The CMS Tumbler

May 2025

The monthly newsletter of the Cascade Mineralogical Society, Inc., Kent, Washington

Next Meeting:
May 8, 2025
7:00 p.m.

American Legion Hall
25406 97th Pl S
Kent, WA

The Program is Glaciers

The Show & Tell
Theme is a white crystal or mineral

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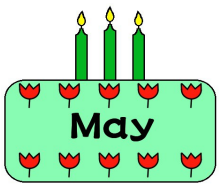
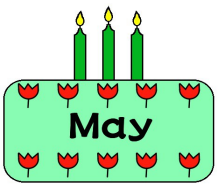
Facebook Groups: https://www.facebook.com/groups/1168207926650075
Show Facebook: https://www.facebook.com/cascadegemandmineralshow
Instagram: https://www.instagram.com/cascaderockclub/
YouTube Channel (Please like and subscribe):
https://www.youtube.com/channel/UCaGlJxaWFAtV_JjgZRm9ESA

This month remember to wish a Happy Birthday to
Brian Bayer on May 2
Andrea Mittleider on May 2
Megan Wasley on May 4
Carson Hutton on May 7
Alex Danneman on May 12
Julia Post on May 15
Penny Post on May 15
Miles Waller on May 15
Jennifer Russell on May 16
David Hall on May 18
Heather Leiphan on May 20
Lauri Miles on May 23
Russell Lopeman on May 24
Artem Tokmakova on May 26
Andrey Tokmakova on May 26
Mr. Searcy on May 26
Catherine Petty on May 27
and also remember to wish a Happy Anniversary to
Fred & Nancy Funk on May 8
Peter & Mrs. Anderson on May 16
Peggy Shashy & Paul Ahnberg on May 24 (22 years)
Mr. & Mrs. Rockhound on page 5 (37 years)





Membership Mailing Address:
c/o Ananda Cooley
300 Lenora Street
PMB 6145
Seattle, WA 98121

Keith Alan Morgan, Editor
3802 W Tapps Dr. E
Lake Tapps, WA 98391

Postal, or Email, Exchange Bulletins are welcome.
Email preferred.
greenrockdraggin@yahoo.com

2025 Elected Officers

President Kat Koch	425-765-5408	president@cascademineralogicalsociety.org
Vice President Noelle Barnes	206-914-0514	geonoelleb@outlook.com
Treasurer Ananda Cooley	206-683-7787	cascademstreasurer@gmail.com
Secretary Pete Williams	425-228-5063	petewill02@gmail.com
Director 1 – At Large Lee Oliver	253-878-2151	loliver4252000@gmail.com
Director 2 - Field Trips Roger Danneman	425-228-8781	roger.danneman@gmail.com
Director 3 – At Large Programs Paul Ahnberg	941-704-2063	runhikebird@icloud.com
Director 4 - At Large Richard Russell	253-736-3693	richru1@yahoo.com
Director 5 - At Large Linda Jorza	206-478-1642	ljorza@gmail.com
Past President Malcolm Wheeler Sr.	253-569-5185	facetguru@aol.com
Show Coordinator Lee Oliver	253-878-2151	loliver4252000@gmail.com
Postage Stamps Michael Blanton	425-271-8757	mblanton41@hotmail.com
Mineral Council Diana Horsfall	425-226-3154	dianahorsfall@comcast.net
Mineral Council Ananda Cooley	206-683-7787	cascademstreasurer@gmail.com

2025 Show Committee Chairs

Cascade Coordinator Lee Oliver	253-878-2151	loliver4252000@gmail.com
Cascade Co #2 Michele Maidman	206-395-5270	maidmmm@yahoo.com
Cascade Co #3 Kat Koch	425-765-5408	president@cascademineralogicalsociety.org
Book Display Cases		
Show Display Cases Roger Danneman	425-228-8781	Roger.Danneman@gmail.com
Mail Flyers Michele Maidman	206-395-5270	maidmmm@yahoo.com
Show Treasurer Pete Williams	425-228-5063	petewill02@gmail.com
Show Silent Auction Richard Russell	253-736-3693	richru1@yahoo.com
Show & Raffle Donations Kat Koch	425-765-5408	president@cascademineralogicalsociety.org
Show Volunteer Recruiter		
Show Website Kat Koch	425-765-5408	vendorchair@cascademineralogicalsociety.org
Show Vendor Chairman Kat Koch	425-765-5408	vendorchair@cascademineralogicalsociety.org

2025 Committee Chairs

Club Historian Jim Cerenzie	253-638-1478	jcerenzie@yahoo.com
Donations Kat Koch	425-765-5408	president@cascademineralogicalsociety.org
Field Trip Roger Danneman	425-228-8781	Roger.Danneman@gmail.com
Health & Welfare Bev Williams	425-228-5063	britbev1957@outlook.com
Library Diana Horsfall	425-226-3154	dianahorsfall@comcast.net
Meeting Greeters Angie & Brian Bayer	253-569-0245	angiemc61@msn.com
Meeting Programs Kat Koch	425-765-5408	president@cascademineralogicalsociety.org
Membership Kat Koch	425-765-5408	president@cascademineralogicalsociety.org
Newsletter - Tumbler Editor Keith Alan Morgan	253-316-9935	greenrockdraggin@yahoo.com
Shop Instructors (Temp) Roger Danneman	425-228-8781	roger.danneman@gmail.com
Shop Reservations – *Winter Shop Closed*		
Public Relations Kat Koch	425-765-5408	president@cascademineralogicalsociety.org
Refreshment Angie & Brian Bayer	253-569-0245	Text to her number (no email)
Raffle Master Jarrod Da	425-306-2501	jarrod.da@comcast.net
Show & Tell John Cornell	253-335-3617	outhouse2hole@gmail.com
Webmaster Gina Manso	425-281-3502	ginamanso51@gmail.com
Facebook Group Roger Danneman	425-228-8781	Roger.Danneman@gmail.com
Facebook Club Page Gina Manso	425-281-3502	ginamanso51@gmail.com
Instagram Gina Manso	425-281-3502	ginamanso51@gmail.com
All Other Social Media Kat Koch	425-765-5408	president@cascademineralogicalsociety.org

2025 CMS Dues are $30 per year per family
Pay online, by mail, or at our meetings.
New mailing address: Cascade Mineralogical Society, c/o Ananda Cooley, 300 Lenora St. - PMB 6145, Seattle, WA 98121
You can pay your dues via credit card!! We now accept all cards through our website or at the meeting.
You can renew your membership or enroll as a new member and pay your dues all in one shot online. You will find it under the “Membership” tab on our website. http://www.cascademineralogicalsociety.org

The object of the Society shall be to stimulate interest in the study of the earth sciences, lapidary arts and related subjects.
This Society is affiliated with the American Lands Access Association; and the Washington State Mineral Council.

Our Club is a Member of these Federations and Associations

ALAA: The American Lands Access Association, Inc. represents the rockhounding interests of 325 gem & mineral clubs/societies in 47 States and the District of Columbia.

The association's purpose is to promote and ensure the rights of amateur fossil and mineral collecting, recreational prospecting, and mining. The use of public and private lands for educational and recreational purposes. They also carry the voice of all amateur collectors and hobbyists to our elected officials, government regulators, and public land managers. http://amlands.org

The front page also has a lot of current news, rockhounding restrictions or lack of, etc. http://amlands.org

ALAA also publishes a quarterly newsletter. To keep up on the news and lobby efforts on our behalf, check out http://amlands.org/

Washington State Mineral Council: The Washington State Mineral Council is dedicated to the location and conservation of rock and mineral sites of interest to the rockhounds of Washington state. https://mineralcouncil.wordpress.com/

You can find local rock and gems shows and planned field trips. It's a great resource if you want to plan on an outing.

Also check out “Misc. News” for all the latest updates on collecting sites around Washington. https://mineralcouncil.wordpress.com/news-updates/

When the weather is good, they have regular monthly field trips. So take advantage of these great outdoor rockhounding adventures! The field trip details are under “Field Trips” on the left side of the side. Check out the link for additional information for the time and place to meet and the field trip leader.

You can find all this information and a whole lot more about what is happening in our state at https://mineralcouncil.wordpress.com/

Rockhounding Code of Ethics

I will respect both private and public property and will do no collecting on privately owned land without permission from the owner.

I will keep informed on all laws, regulations or rules governing collecting on public lands and will observe them.

I will, to the best of my ability, ascertain the boundary lines of property on which I plan to collect.

I will use no firearms or blasting material in collecting areas.

I will cause no willful damage to property of any kind such as fences, signs, buildings, etc.

I will leave all gates as found.

I will build fires only in designated or safe places and will be certain they are completely extinguished before leaving the area.

I will discard no burning material - matches, cigarettes, etc.

I will fill all excavation holes which may be dangerous to livestock.

I will not contaminate wells, creeks, or other water supplies.

I will cause no willful damage to collecting material and will take home only what I can reasonably use.

I will practice conservation and undertake to utilize fully and well the materials I have collected and will recycle my surplus for the pleasure and benefit of others.

I will support the rockhound project H.E.L.P. (Help Eliminate Litter Please) and will leave all collecting areas devoid of litter, regardless of how found.

I will cooperate with field-trip leaders and those in designated authority in all collecting areas.

I will report to my club or federation officers, Bureau of Land Management or other authorities, any deposit of petrified wood or other materials on public lands which should be protected for the enjoyment of future generations for public educational and scientific purposes.

I will appreciate and protect our heritage of natural resources.

I will observe the "Golden Rule", will use Good Outdoor Manners and will at all times conduct myself in a manner which will add to the stature and Public Image of Rockhounds everywhere.

from the AFMS website

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To get information to the Tumbler via the Internet send it to greenrockdraggin@yahoo.com Please put the word "Tumbler" and subject in the Subject Line. The deadline is the 20th of each month.

We Need Your Canceled Postage Stamps

Our club is going to continue to collect canceled postage stamps. Even though we are no longer members of the NFMS, we will continue to collect them and turn them over to the NFMS. They have a stamp company that buys them, and these funds are donated to cancer research. Every year NFMS donates around $2,500.

On letters that you receive, tear the corner with the stamp off. Try to leave about 1/4" of the envelope around the stamp. Be careful not to damage the stamp.

Place the stamps in a plastic baggie and bring them to the meeting. Our member, Mike Blanton, collects the stamps and will turn them over to the NFMS. You can give them to Mike as often as you want throughout the year.

Collecting the stamps is another way we Rockhounds give back to our community.

Don't Forget To Show Your Membership Card At These Retailers

These three retailers are huge supporters of our club. Please seek them out when looking for lapidary items and supplies.

Don't forget to show your membership card and receive a 10% discount on most items!

New for Members Only – New Texting Service

We are busy and often forget that CMS has an upcoming meeting or event. Therefore, we have a texting service to remind members of CMS meetings and events.

Everyone is automatically entered into this service. You can opt out anytime by responding with STOP.

Scan Me

For quick access, you can scan the following codes.

Access CMS Club Instagram page

Access our CMS YouTube channel

Access our CMSclub website for the latest on meetings and club events

Access CMS Facebook Groups

May

Sun	Mon	Tue	Wed	Thur	Fri	Sat
				1	2	3 *Everett Show*
4 Club Trip First Creek *Everett Show*	5 Board Meeting 7:00 pm	6	7	8 General Meeting 7:00 pm	9	10
11	12	13	14	15	16	17 Club Trip Biggs Oregon
18	19	20	21	22	23	24
25	26	27	28	29	30	31

CMS Show Committee Meeting:…Monday, May 5…….....6:30 pm to 7:00 pm
CMS Board Meeting:……....Monday, May 5…….....7:00 pm to 8:00 pm
CMS General Meeting:……....2nd Thursday, May 8……7:00 pm to 9:00 pm

More Field Trip info can be found on Page 15
More *Show* info can be found on Page 16

Mr. & Mrs. Rockhound **by KAM**

CMS Show Committee & Board Meeting Minutes April 7, 2025

by Pete Williams, 2025 Secretary

Attendees: Kat Koch; Pete Williams; Rich Russell; Mike Blanton; Paul Arhnberg; Diane Horsfall; Noelle Barnes; Lee Oliver; Michelle Maidman; Linda Jorza; Ananda Cooley

Show Committee 6:37

There are 5 booths left to sell for our upcoming show in June. There is a ceramic vendor interested in attending our show. Several ideas were discussed on how to provide electricity to booths in the middle of the room. We are searching for a food truck that would sell sandwiches at the show.

Board Meeting 7:01

There are now 119 family memberships. A few of the new members were from the Gem Faire. There was a person interested in our open treasurer position. The April program will be rock bingo. Participants should bring 3 wrapped rock related gifts. The May program will be on glaciers by Paul Arhnberg. A volunteer was found to run the raffle each meeting. Those who volunteer will get priority to use the shop that is currently under construction.

The speaker for the June program will be unable to attend. Programs are also needed for the July, September, and November meetings. Lee will bring 3 sample license plate holders for sale to members to the general meeting. Orders will be taken at the May meeting. We are exploring getting a booth at the Washington State Fair in Puyallup.

Meeting adjourned at 7:19

CMS General Meeting Minutes April 10, 2025

No report as it was Rock Bingo.

From Atop the Rock Pile

by Kat Koch, 2025 President

Our field trip to Saddle Mountain on April 19th was a lot of fun. Around 10 of us had breakfast together. It was very enjoyable and I got to meet a couple of members who only go on field trips.

Roger was sick and unable to join us. Noelle made sure everyone met at the restaurant, and Loren led us to the site where John and Dave were waiting for us. Thank you to everyone who helped out.

Thanks to John and Dave, everyone went home with nice pieces of petrified wood. Michelle Maidman found a petrified knot, a very unusual find. I believe a couple of members went to the common opal mine on the way home.

I also want to take this opportunity to thank Scott and Laurie Miles and others who volunteered to build the shop in April. I really appreciate Roger and everyone who lent a helping hand throughout the build. They are really making progress.

If you're a new member, we're thrilled to have you join our fantastic rock club! Your presence at our monthly meetings is highly valued, and we encourage you to take the opportunity to introduce yourself. I look forward to meeting you.

Since our membership continues to grow weekly, I hope more members will attend our monthly meetings. The larger our meeting attendance is each month, the easier it will be to book quality speakers.

When planning your estate, please consider donating to our club. We welcome gifts of any kind, including cash, stock, real estate, or other assets. The club will hold all property and monetary donations in our savings account to acquire or operate an indoor shop.

Gold Mine Quotes

Success comes to those who have an entire mountain of gold that they continually mine, not those who find one nugget and try to live on it for fifty years.

– John C. Maxwell

I believe in the Golden Rule - The Man with the Gold. . . Rules.

– Mr. T

“She got the gold mine. I got the shaft. ”

– unknown

via CMS Tumbler, 10/15; from Agatizer, 10/15

Upcoming Meetings

May 8th - Glaciers by Paul Ahnberg

Glaciers, which are slow-moving rivers of ice, have sculpted mountains and carved valleys throughout Earth's history. They continue to flow and shape landscapes in many places today. But glaciers affect much more than the landscape.

Show 'n Tell: A white, clear mineral or crystal.

June 12th – Rock Identification Contest.

We will form teams to identify a tray of rocks. The winning team will win the door prizes for the evening. Bring your hardness kit, rock ID books, cell phones, or anything else to help your team identify the rocks.

Last call for volunteers to help with our Gem Show.

This meeting is also our semi-annual food drive for the Kent Food Bank. Please remember to bring something. The Food Bank has told us they need feminine products and grape or strawberry jelly. People donate loads of peanut butter but never jelly, and they also receive very few feminine product donations.

Show 'n Tell: Bring a rock, mineral, or crystal you want identified.

CMS Field Trips Summary by Roger Danneman

So far this year we've had 3 field trips and this is a short summary.

On Feb. 22nd we went to Ole One Lane Bridge on the middle fork of the Nooksack river for Dunite and Gneiss. The river was extraordinarily high due to warm rains and the resultant melting snow. Our usual picking area was covered by the river. But thankfully Noelle and Paul discovered a great unpicked area down the fisheries road about 1/3 mile walk. We had a group of 20 people on this trip.

On March 29th we went to Saddle Mtn which was a change from the originally scheduled Baker Lake / Swift Creek trip. I figured the high water would prevent us from getting to the gravel beds and snow is still covering all of our mountain sites so the best alternative was Saddle Mtn for petrified wood. We had a beautiful spring day and a group of 25 people on this trip.

On April 29th we went to Saddle Mtn again. I originally wanted to start this outing with an educational session at the Ginkgo State Park but I didn't get enough interest in that. The group met in Mattawa for breakfast and then went up to a new dig area that John & Dave suggested at the previous outing. We had a group of 12 people on this trip. I unfortunately missed it due to illness but Noelle led the group up. I can't get enough of the pics in the Tumbler, but our Facebook Group page has a lot of great pics from Scott & Laurie, Michelle M., Noelle, and Julie. If you're not a FB Group member, it's a fun place to share our finds.

Next outings are to First Creek on May 4th and then Biggs/Rufus, OR on May 17th.

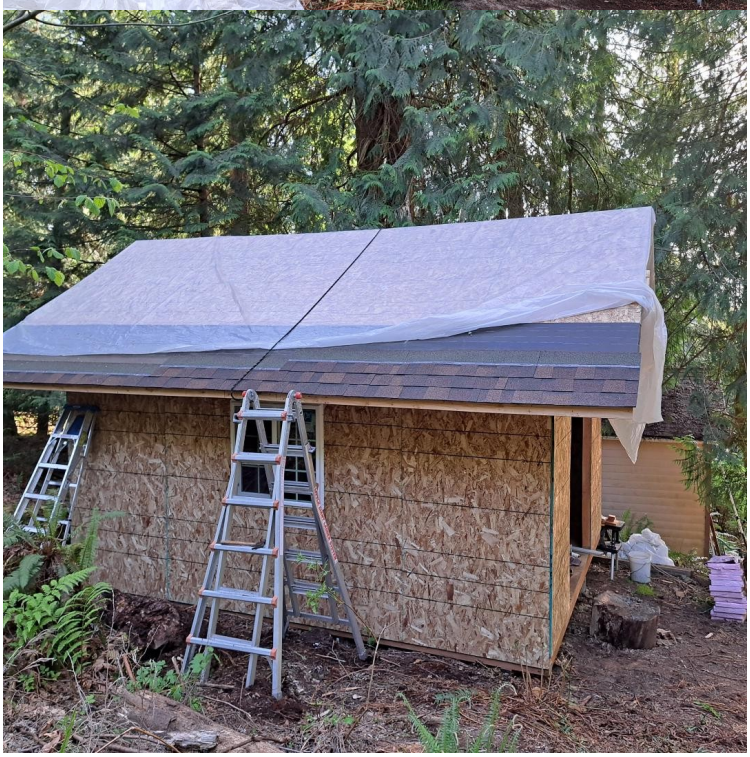





CMS Future Shop and Maker Space by Roger Danneman

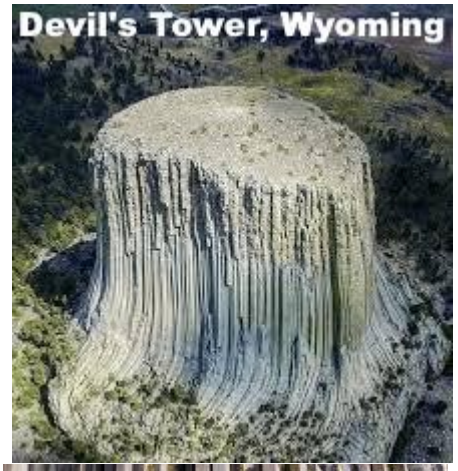
Late last spring when a promising hope for a shop fell through, I contemplated whether or not I could clean up an old brush pile on my property and build a 12x16' structure to house and utilize the club's lapidary equipment. Having a working shop has been a goal of our club ever since I've been a member (10 years). After our show in June I decided that the project was feasible, discussed it with the Board, and in August I started cleaning up the stumps, logs, and branches that remained from a pile created during the construction of my home in 2008. It's been a slow process, but gradually the structure has taken shape. There were long weather delays during the winter but it's getting close to being weather tight now. Making sure everything is measured correctly, square, level, and secure hasn't really lent itself to being a "group" project, although I appreciate the offers given. However, when it comes time for the siding, painting, and getting it up and running, then I'll be looking for some work parties. I am grateful to John, Dave, my buddy Van, Scott, and Scott's son-in-law Matt for their help thus far.

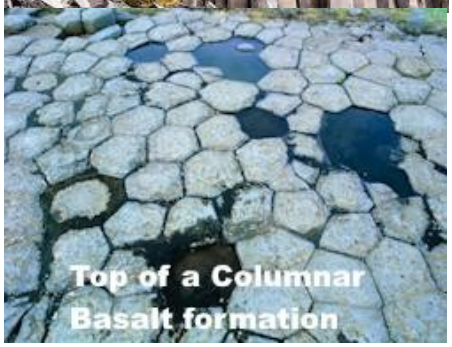
The shop space should accommodate our 36" saw, the 16" saw, a trim saw, the 16 display cabinets (2 stacks), the 8' long butcher block work bench with the 3 double arbors, buffing wheel, and maybe the 4' square cabinet. On the outside I'm planning to add decking for additional workspace and storage. I'm figuring the Richardson's High Speed Sander can sit there (with weather cover) as well as the drill press. Add an outdoor crafting table, parking for 4 vehicles, electricity, water, trained shop-stewards/mentors, a reservation web page, fee schedule (offset by volunteer hours), and we should be in business. The following pics show progression up to the end of April. At the current pace I hope to start moving equipment by the end of May.



How Columnar Basalt Forms by Kat Koch, Cascade Mineralogical Society

Columnar basalt is a fascinating array of tightly packed, polygonal columns. It is a geological marvel. Hexagonal columns can often be 20 ft wide and tower over 900 feet high and create landscapes of otherworldly beauty, like the Giant's Causeway in Ireland or the Devil's Tower in Wyoming. But how do these seemingly perfectly geometric shapes form in nature?





What is columnar basalt?

Columnar basalt is a type of igneous rock formed from the cooling and solidification of lava flows. As the lava cools, it contracts and cracks, often forming closely packed polygonal columns, typically hexagonal. These columns can be massive, reaching heights of tens of meters.

How are hexagonal columns formed in basalt?

Columnar basalt, characterized by its striking array of closely packed, polygonal columns, arises from the solidification and cooling of lava flows. This phenomenon, governed by the principles of thermodynamics and material science, can be explained through the following key mechanisms:

1. Cooling and Contraction: As lava erupts and flows, it gradually loses heat to the surrounding environment, causing its temperature to decrease. This cooling triggers a reduction in volume, or contraction, within the lava due to thermal expansion.

2. Stress Distribution and Crack Initiation: The contraction process induces internal stresses within the cooling lava. These stresses are not uniformly distributed but rather concentrate at specific locations, typically along planes perpendicular to the cooling surfaces (top, bottom, and sides of the flow). When the stress exceeds the tensile strength of the solidifying lava, cracks begin to form along these planes.

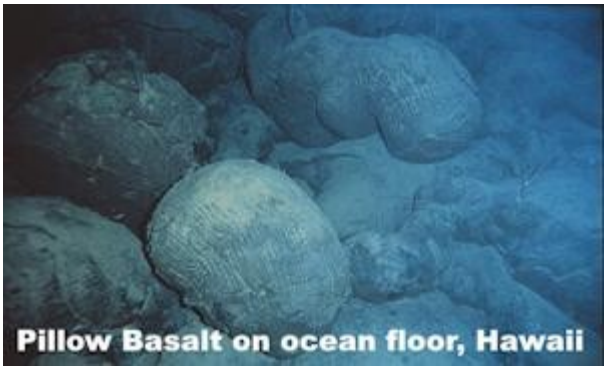
3. Crack Propagation and Hexagonal Formation: The initial cracks propagate inwards from the cooling surfaces, guided by the stress distribution within the lava. As they propagate, they tend to branch out and intersect at angles of approximately 120 degrees due to the minimization of stress concentration at these angles. This pattern of intersecting cracks ultimately forms polygonal columns, with hexagons being the most common due to their optimal packing efficiency.

Sometimes the presence of impurities in the lava will affect the way it cools down, causing some columns to develop 5 (pentagon) or 7 (heptagon) sides but the pattern “nature favours” (i.e. the pattern that is most efficient) is hexagons.

Bibliography: Geology, Science, Ice Age Floods, European Geosciences Union.

How Pillow Basalt Forms by Kat Koch, Cascade Mineralogical Society, Kent, WA

Pillow Basalt is a characteristic pillow-shaped structure attributed to the extrusion of lava underwater. Pillow Basalt in volcanic rock is characterized by thick sequences of discontinuous pillow-shaped masses, commonly up to 40 inches in diameter. It forms the upper part of Layer 2 of the normal oceanic crust.



Composition

Pillow lavas are commonly basaltic composition, although pillows formed of komatiite, picrite, boninite, basaltic andesite, andesite, dacite, or even rhyolite are known. The more felsic the composition (richer in silica), the larger the pillows are due to the increased viscosity of the erupting lava.

Occurrence

They occur wherever lava is extruded underwater, such as along marine hotspot volcano chains and the constructive plate boundaries of mid-ocean ridges. As new oceanic crust is formed, thick sequences of pillow lavas are erupted at the spreading center fed by dykes from the underlying magma chamber. Pillow lavas and the related sheeted dyke complexes form part of a classic ophiolite sequence (when a segment of oceanic crust is thrust over the continental crust, thus exposing the oceanic segment above sea level).

Formation

They are created when magma reaches the surface, but as there is a large difference in temperature between the lava and the water, the surface of the emergent tongue cools very quickly, forming a skin. The tongue continues to

lengthen and inflate with more lava, forming a lobe, until the pressure of the magma becomes sufficient to rupture the skin and start the formation of a new eruption point nearer the vent. This process produces a series of interconnecting shapes that are pillow-like. The skin cools much faster than the inside of the pillow, so it is very fine-grained with a glassy texture. The magma inside the pillow cools slowly, so it is slightly coarser-grained than the skin but still classified as fine-grained.

Bibliography: Wikipedia, Sand Atlas, US National Park Service

Safety is a Story by Ellery Borow, AFMS Safety Chair

One way to look at safety is that it is not one simple event, but rather a series of events.

Take a look, if you will, at the frequent event of stumbling on a rock in a quarry. Here are some possible considerations leading to the stumble:

-Might one have been so focused on getting somewhere they did not notice the rock?
-Might one have been distracted from their walk by a noise?
-Were they walking in footwear with an aggressive-tread sole?
-Was the footwear steel toed or with an ANSI safety toe?
-Were they wearing (gasp) sneakers?
-Was the rock more of a smooth surfaced river rock or one rough and blasted from the quarry walls?
-Was the area of the walk all loose dirt, sloping a bit, or wet?
-Was the walker carrying some pails of rock, or in some way unbalanced as they carried a big rock to the truck?
-Was their vision impaired by some really scratched or scuffed safety glasses?
-Might there have been difficulty with perception as to whether or not the rock could be safely stepped on or needed to be stepped around?

Phew, that is a lot to think about. But that is the nature of a trip and fall — the impact of toe and rock has several factors of concern leading to the actual impact. In matters of safety an accident is usually the result of contributory activities or situations.

A laceration of one's finger:
-Were gloves being worn?
-Was one "digging" with the gloved hand?
-Were the gloves suitable for the activity?
-Were people aware of how sharp a shard of quartz may be?
-Was a safety kit at hand?
-How about clean water to wash the wound?

With pets left at the camper:
-How hot will it be?
-Do the pets have plenty of water in tip-proof bowls?
-Are there dangerous snakes or other critters in the area?
-Do the pets have shade?
-Where will the shade be in 5 hours?
-Are any leashes or leads kept away from anything on which they might entangle and keep the pet away from water?

When one analyzes any accident one will usually find contributory factors. The act of being safe involves being aware of what might go wrong (such as a floor that might be slippery because it has just been washed), being aware of where something might fail (such as an electrical cord that is too near a piece of vibrating machinery), to know human nature and limitations (where people wander over loose and sloping dirt), to know one's own limits (get help if one is planning to lift a much-too-heavy-for-one rock), be aware of hazards in any situation (someone digging up-slope form your location) – to name a few.

You know staying safe involves staying alert, preparing for emergencies, having suitable instruction or training if the activity demands it, knowing one's limits, staying hydrated and so on. Being and staying safe helps you, your family, your fellow rockhounds, your club, and the hobby in general. Your acting safely sets a great example for others, especially youngsters. Please be safe because your safety matters.

from AFMS Newsletter, 4/25

Precious Gems - Diamonds by Philip R. Kesten, Ph.D.

Got a rock in your pocket? You might. And if not in your pocket, perhaps hanging from a chain around your neck, or from a bracelet on your wrist, or set into a ring. The gemstones in your jewelry, both precious and semi-precious gemstones, are rocks. When you see them for sale in a store or on a website, they are usually faceted and polished, but they are rocks, nevertheless. And you can certainly find them as rough stones. In this essay I will take a look at diamonds,

one of the gems considered precious.

Before we get started in earnest, and in the interest of telling no tales… most people no longer divide the gem world into “precious” stones and “semi-precious” stones. One reason is that although the four stones that have long been considered precious—diamonds, blue sapphires, red rubies, and green emeralds (the so-called “big four”) – are rare, there are other gems that are more rare than some of these. The other reason is that although the big four gems are quite pricey—high-quality, faceted diamonds, for example, can sell for hundreds of thousands of dollars per carat—certain other gemstones also carry hefty price tags. But for our purposes, we will stick to the somewhat artificial precious / semi-precious division.

So… diamonds. The atomic structure of a pure diamond is a lattice of carbon atoms, with each atom bonded to four neighboring atoms. Atoms of other elements—impurities—can sneak into this lattice, and it can also happen that the lattice is not uniform and regular through-out a diamond. As we will see, both impurities and also deformations in the lattice structure can have noticeable effects.

If you have ever enjoyed the experience of buying a diamond, you have certainly learned about the “four Cs”: cut, carat, clarity, and color. (Should I, perhaps, have put the word “enjoyed” in quotes? Buying a diamond can be stressful!) Cut, carat, clarity, and color… Cut is the shape of the faceted stone. Carat is the weight of the diamond. Clarity describes whether there are internal flaws in the stone, flaws that, often, make it slightly cloudy. And color describes, yes, the color of the diamond: diamonds are not all colorless!

Let us look more closely at the four Cs.

Cut. The cut of a diamond is about much more than just how pleasing the shape is to behold. Oh, yes, diamonds used in jewelry are cut into a variety of shapes, and you might find some shapes more visually pleasing than others. There is the “round” diamond, of course, and also “oval” diamonds. A “princess cut” diamond is square, and an “emerald cut” diamond is rectangular.

So yes, diamonds are cut into visually pleasing shapes. But perhaps more important to the visual interest – and value – of a cut diamond is the effect that the shape and faceting of a diamond has on its brilliance.

When a ray of light arrives at the boundary between two materials, it can exit (from the first material to the second) at an angle different than the angle at which it encountered the boundary. And in particular, if the ray of light would travel faster in the second material than in the first, the light ray exits at an angle closer to the surface than the angle at which it approached. (This would be the case for, say, light moving from inside a diamond to the air surrounding the diamond… a phenomenon that is discussed in a bit more detail in the essay on diamonds as number ten on the Mohs hardness scale.)

And should a light ray exiting a material come out at an angle closer to the surface, for certain angles at which a ray of light approaches the surface, the outgoing angle can bring that ray of light right down along the boundary surface. And for angles larger than that, the light ray does not actually make it across boundary—it is instead, refracted back inside the first material. Indeed is completely refracted; this phenomenon is known as “total internal reflection”. How often this occurs depends critically on the speed of light in the two materials.

The speed of light in air is about three hundred million m/s. The speed of light in most transparent materials is not so different—in water, light travels at two hundred and twenty-five million m/s, and in glass, about two hundred million m/s. But in diamond, light moves much more slowly, at about one hundred and twenty-five million m/s. Sure, these are all very fast speeds, but the significant difference between the speed of light in a diamond compared to the speed of light in air means that far more of any light bouncing around inside of diamond must bounce many times before it can finally get out. And cutting a diamond into, say, a round shape, and cutting many facets into the upper surface of the diamond, enhances this multiple-bouncing phenomenon. So light that enters a shaped, faceted diamond bounces around many—many!—times before it finally can exit the stone. When bright light is shined on a cut and faceted diamond, it sparkles. For that reason, a shaped and faceted diamond is said to have brilliance. (If you have ever been shopping for a diamond in a jewelry store, you might have noticed a large number of bright spotlights shining down on the rings, earrings, and necklaces offered for sale. This enhances the sparkly brilliance of the stones. Oh, my! The stones can sparkle so much that it is almost hard to look at them!)

Carat. A carat is a unit of weight; one carat is equivalent to two hundred milligrams, or two tenths of a gram. The etymology of the word “carat” is, by the by, somewhat interesting: “carat” comes to us, originally, from the Arabic word qīrāṭ, meaning “the seed of the carob plant”. These seeds were known, in ancient times, to always have nearly the same weight. So back when the process of weighing was done with a pan balance, carob seeds were quite useful as a standard when measuring the weight of small objects.

Clarity. The transparency of a diamond is affected both by flaws on the surface of a diamond and also by internal defects in the lattice structure that connects the carbon atoms to each other within the diamond. (If you are planning to purchase a diamond, gemologists call surface flaws “blemishes”, and call internal defects in the lattice structure “inclusions”.) It should be noted that it is rarely possible to see blemishes and inclusions with the naked eye. To see these defects, you should be able to borrow a jeweler’s loupe—a magnifier that you hold in your eye socket—in any reputable jewelry store. In addition, it is worth noting that blemishes and inclusions do not, in general, affect the brilliance of a diamond.

Color. You might think of diamonds as colorless, but because of the presence of impurities or of deformations in the atomic lattice structure in a stone, a diamond can exhibit either a faint or even a strong color. Red, orange, yellow, green, blue, and purple… diamonds come in all of the colors of the rainbow. When atoms of elements other than carbon found their way into the carbon lattice—as a diamond was forming eons ago—some of those impurities could affect the color of a diamond. A pure diamond consists of a highly ordered lattice of only carbon atoms.

The presence of boron atoms, for example, can affect the color of a diamond. Atoms of boron have only three

electrons that can bond with other atoms, so a boron atom can only bond to three neighboring carbon atoms. (Again, a carbon atom has four electrons it can share, so a carbon atom can bond to four neighboring atoms.) As a result, when boron atoms are present in the carbon lattice of a diamond, some carbon atoms have one electron "left over". Those extra electrons absorb light at the red end of the color spectrum, so when white light—light that is a mixture of all colors—passes through a diamond that contains even just two or three boron atoms for every hundred thousand carbon atoms, a significant amount of the reddish light is absorbed. As a result, the reddish light does not make it through the diamond; with the red colors stripped away, the light that does make it through the diamond has a blueish tint. In a somewhat similar way, the presence of nitrogen impurities in a diamond can turn the gemstone yellow.

When diamonds form in an environment in which radiation is present, or even if the radiation is present after the stone has formed, the diamond can end up tinted with a green color. Radiation can knock some of the carbon atoms out of the lattice, leaving what amounts to an empty space in an otherwise regular lattice structure. Such spaces, or "holes", absorb many colors of light… but not greenish light! So when white light enters a diamond that has been damaged by radiation, most colors other than green are absorbed, and the light that does make it through is greenish. So green diamonds—which are quite rare—are a result of radiation damage.

You might be wondering… if diamonds are comprised of carbon atoms, and carbon is both ubiquitous and inexpensive, why do diamonds cost so much? And beyond that, why could we not just gather up some carbon atoms and make diamonds from them? Perhaps you recall that Superman (sort-of) did this, first in a comic book in the late 1940s and later in the movie Superman III. By using his enormous strength to squeeze a lump of coal, Superman was able to turn carbon into a diamond. Ah, but that would not work out here in the non-comic book, non-movie world: it takes extremely high temperature as well as enormously high pressure to transform carbon into diamond. And that is something that Superman, and likely you, too, cannot supply. (And, oh yes: because coal is far from being pure carbon, all of the other substances in coal would also prevent this mythical coal-to-diamond transformation.)

So okay, you cannot easily create a diamond. But why are diamonds expensive while a carbon rod is not? It is all in the internal organization of the lattice of the carbon atoms. When that organization is disorganized, say as is the carbon in a carbon rod… the resulting material is not so valuable. Moreover, a chunk of carbon is opaque and not particularly scratch resistant… again, not so valuable. But when the carbon atoms come together in a uniform structure, a lattice in which each atom is bonded to four neighboring atoms, the result is a crystal that is both translucent and hard. And in addition, the process by which carbon atoms are made to connect in this uniform way takes millions of years… a process that requires enormously high temperatures and pressures. These requirements make the process by which diamonds form rather rare… and "rare" means expensive!

But could we, perhaps, devise a machine that would both expose pure carbon to high temperatures and also subject it to high pressure, and in that way create man-made diamonds? Oh my, yes! People have been experimenting with techniques to create "imitation" (or "synthetic") diamonds since the 1950s, and diamonds of at least modest quality have been made for fifty years or so. Early on, because those first so-called "lab-grown diamonds" were quite small, the primary application of these man-made gemstones was in the production of abrasives and cutting tools. (Diamond sits atop the Mohs hardness scale: at a hardness of ten, diamonds are one of the hardest substances we know. So affixing bits of diamond to a metal blade, for example, allows such a blade to slice through… well, pretty much anything.) And of course - why would it not be the case that small, synthetic diamonds were first used as abrasives? Lab-grown diamonds can be made to have properties identical to naturally occurring diamonds, properties such as hardness.

Today, lab-grown diamonds are commonly used as a lower-cost alternative to natural diamonds for use in rings and other jewelry. Lower cost? A one-carat, synthetic diamond can be had for as little as a few hundred dollars, while a one-carat, natural diamond might cost fifteen thousand dollars or more. (Of course, the cost of any given stone, natural or man-made, depends on its clarity and color, as well as its size and cut.) If you are in the market for a diamond, perhaps for a ring or for earrings, you might consider a man-made stone. They can look the same as a natural diamond… they are just far less expensive. Whether man-made or formed over millions of years by natural processes, diamonds are special. They are one of the hardest materials known, they can be found in the full rainbow of colors, and their optical properties make them spectacular at which to look. Perhaps you can find a way to add one to your collection. And if not a diamond gemstone, keep your eye out for a specimen of carbonado.

via The Council Reporter, 4/25; from SCVGMS Breccia, 4/25

Crinoids belong to a class of marine invertebrates with both living and fossilized members, all with fivefold symmetry. Crinoids that remain attached to the seafloor by a stalk are commonly called Sea Lilies, while some of the unattached forms are called Feather Stars. Close relatives include starfish, sand dollars, and sea urchins, among others.

from The Quarry, 4/25

Pyroxene is a common silicate mineral (group). You will hear it pronounced either

Pie rox ene or

Pier ox ene

Etymology: From 'pyr' meaning 'fire'; and 'xenos' meaning 'stranger'. This is from the mistaken belief that the mineral was not present in igneous rocks. This is a strange etymology indeed, as pyroxene is present in most dark colored igneous rocks! It is hardly a 'fire stranger'.

from The Agateer, 11/08

Young Tumblers News

Rock Bucks

Just a reminder that all Young Tumblers under 15 can easily earn "Rock Bucks."

Earn $3 "Rock Bucks" to attend a meeting.

You can earn an additional $5 in "Rock Bucks" if you bring something for Show 'n Tell and tell us about your item.

The "Rock Bucks" can be spent like real money at our meetings or club auctions.

You can save your "Rock Bucks" during the year and spend them just like cash on auction items you would like, or you can buy raffle tickets at our monthly meeting.

Join us at our meetings and build your rock-buying piggy bank!

The Skunk and Badger Book Series: a delightful set of books with a geology theme by The Black Family (Liz, Brandon, Stilo & Kian)

Are you in need of a pleasant diversion from the world we face today? Do you enjoy rocks, minerals, and fossils? Maybe chickens as well? Consider diving into the Skunk and Badger Series written by Amy Timberlake and illustrated by Jon Klassen.

While the series is written for a younger crowd, it holds appeal for all ages. Onomatopoeias and other sillinesses abound; you may actually find yourself laughing out loud. Repeatedly. While there are geological themes in the books, the value of friendship is an overarching theme throughout the books (as are chickens).

Book #1: Skunk and Badger

Kid review: "If you like rocks, it's a good book for you. Bock booccckk Bock!" – KB

"The crazy chicken hubbub was really funny." – SB

Badger, who lives in a brownstone owned by Lula P. Marten – Aunt Lula to many, is going about his Important Rock Work in his self-created rock room (one that might make you think of Rick and Susan's house) when there is a rap-rap at the door.

At the front door, Skunk waits patiently to be let in, knowing that Aunt Lula has told Badger of his arrival. Badger thinks Skunk is a salesperson. He's about to find out that Skunk is his new roommate.

Badger does not like to change his routines. At least he thinks so at first. He is an Important Rock Scientist. He does Important Rock Work with "more grit than a wad of gum" – he is too busy to be bothered with other aspects of life.

Skunk eventually worms his way into Badger's life, adding a bit of spice here and there. In some ways literally, through the delicious-sounding lunches that Skunk makes. A dash of rocket potato here, a room full of chickens there (did you know chickens eat rocks? Don't stress, the popcorn was more appetizing), and possibly a face full of skunk spray. Skunk opens Badger's eyes to the other creatures around him, especially the quantum physics-loving chickens, and to the experiences around him.

Skunk and Badger do have some bumps and bruises along their journey ("You think I'm vermin.") but despite everything they end up with a fantastic, rock-solid friendship.

Book #2: Egg Marks the Spot

Kid Review: "You should read the book because it's a great book. Badger gets his agate back." – SB

"This book is really funny. Heave Ho Hauler." – KB

Once you've read the first Skunk and Badger story, if it didn't elicit enough giggles, we found the second one even funnier.

This time Skunk and Badger go on a rock hounding adventure! Prompted by Skunk, they are on a mission to replace an agate that was taken from Badger, the rock that started Badger on his journey to become an Important Rock Scientist.

Skunk learns about the stolen agate when he asks Badger where the "A" rock from his (alphabetical) Wall of Rocks. "Stolen, filched, purloined…" Skunk, also struggling with a problem involving a Mr. G Hedgehog and the New Yak Times, realizes an opportunity to help them both. Badger can find a replacement agate to put in the "A" spot on his Wall of Rocks and Skunk can avoid a past that is coming back to haunt him by going camping at the lake Badge first found his agate.

Skunk packs FAR too many items on the camping trip ("A five-pound bag of flour?"). Trudge. Trudge. Trudge. There is some slipping and some sliding. Badger learns that Skunk doesn't know about bears – "Oh Badger, you had me. BEARS–good one!" Skunk, in short, is not an experienced camper.

There were many pauses for laughter in our house during the packing scenes and the camping scenes, but then comes an unexpected twist involving a specific enigmatic, orange chicken and a late-Jurassic egg.

Book #3: Rock Paper Incisors is due to come out mid-October 2025 and we are so looking forward to it.

The Skunk and Badger books were a highlight of our evenings when we read them. We highly recommend reading this series no matter what age you are – each book had a wonderful mix of friendship, hilarity, and rock-related tidbits. If you decide to read these, we hope you delight in them as much as we did.

from Rocky Trails, 4/25

Field Trips

The club or clubs sponsoring the field trips are shown in italics. When known I have listed a phone number and contact person for each sponsoring club below the listed trips. If you are not a member of the sponsoring club, you should phone and ask permission to go on their field trip.

Some information from the Washington State Mineral Council webpage (https://mineralcouncil.wordpress.com).

May 4 Cascade Mineralogical Society - First Creek - Agate, Jasper, Crystal, Geodes.

Difficulty Rating 5. This is a 2-mile hike on good road bed. Wagons and carts work on this road. Collecting is up steep slopes to reach dig areas and rock slides.

Roger Danneman roger.danneman@gmail.com; 425-757-3506 (texts ok)

May 10 Marysville Rock Club - Racehorse Creek - Meet before 9 am 1-5 exit 240 Mini Mart - Leaf fossils, morel mushrooms - Bring shovel & rock splitting tools

Nique Wicks nwhoppyfrog41@gmail.com Or (509) 670-0630

May 17 Cascade Mineralogical Society - Biggs/Rufus, Oregon - Agate, Jasper. Also Polka-Dot mine and Richardson's Rock Ranch ~1 hour south.

Difficulty Rating 1. Beer's mountain quarry and collecting area is next to parking. This is a pay site. $5/pound for what you collect. More material from China Hollow and Wasco available at his rock shop. Material is a metamorphic mud stone with beautiful patterns and takes a great polish. Some with agate and/or druzy.

Roger Danneman roger.danneman@gmail.com; 425-757-3506 (texts ok)

May 24 Marysville Rock Club - Wild Turkey mine (Pay dig) - Meet before 9 am at 3515 Waitts Lk Rd. Valley, WA - Noble serpentine - Bring hard rock tools or do surface picking

Nique Wicks nwhoppyfrog41@gmail.com Or (509) 670-0630

May 31 Marysville Rock Club - Walt Bailey Trail - Meet before 9 am at Verlot Ranger Station - Rainbow chert - Collecting along roadside. Bring hard rock tools

Nique Wicks nwhoppyfrog41@gmail.com Or (509) 670-0630

CMS May 4th Field Trip to First Creek by Roger Danneman

Note this trip has been changed to Sunday May 4th (from Sat. May 3rd)

Loren Merriman has offered to lead this trip to First Creek which is over Snoqualmie Pass and near Cle Elum. I'm still recovering from my illness and wasn't sure if I'd have the strength and energy to do this one. Generally the area we go to is a 2 mile hike on good road bed, so wagons or jogging carts are useful for hauling tools and buckets. There are multiple sites for digging and rock slides for searching/collecting. The slopes are steep and the rock slides difficult to walk in. Because of the length of the hike and the steepness of the slopes, this is one of our more difficult trips. We find bluish to clear agate nodules and crystal filled geodes or fragments. Various agates/jaspers. We park in a lot next to the highway so any vehicle is ok. This time of year wood ticks can be an issue. I spray my boots and pants with tick spray at the trail head, and then try to stay clear of the brush. Loren recommends giving your clothing a good soaking spray of Sawyer Permethrin several days before the trip. Bring dig tools. Hard rock tools if you want to try and bust geodes out of the rocky outcrops. Water and lunch.

Meet 9:30 AM at the Cle Elum Safeway around the gas pumps (I-90 Exit 84, 804 W 1st St, Cle Elum, WA 98922). We'll leave there at 9:45, drive east on 970, which turns into 97, and the trail head is just 1/2 mile north of the 97/970 junction.

As always, let me know if you plan to join us. Updates will only get sent to responders.

Roger Danneman (roger.danneman@gmail.com cell # 425-757-3506 - texts ok)

Loren Merriman (the_merriman@hotmail.com 425-531-0620)

Note: there are several people in my distribution list who have not renewed their membership for 2025. I usually give a few months grace period. I'm hoping you renew and potentially help out at our Rock, Gem, and Jewelry Show end of June. I'm also building a shop for our club's equipment so that those members who give time have access to tools and techniques to turn their rocks into shelf pieces or jewelry or crafts. But after June I will be cleaning up my list.

Also - for the May 17th trip to Biggs/Rufus, OR, I have the following folks:

Me, Scott & Laurie, Noelle, Engin & family, and Marion. If you haven't responded yet and are planning to join us, let me know. I'll send more details to those who've responded.

Young Richard's Almanac by Dick Morgan

Many of your beliefs were created by the personality that is you.

That you selected one woman to spend the rest of your life with reflects your will and spirit.

Your integrity and orneriness define your character.

As you meet and greet other people you are recognized by your actions.

Ancient Odysseys

Book your own fossil-hunting field trip this summer with Ancient Odysseys

Did you know you can hunt for dinosaurs and other fossils in the US (and around the world)?

• At Triceratops Gulch in Wyoming, join a 4 day hunt for dinosaurs in the Morrison Formation.

• At Petrified Forest in Arizona, search for fossils of the earliest dinosaurs.

• For something "newer" head to South Dakota to excavate Ice Age Columbian and Woolly mammoths.

• Grab the kids and head to Stonerose in Republic, WA, to search for (and keep) Eocene plant and insect fossils.

There is a fee to join these digs that covers costs for the research, science and tools. Check out AncientOdysseys.com for details on these and other digs. For any questions or to book a group, email Marisa Rodriguez at info@ancientodysseys.com.

Upcoming dino digs...

• Pioneer Trails Regional Museum: Bowman, North Dakota

• Petrified Forest Field Institute: Petrified Forest National Park, Arizona Triceratops Gulch Project: Glenrock, Wyoming

• Montana Learning Center Dino Camp (for teens): Ekalaka, Montana

Non-dino...

• The Mammoth Site: Hot Springs, South Dakota

from Rocky Trails, 4/25

Shows

May 2 - 4: Friday 10 am - 5 pm; Saturday 9 am - 5 pm; Sunday 10 am - 3 pm
Mt Hood Rock Club, *Rock and Gem Show*
Kliever Memorial Armory, 10000 NE 33rd Dr., Portland, Oregon

May 3 & 4: Saturday & Sunday 10 am - 5 pm
Everett Rock and Gem Club, *70th Annual Show*
Evergreen State Fairgrounds, 18359 Cascade View Drive, Monroe, WA

May 3 & 4: Saturday 9 am - 5 pm; Sunday 10 am - 4 pm
Umpqua Gem & Mineral Club, *53rd Annual Show "One More Rock"*
Douglas County Fairgrounds, 2110 Frear Ave, I-5 Exit 123, Roseburg, Oregon

May 10 & 11: Saturday 10 am - 6 pm; Sunday 10 am - 5 pm
Hatrockhounds Gem & Mineral Society & **NFMS**, *Natures Treasures Underfoot*
Eastern Oregon Trade & Event Center
1705 East Airport Road
Hermiston, Oregon

May 10 & 11: Saturday 10 am - 6 pm; Sunday 10 am - 4 pm
Bozeman Gem & Mineral Club, *Annual Rock Show*
Gallatin County Fair Grounds
901 N. Black, Bldg. #1
Bozeman, Montana

May 17 & 18: Saturday 9 am - 5 pm; Sunday 10 am - 4 pm
Butte Mineral and Gem Club, *Annual Show*
Butte Civic Center Annex
1340 Harrison Avenue
Butte, Montana

May 31 & June 1: Saturday 9 am - 5 pm; Sunday 10 am - 4 pm
North Idaho Mineral Club, *Annual Show*
Kootenai County Fairgrounds
Jacklin Building #25
4056 North Government Way
Coeur d'Alene, Idaho