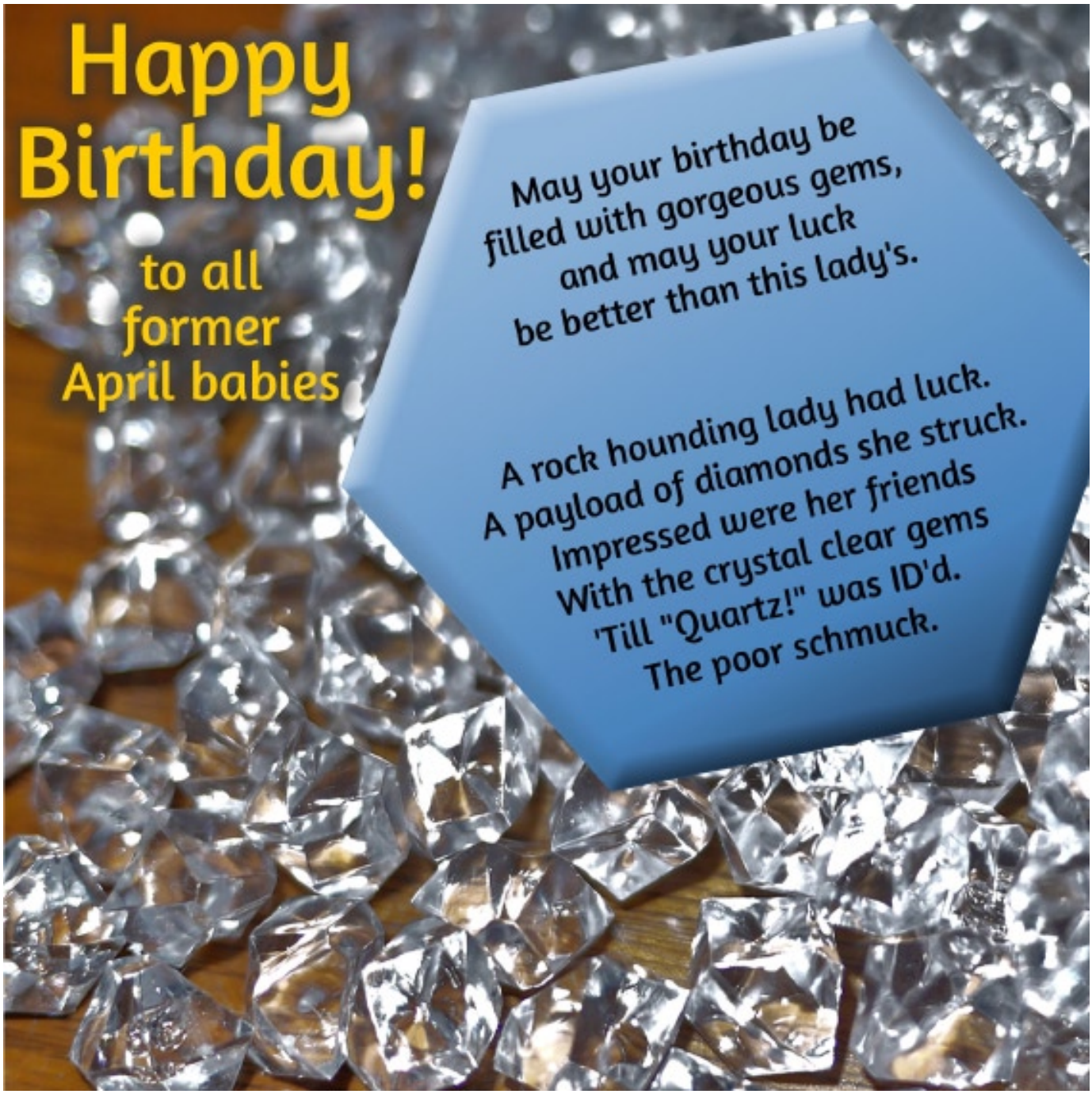
Mike Collins at his booth in a rock show

Rock painting class

April 9 at 10 am

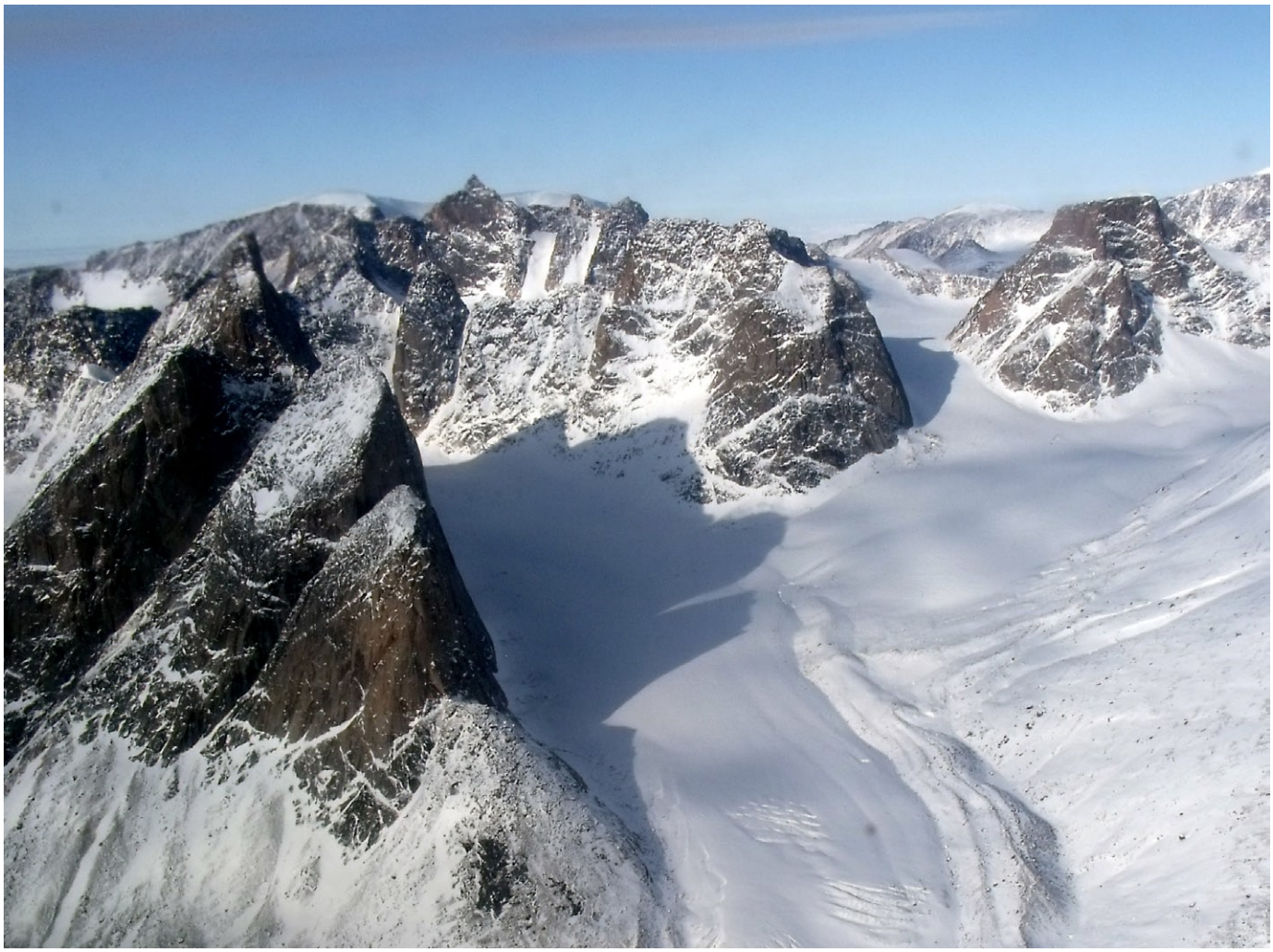
Whether you are an expert or first timer, this is for you! Bring a rock, a bag lunch, and your imagination. I will bring the paint the brushes and some inspiration! From stick figures to Picasso — if you can spill paint on the ground you can paint! If you have any questions, please let me know: Eric
email: vtceo@hotmail.com
text or call: 2069401949

Bring a comfortable mask! We will social distance as much as possible!



April birthstone: diamond

Juniors' Page — Rocks through the ages



Mountains and glaciers in Auyuittuq National Park, Baffin Island, Nunavut, Canada
by Mike Beauregard; CC BY 2.0

Rocks nearly as old as the earth

The earth is about 4.6 billion years old. Rocks from its early years are rare because most of that rock has been eroded or crushed by tectonic plates and then melted into magma or compressed into new rocks over and over again. Baffin Island in the Canadian Arctic has the oldest rocks ever found at 4.45 to 4.55 billion years old.

The rocky mountains above are not the exact ones dated to be that old, but they show us Baffin Island. The pointy peaks are higher than the snow line, so they haven't eroded to rounded or flat shapes. Do you see the shape of a howling wolf?

Nuvvuagittuq (Porpoise Cove) Greenstone Belt

On the northeast coast of Hudson Bay in Canada is a place called the Nuvvuagittuq Greenstone Belt. The exposed bedrock there is 4.36 billion years old.

What else was happening on earth?

Life was fairly new on Earth when volcanos were creating the rocks in the Nuvvuagittuq Greenstone Belt. There weren't dinosaurs, just bacteria and algae. The earth had finally formed a solid crust with a continent which was a pretty important development before larger animals could evolve and have a place to walk around. Another important development for animals is that oxygen began to be in the air.

Ka, Ma, and Ga

These terms are measures of years. The *A* is for *annum* which means *year* in Latin. *K* is for *kilo* and that's 1,000. *M* is for *mili* which stands for *million*.

G is for *giga*, and it represents 10^9, which is a 1 followed by 9 zeroes, or 1 billion. A rock that is one giga-annum old formed a billion years ago.

People use different terms to mean a billion years. All of these terms mean the same thing:

Billion years ago = bya = gya = ga = 1000 ma

For more about the time scale check out the Digital Atlas of Ancient Life and Science Trends.

Quartz-pebble metaconglomerate 3 Ga; by James St. John; CC BY 2.0

Greenlandite: fuchite-quartz gneiss; from Greenland by James St. John; CC BY 2.0; 3.8 Ga;

Acasta Gneiss; 4.03 Ga; from northern Canada, the Acasta River by Mike Beauregard; CC BY 2.0

Eons, Eras, Periods, and Epochs

Eon	Era	Period	Epoch	
Phanerozoic	Cenozoic	Quaternary	Holocene	← Today
			Pleistocene	← 11.8 Ka
		Neogene	Pliocene	
			Miocene	
		Paleogene	Oligocene	
			Eocene	
			Paleocene	← 66 Ma
	Mesozoic	Cretaceous	~	
		Jurassic	~	
		Triassic	~	← 252 Ma
	Paleozoic	Permian	~	
		Carboniferous – Pennsylvanian	~	
		Carboniferous – Mississippian	~	
		Devonian	~	
		Silurian	~	
		Ordovician	~	
		Cambrian	~	← 541 Ma
Proterozoic	~	~	~	← 2.5 Ga
Archean	~	~	~	← 4.0 Ga
Hadean	~	~	~	← 4.54 Ga

Younger ↑ ↓ Older

Eons, Eras, Periods, and Epochs; by Jonathan R. Hendricks; published under CC BY-SA 4.0

In the time chart above, you can see how historic times are broken down into eons, eras, periods, and epochs. You probably recognize some of these names, like Jurassic which is a period when many dinosaurs roamed the earth. Humans didn't appear until 200,000 years ago during this current Halocene epoch.

You will see slightly different dates for the beginnings of these time segments as you cruise the Internet. For instance, The Archean eon is shown to go from 2.5 Ga to 4 Ga, but many scientists who talk about ancient bedrock by Hudson Bay say it's 4.3 Ga, and it's from the Archean eon. This chart puts 4.3 Ga in the Hadean eon.

Spherulites

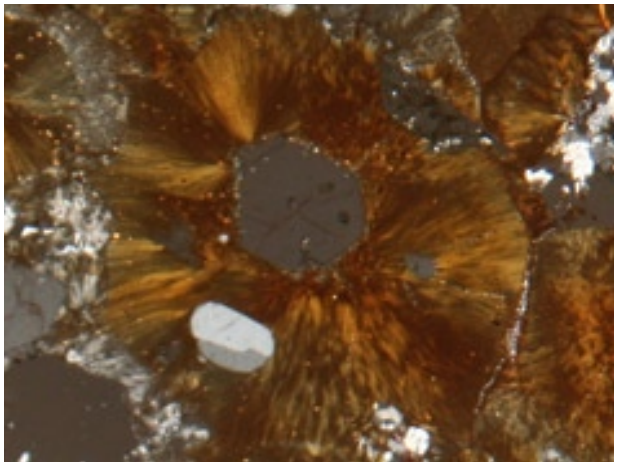
Petrologists define a spherulite to be a globe shaped aggregate with acicular (needle-like) crystals radiating out from a central point. Feldspar is the most common mineral that forms these needles. The radial habit might begin from the first crystals growing around a small cavity or on a small crystal. Once the feldspar establishes a radial habit, it continues to follow that pattern as it extends outward.

The aggregate typically has two components: crystals and quartz. The crystals are usually cristobalite, tridymite, or sanidine. The geode shown at the right shows the crystal needles but not the radial arrangement.

Agate filled geode with residual spherulites by James St. John; License CC BY 2.O

Each needle is a distinct line of bonded crystals, and the needles lie at slightly different angles, giving them the radial appearance of spokes on a wheel.

Spherulites are most often found in obsidian, rhyolite, and pitchstone. In these stones the inclusions are usually very small, like a grain of rice or a millet seed, and they are less glossy than the surrounding rock.



Photomicrograph of rhyolite with a spherulitic texture; radial crystal habit is about .5mm in diameter;
by Slim Sepp; License: CC BY-SA 3.0

What came first – the needles or the encasing stone?

The crystals nearly always grow while the cavity is filled with a homogeneous substance like water, a gas, or quartz. Petrologists determined this because the spherulites grow through the flow lines in the surrounding substance. There have been rare cases where the spherulites were slightly warped by flow lines indicating they formed before the encasing material fully filled the cavity.

During the last ice age a rhyolitic lava flow in the Yellowstone caldera set the stage for this spherulitic obsidian. It wasn't formed from crystal fibers inside a hollow, as typical spherulites are, but it demonstrates the radiating sections created by pressure.
By James St. James; CC BY 2.0

Spherulites in rhyolitic ash from the Hailstone Trail, Echo Canyon, Chiricahua Mountains, Arizona by Wilson44691; public domain image

Devitrification

Obsidian, being a glass, contains no crystals. However, when the lava is close to its fusion temperature it can begin to crystallize. Obsidian is formed by lava cooling very quickly, so devitrification can happen when the cooling lava spends a bit too much time at a temperature near it's fusing point.

Devitrification is a process in which the glass breaks down forming crystals of feldspar, cristobalite, and other minerals. These crystals often adopt a radial crystal habit and are said to be spherulitic.

Obsidian with devitrification from Glass Butte in Oregon

Devitrified black obsidian; from Yellowstone; Pleistocene epoch by James St. John; CC BY 2.0

KABOOM! Volcanic eruptions create spherulites

During a volcanic eruption, gases dissolved in magma violently expand and explode into the atmosphere causing the magma to cool into fragments of glass, crystals, and rock. The particles smaller than 2 mm are considered ash.

Larger fallout, especially from rhyolitic lava, includes spherulites and lithophysae. Spherulite globes are filled in, usually with quartz. Lithophysae are spherulites which have undergone an expansion, perhaps due to internal pressure of expanding gas and are left hollow with spherulitic crystals growing on concentric chamber walls.

Another theory of how the expansion occurs is this: as glass crystallizes, the molecules become more dense, so there is a contraction. Some feel this could explain the concentric cavities. Trapped steam and other gasses would exert intense outward pressure.

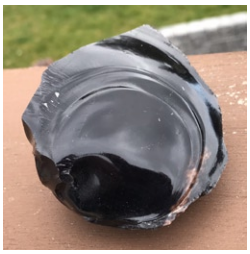
If you peeked inside a lithophysa, you could see the crystals although the radial pattern would be imperfect due to the concentric inner walls obstructing the paths of the growing needles. Some say the pattern is more like a rose bud with closed petals.

Geodes and thundereggs are lithophysae. Geodes are lithophysae with crystals growing on the inner walls, and thundereggs are ones that have been filled, usually with opal, agate, or jasper.

Flint with weathering spherulites and rottenstone rind
by James St. John*; License:* CC BY 2.0

Featured Stone – Obsidian

Obsidian is like a mineral, but isn't because it is not crystalline and its composition varies; we don't even have a chemical formula. Instead, obsidian is a mineraloid.



Conchoidal fracture

Creation

Here is what we do know about the formation of obsidian:

- It began as highly felsic lava.
- The lava cooled very quickly.

Felsic substances are rich in the minerals that make up feldspar and quartz. These are some of the lighter elements like silicon, oxygen, aluminium, sodium, and potassium. The high silica content makes the lava highly viscous, and this prevents molecules of minerals from mixing and mingling throughout the lava. With far fewer opportunities to meet, the minerals have much less of a chance to bond and form little crystals.

In addition to being nearly crystal free, lava must cool very quickly for it to be transformed into obsidian. With a short time between a hot flowing state and cool solid rock, the molecules are foiled again in their abilities to join up and create crystal bonds.

End of the obsidian life cycle

Obsidian is metastable at the Earth's surface. This means that it is fairly unchanging, but it does break down over millennia through devitrification and hydration. Very slowly, obsidian devitrifies, a process in which the glass breaks down into fine-grained mineral crystals. Ground water is absorbed into the obsidian slowly turning it into perlite. Even with these two destructive influences, obsidian might last 20 million years or so. However, a very ancient obsidian was found to be from the Cretaceous epoch (66 - 145 My).

Obsidian basics

Category: Volcanic glass

Crystal system: none

Color: deep black, blackish green, blackish blue, brownish red, brownish orange

Fracture: conchoidal

Tenacity: brittle

Mohs: 5 - 6

Luster: vitreous

Specific gravity: 2.4

Optical properties: translucent

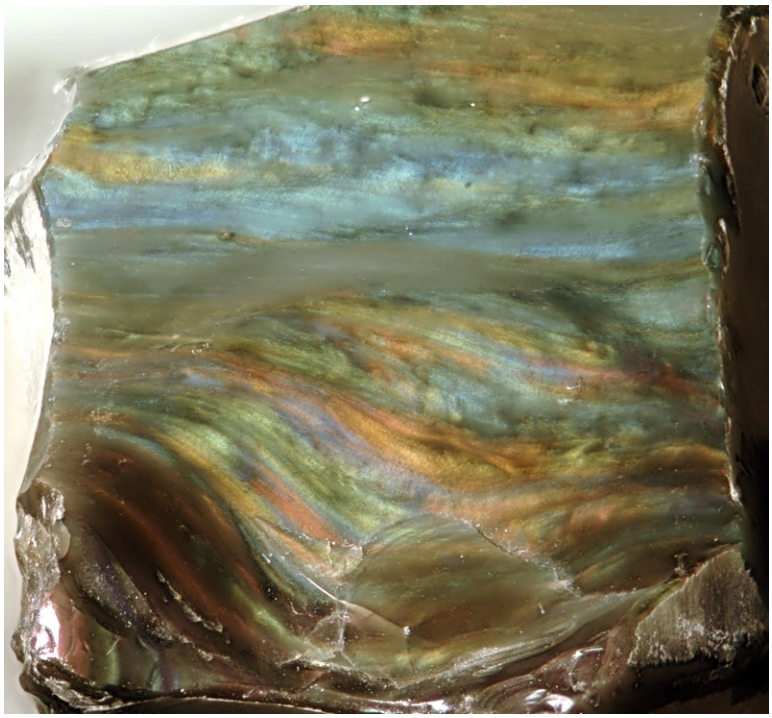
Texture: smooth, glassy

Rock type: igneous

Varieties of obsidian

Sheen obsidian — As the molten lava flowed it deposited layer after layer of lava leaving tiny bubbles between the layers. Now, those layers of bubbles reflect light giving the rock a colorful sheen.

Snowflake obsidian — White spherulites of cristobalite form snowflakes on the black glass. Lava low in feldspar is more likely to create this variety.



Velvet rainbow obsidian from Mexico — rare variety Oriented nanorods of hedenbergite causes thin-film interference and creates the iridescent effect.
by James St. John; CC BY 2.0

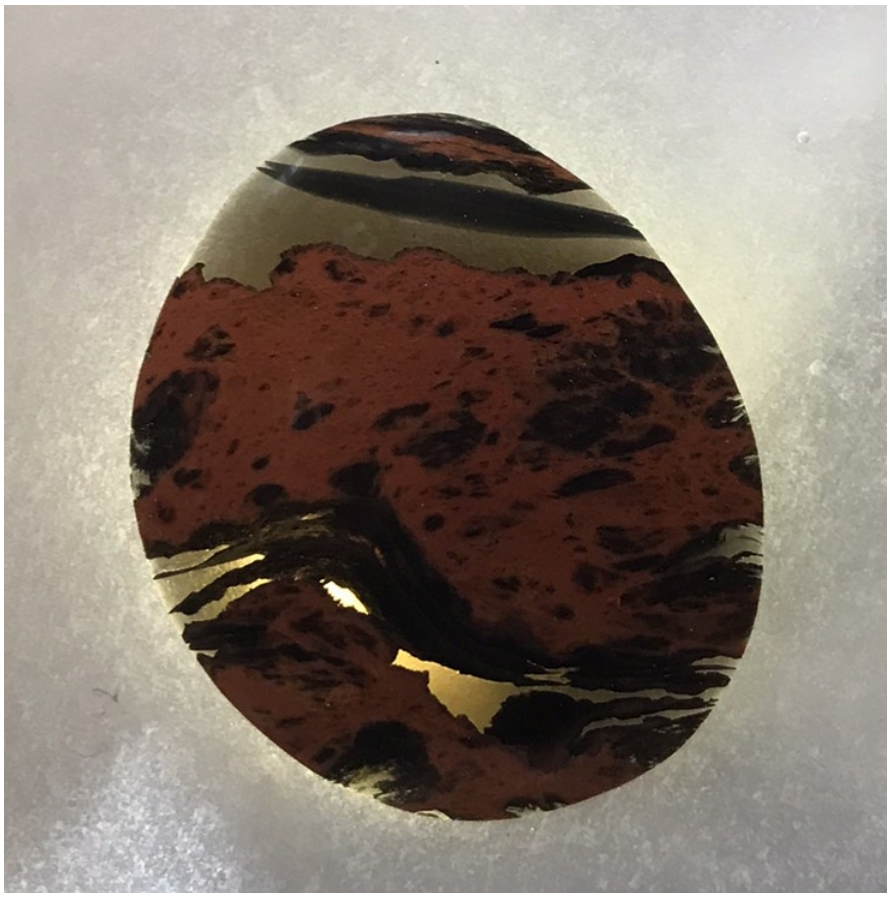
Mahogany obsidian

Pumpkin obsidian

Are you an Acid Rock fan?

Did you think we were asking whether you love the Grateful Dead or Jimi Hendrix? All kinds of rocks are pretty cool in their own way.

But, we were asking with a petrologist's point of view. An acid rock is one with a high silica content, at least 63% SiO_2 by weight. Rhyolite is the most silica rich rock, but obsidian is close behind at about 70% silica.



Obsidian cabochon with black, clear, and mahogany
By Bruce Samuels

Bruce Samuels hiking through obsidian boulders at Big Obsidian Flow Trailhead and Interpretive Site in the Newberry National Volcanic Monument, OR

Field trips

Contact the host a week before the trip to get details. Be sure you obtain the required parking pass, such as a Discover Pass. Arrive at the meeting site 30 minutes before the scheduled time, and be sure to have everything you might need including a full tank of gas, tools, food, water, appropriate clothes, rain gear, and first aid supplies.

Mary Garvey's jade found on a field trip.

The trips hosted by All Rockhounds Pow Wow have a small fee, but you get breakfast, so it's a good deal.

Below are the field trips planned for 2022.

Rockhounding Trip

In September 2021, 104 rockhounds met on Willis Mountain to search for kyanite, iridescent hematite, pyrite, mica, and quartz. The January issue of the Washington State Mineral Council newsletter has an interesting article you might enjoy: "Willis Mountain Kyanite Trip Report 9-25-21" by David Lines.

Date	Search for	Details
April 23-24	Petrified wood	Saddle Mountain Meet: Mattawa Buckshot Boat Launch at 8:30 am Tools: digging and light hard rock Host: All Rockhounds Pow Wow; Larry Vess; vessel3755@gmail.com; 253-473-3908
May 21	Talc Listwanite	Marblemount Donation fee requested Meet: mine at 9 am Host: Ed Lehman; wsmced2@outlook.com; 425-760-2786 or 425-334-6282
June 18	Rainbow chert	Meet: Verlot Ranger Station at 9 am Tools: light hard rock Host: Ed Lehman; wsmced2@outlook.com; 425-760-2786 or 425-334-6282

June 23-28	Petrified Wood Thundereggs Agate Jasper	Meet: Madras, OR fairground at 8 am Host: All Rockhounds Pow Wow; Larry Vess; vessel3755@gmail.com; 253-473-3908
July 16	Travertine	Sweetwater Meet: Darrington Show Tools: river bar Host: Darrington Rock and Gem Club; Ed Lehman; wsmced2@outlook.com; 425-760-2786 or 425-334-6282
Aug. 6-7	Agate Jasper Petrified Wood Opal Thunderegg Fossils Lilypad jasper	Greenwater Meet: Foresst Service Station in Enumclaw Little Naches Hwy 410 and Forest Road 19 at 10 am Tools: all Host: PVGMC; Dennis Bachelor; 360-870-8741
Sept. 10	Thunderegg Fossil Lilypad jasper	Little Naches Meet: Little Naches Hwy 410 and Forest Road 19 at 10 am Host: NOA; Tony Johnson; ynotopals@outlook.com; 253-863-9238
Sept. 10-11	Agate Geode Jasper Jade	Red Top Teanaway Camp at 8 am Host: All Rockhounds Pow Wow; Larry Vess; vessel3755@gmail.com; 253-473-3908
Oct. 15	Picture jasper	Skykomish Meet: Money Creek Campground, Hwy 2 at 9 am Tools: Rock and crack hammer Host: Ed Lehman; wsmced2@outlook.com; 425-760-2786 or 425-334-6282

Nov. 12	Dalmation stone	Alger I-5 exit 240 at 9 am Hard rock Host: Ed Lehman; wsmced2@outlook.com; 425-760-2786 or 425-334-6282

Rock and Gem Shows

April 15, 9 am - 5 pm April 16, 9 am - 5 pm April 17, 10 am - 4 pm	Willamette Agate & Mineral Society Polk County Fairgrounds 520 S Pacific Hwy Rickreall, OR	$2 adults kids 11 and under are free with an adult
April 22, 10 am - 4 pm April 23, 10 am - 5 pm April 24, 10 am - 4 pm	Yakima Rock & Mineral Club Central Washington State Fair Ground Modern Living Building 1301 South Fair Avenue Yakima, WA 98901	$6 adults $2 students kids 12 and under are free
April 23, 10 am - 5 pm April 24, 10 am - 4 pm	Grays Harbor Rock Club Grays Harbor County Fairgrounds Pavilion Building 43 Elma-McCleary Road Elma, WA 98541	free
April 30, 10 am - 5 pm May 1, 10 am - 4 pm	Billings Gem and Mineral Club Al Bedoo Shrine Auditorium 1125 Broadwater Ave Billings, MT	

May 6, 10 am - 5 pm May 7, 10 am - 5 pm May 8, 10 am - 3 pm	Mt Hood Rock Club Kliever Memorial Armory 10000 NE 33rd Dr Portland, OR 97211	
May 14, 10 am - 5 pm May 15, 10 am - 4 pm	Hatrockhounds Gem & Mineral Society Eastern Oregon Trade & Event Center 1705 East Airport Road Hermiston, OR	$3 adults 12 and under are free
May 14, 10 am - 6 pm May 15, 10 am - 4 pm	Bozeman Gem & Mineral Club Gallatin County Fair Grounds 901 N Black, Building 1 Bozeman, MT	$3 adults 12 and under are free with an adult
May 21, 10 am - 5 pm May 22, 10 am - 4 pm	Lakeside Gem & Mineral Club Benton Franklin County Fairgrounds 1500 S Oak Kennewick, WA	$5 adults 12 and under are free
May 28, 10 am - 6 pm May 29, 10 am - 5 pm	Everett Rock and Gem Club Evergreen State Fairgrounds East entrance 18359 Cascade View Drive Monroe, WA	
May 28, 9 am - 6 pm May 29, 10 am - 4 pm	Clackamette Mineral & Gem Club Clackamas County Fairgrounds 694 NE 4th Ave Canby, OR	
June 4, 9 am - 5 pm June 5, 10 am - 4 pm	North Idaho Mineral Club Kootenai County Fairgrounds Jacklin Building 4956 North Government Way Coeur d' Alene, ID	$5 adults 12 and under are free with an adult
June 11, 9 am - 5 pm June 12, 10 am - 4 pm	Butte Mineral and Gem Club Butte Civic Center Annex 1340 Harrison Ave Butte, MT	$3 adults 12 and under are free with an adult

June 11, 10 am - 5 pm June 12, 10 am - 5 pm	West Seattle Rock Club Alki Masonic Temple 4736 40th Ave SW Seattle, WA	
June 17, 10 am - 5 pm June 18, 9 am - 5 pm June 19, 10 am - 4 pm	Lower Umpqua Gem & Lapidary Society Reedsport Community Building 451 Winchester Ave Reedsport, OR	
June 18, 10 am - 6 pm June 19, 10 am - 5 pm	Bitterroot Gem and Mineral Society Hamilton Fairground Interstate Building 100 Old Corvallis Road Hamilton, MT	$3 adults 12 and under are free
Aug. 5, 10 am - 5 pm Aug. 6, 10 am - 5 pm Aug. 7, 10 am - 4 pm	Far West Lapidary & Gem Society The Mill Casino 3201 Tremont St North Bend, OR	$1 adults 12 and under are free with an adult
Aug. 13, 9 am - 5 pm Aug. 14, 10 am - 5 pm	Maplewood Rock and Gem Club 8802 196th Street SW Edmonds, WA	
Aug. 20, 10 am - 6 pm Aug. 21, 10 am - 4 pm	Cascade Mineralogical Society Green River College 12401 SE 320th St Auburn, WA	
Aug. 26, 10 am - 5 pm Aug. 27, 10 am - 4 pm	Southern Washington Mineralogical Society Silver Lake Grange 4200 Spirit Lake Hwy, Exit #49 on I-5 5 miles up Spirit Lake Hwy Castle Rock, WA	
Sep. 10, 9 am - 5 pm Sep. 11, 10 am - 4 pm	Clallam County Gem and Mineral Association Vern Burton Community Center 308 East 4th St Port Angeles, WA	

Sep. 24, 10 am - 5 pm Sep. 25, 10 am - 3 pm	Springfield Thunderegg Rock Club Willamalane Adult Activity Center 215 W C St Springfield, OR	
Sep. 30, 10 am - 6 pm Oct. 1, 10 am - 6 pm Oct 2, 10 am - 5 pm	Portland Regional Rock and Gem Show Wingspan Event Center 801 NE 34th Ave Hillsboro, OR	$5 adults 12 and under are free with an adult
Oct. 1, 10 am - 5 pm Oct. 2, 10 am - 5 pm	Marysville Rock and Gem Club Evergreen State Fairgrounds Display Building #500 14405 179th Ave SE Monroe, WA	
Nov. 19, 10 am - 5 pm Nov. 20, 10 am - 5 pm	Kitsap Mineral and Gem Society The President's Hall 1250 NW Fairgrounds Road Bremerton, WA	
Feb. 25, 10 am - 6 pm Feb. 26, 10 am - 5 pm	Idaho Gem Club Expo Idaho 5610 Glenwood Boise, ID	

Schedule a time in the Lapidary Shop

The lapidary shop is open on Thursdays. You can sign up for a 2 1/2 hour session to use our saws and cabochon machines. The sessions run from 3 - 5:30 pm and from 5:30 - 8 pm. Each session is $5 and masks are required.

To schedule your time email ask.sandra@yahoo.com

The Shop Stewards also sell grit and saw oil.

Donate to the club

Our club is a 501(c)(3) organization, so if you itemize deductions, you might receive a tax deduction. Ask your tax expert.

Checks can be made out to *MRGC* if you don't want your hand to cramp from writing the entire club name, *Maplewood Rock and Gem Club*. The club address is

8802 196th Street SW
Edmonds, WA 98026

Board of Trustees

Every January we install our new and continuing Board members. Please reach out to a Board member, if you have questions or would like to find a way to become more involved in the club.

Officers

President:	Sandra Newby
Vice President:	Ali Rizvi
Secretary:	Carla James
Treasurer:	Bruce Samuels

Members at large

James Davison
Nancy Ross
Paul Anderson
Paul Strawn
Rich Osborne
Nancy Samuels

Facebook

Our facebook page has up to date information about what is happening at our club. When we have online auctions, they happen on our page.

We also have a Facebook group — MRGC Sales and Trades — which is open to members of our club.

Board meeting

If you have questions for the board or if you'd like to attend a meeting, please email our Board maplewoodrocks1@gmail.com.

Connect with us

Website: http://www.maplewoodrockclub.com/

Facebook page: Maplewood Rock & Gem Club

Facebook group for members: MRGC Sales and Trades

Address: 8802 196th St SW, Edmonds, Washington 98026

Washington State Mineral Council

Our club, along with many other rock and gem clubs in the state, is a member of the Washington State Mineral Council.

This organization helps us by

- advocating for access to public lands
- advocating for beneficial land use policies
- compiling and sharing maps and other information
- publicizing shows and field trips so members learn about and can participate in events at other clubs

Read their latest Newsletter.

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We use abbreviations in the license attributions. Here are the definitions.

CC: Creative Commons license

BY: attribute the author, link to the license, and indicate if changes were made.

SA: share alike - If you publish the image, you must use the same license.

ND: no derivatives - You may not alter the image.

NC: non-commercial use - You may not use the image for commercial use.

3.0 or other number: version of the license

Sister club in Australia

Our sister club in Australia is the Atherton-Tableland Mineral & Lapidary Club in Tolga, Queensland. Connect to them on Facebook:

www.facebook.com/groups/197340266987276

One hundred million years ago the eastern edge of the Australian continent extended much farther to the east. Tectonic forces broke off and submerged the eastern section into the ocean while a rising mantle caused the remaining land to lift.

Beginning 4 million years ago large basalt flows filled river valleys and formed a relatively flat landscape. Following that period the volcanoes became more gaseous spewing lava in violent eruptions. This landscape is now called the Atherton Tablelands. You can learn more on Wikipedia.

This issue

Maplewood Rock and Gem Club News

Volume 4

Publication Year: 71

News to share? A suggestion? A correction?

Please send news ideas and images you'd like to share to the newsletter editor, Nancy Samuels at mrgc@nancysamuels.com.