Maplewood Rock and Gem Club

2020 July

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General meeting: July 20

We hope you will join us at our June meeting which will be Monday, July 20 at 7 pm on Zoom. Members will receive a Zoom link in an email. If you have never used Zoom, you might find this video introduction helpful.

Have you been rockhounding during the pandemic?

Although it's difficult to keep to a safe social distance for a group rockhounding event, we are fortunate in Puget Sound to have a plethora of rocks strewn by glaciers across our entire region during the last ice age. We don't need to go far from home to find beautiful and interesting rocks. Kids can find colorful quartz on the beach or in a backyard, with a bit of luck and permission to dig. If you have gone in search of minerals or rocks recently, we'd all like to hear about it.

The Washington State Mineral Council is resuming their field trips.

Or, if you prefer to hunt rocks while comfortably ensconced on your sofa, check out the Virtual Rockhounding article.

Juniors might enjoy the Rock Sleuthing article.

Asbestos and Jade!

Three of our members, Mary, Diane, and Hunter went rockhounding in June near Darrington and returned with gorgeous rocks.

Mary sent these photos. On the left is the piece of jade that Mary collected. Hunter polished this piece to enhance the luster.

To the right is the 63-pound piece of asbestos she found. She sealed the asbestos, because small fibrous pieces rub off when the rock is handled, and asbestos is carcinogenic if inhaled.

Travertine – Join a field trip

The Darrington Rock Club is hosting a field trip to Sweetwater in search of travertine. This sedimentary rock is a limestone formed by mineral springs from which calcium carbonate ($CaCO_3$) rapidly precipitates out of the water.

Two famous sites of travertine are Mono Lake Tufa State Natural Reserve in California (below, left) and Mammoth Hot Springs in Yellowstone National Park (below, right).

Photo by © Yukinobu Zengame
South Tufa Uploaded by Adrignola
Creative Commons: BY 2.0

Photo by © Frank Schulenburg
Travertine Terraces
Creative Commons: BY-SA 4.0

July Birthstone – Ruby

Happy Birthday to all who were born in July! Your birthstone is a ruby. Like sapphires, rubies are a form of corundum, aluminium oxide. Pure corundum is colorless, but when 1% of the aluminum molecules are replaced with chromium in the crystal, the gem becomes red and is called a ruby.

Photo by Jason D

Why rubies appear red

When a chromium atom replaces an aluminum atom, the chromium atom loses three electrons because it then shares the electrons of six nearby oxygen atoms. The chronium ion (Cr^{3+}) is larger and its electron orbitals move in different directions than the Aluminum atom it replaced. This alters the energy levels and thereby causes the crystal to absorb ultraviolet, violet, and yellow-green colors. Rubies also emit a fluorescence of red light, adding to the red color and luster.

Basic Characteristics

- aluminium oxide (Al_2O_3) with chromium (Cr)
- trigonal crystal system
- crystal habit: terminated tabular hexagonal prisms
- color: pink through all shades of red to dark crimson
- fracture: conchoidal, splintery
- Mohs: 9.0
- luster: Subadamantine, vitreous, pearly (on partings)
- streak: white
- pleochroistism: purplish-red to orangy-red

Treatments to improve rubies

Natural rubies with a rich red color and few inclusions to distract from the gem's beauty are rare. Most rubies sold as gems are treated to enhance their appearance. The most common treatment is heating the crystals to dissolve inclusions and improve the clarity.

Fractures are often filled with oil, wax, or resin, which temporarily hide fractures, but will wear off over time. Instead, when fractures are filled with glass, flux, or another durable material, the fractures are permanently repaired and made less visible while also strengthening the stone.

History in Asia

Rubies have been traded at least since 200 BCE when they were carried along the Northern Silk Road from Xi'an, China going westward to Persia. For the past millennium Asia has been the primary source for all corundum gems, but Africa has become an important source and may replace Asia as the main global supplier.

Calendar

Date	Event - all events are cancelled for now
July 20 at 7 pm	Meeting
Aug. 8 - 9	14th Annual Rock and Mineral Sale - Cancelled to keep everyone safe
Aug. 17 at 6:30 pm	Meeting: BBQ Potluck and Meet and Greet
Sept. 21 at 7 pm	Meeting
Oct. 19 at 7 pm	Meeting
Nov. 14 – 15	Annual Fall Show
Nov. 16 at 7 pm	Meeting
Dec. 5 – 6	Annual Winter Bazaar
Dec. 14 at 6:30	Meeting: Holiday Party

Corundum – ruby and sapphire

Corundum can be any color. If the stone is transparent and relatively free of fractures and inclusions, corundum is said to be of gem-quality. The color determines the name of the gem:

- deep red - ruby
- pale red - sapphire or ruby*
- blue - sapphire
- pale green - sapphire
- purple - sapphire
- yellow - sapphire

* Geologists consider pale red corundum to be sapphires, while some gemologists in the United States are beginning to call them rubies.

Ruby jewelry

Photo by Victoria Priessnitz

Image By
Mitchell Gore

Asterism – Desirable inclusions

Some rubies, sapphires, garnets, spinel, and other gemstones reflect a three or six pointed star which seems to move as you view the stone from different angles. These stones are cut into cabochons to highlight the star effect.

Asterism is created by light reflecting off of silk (rutile needles) which are common inclusions in rubies. Because the silk has a higher refractive index than the ruby, the star shines brightly from within the gem. Rutile is a mineral which is mainly titanium dioxide (TiO_2). At the left is an image of a star sapphire, which is a nice name for a sapphire with asterism.

Virtual Rockhounding

Juniors and Curious Adults

- What's Inside? Dissolving Rocks with Vinegar
- Identifying Minerals -- Earth Rocks!
- Rock and Mineral Identification of Common Specimens
- Rocks and Minerals
- A Brief Introduction to Minerals
- Be a Rock Detective!
- Grant's Getaways: Rice NW Museum of Rocks and Minerals

Geology of Washington

- Geology of Seattle and the Puget Sound
- Ice Age Lakes between Seattle and the Cascades
- Snoqualmie Pass in the Cascade Range
- Colombia River Gorge
- Bridge of the Gods Landslide
- Ghost Volcanoes in the Cascades

Oddities

"Rutile needles" are also called "silk".

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When chromium atoms replace aluminum in corundum they transform the crystal to appear red, but when the same substitution happens in fuchsite (a type of muscovite mica), the stone becomes green. For those without a background in chemistry, these color affectations of corundum are a conundrum.

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Titanium dioxide (Titania) shares its name with Shakespeare's Queen of the Fairies in *A Midsummer Night's Dream*.

Juniors — Become a Rock Sleuth

Have you ever found a rock that you would like to identify? There is a lot to learn to become good at classifying and identifying rocks and minerals, and a good way to start is to just start. It's fun to take a rock and step-by-step unravel its mystery.

Make your own detective kit

A new Rock Sleuth might not be able to precisely ID a rock, but you can narrow down the possibilities. You can begin your detective work by putting together your own rock sleuthing kit. Ask your parent to help you gather these items:

- piece of unglazed tile (or a tile that is not glazed on the back)
- small bottle of vinegar and an eye dropper
- penny
- small piece of glass with duct tape around all the edges except one sharp corner, and wrap the glass in a cloth so you don't get cut on that corner
- pocket knife
- magnet
- magnifying glass
- rock identification sheets
- small pad of paper and pencil to write down clues
- box to put everything in

Gather clues

Find a rock that you want to identify and start gathering clues. First, write a description of the rock (or sketch a picture) in your notebook.

Streak — Using the rock like chalk, draw a line on the non-shiny side of the tile. You might need to press hard to make a line. The color of the mark you make is called the rock's streak.

Calcium Carbonate — Put a drop of vinegar on the rock. If it bubbles and fizzes, the rock contains calcium carbonate.

Color — What color is the rock? If you see multiple colors, look for the main color.

Magnetic — Does the magnet stick to the rock? If so, your rock is magnetic.

Crystals and Texture — The texture describes the crystal content, and it can be one of these:

- no crystals: which means the rock was made from plants or sea shells rather than minerals
- fine grained texture: crystals so small you might not be able to see them.

- medium grained: you can see the crystals
- course grained (large crystals): easy-to-see crystals

Mohs Scale of Hardness — Rocks can be soft, like chalk, or incredibly hard, like diamond, and of course, somewhere in between. Mohs scale is a number rating that identifies the hardness with 1 being the softest (chalk) and 10, the hardest (diamond). Follow these steps until you identify the Mohs rating.

1. If you can scratch the rock with your fingernail, you have a 1 or 2.
2. If you can scratch the rock with a penny, you have a 3.
3. If you can scratch the rock with a pocketknife, the Mohs is a 4 or 5.
4. If you can scratch the rock with the sharp corner of the glass, you have a 6.
5. If you can use the rock to scratch the side of the pocket knife blade or the flat face of the glass, your rock is a 7.
6. Otherwise, your rock is an 8, 9, or 10.

Cleavage and Fractures — If you can see that a piece of the rock broke off at some time, examine the break, and see whether you can identify its cleavage or fracture.

If pieces break off in	the rock has
sheets or crystal shapes	cleavage
splinters	splintery or fibrous fracture
circular or semi-circular shapes	conchoidal fracture
sharp edges and points	jagged fracture
smooth pieces	smooth fracture

To learn more about fractures and cleavages, check out RocksForKids.com.

Luster — The luster describes how it reflects light. The luster can be labeled metallic, glossy, pearly, greasy, waxy, dull, or something else.

Rock identification sheets — There are many identification tables and flowcharts to help you identify rocks and minerals. Here are links to some:

Metamorphic Rock Identification Flow Chart on minimegeology.com
Sedimentary Rock Identification Flow Chart on minimegeology.com
Igneous Rock Identification Flow Chart on minimegeology.com
Mineral Identification Flow Chart on minimegeology.com

Field trips – Happening again!

The Washington State Mineral Council offers many field trips. The trips were cancelled in the last few months, but with Washington state opening up again, the field trips are resuming. For updated information about field trips check out the website for the Washington State Mineral Council.

Contact the host a week before the trip

At least a week before the trip, please contact the host and ask about

- New or updated details about the scheduled trip
- Whether you will need a Discover Pass, Trailhead Pass, or Forest Pass
- Fees
- Maps and directions

Club contact information

Marysville Rock Club and Darrington Rock Club

Ed Lehman wsmced@hotmail.com
home: 425-334-6282
cell: 425-760-2786

NOA club: Tony Johnson 253-863-9238

Puyallup Valley Gem and Mineral Club: Dennis Bachchelor 360-870-8741

All Rockhounds Pow Wow

Larry Vess vessel3755@gmail.com
253-473-3908

Bring with you on the trip

Arrive at the meeting place 30 minutes before the start time, and bring

- Food and drinks for the day
- Appropriate clothing for any possible weather
- Cash if there are fees
- Tools
- Map and directions
- First aid kit

Get inspired for a rockhounding adventure

The Washington State Department of Natural Resources offers a plethora of rockhounding information. If you are curious where gems, fossils, and petrified wood can be found, check out their map.

Many of the sites on the map are not places you can collect specimens. Their site warns us:

"Before you set out, determine land ownership of your area of interest, learn the permissible collection activities and that owner's rules governing where you can collect, what you can and cannot collect, and how it may legally be collected."

Still, the map is fun to explore while searching for your favorite rocks, gems, or fossils.

Date	Rock or Mineral	Location	Details
7/20	Travertine, Sauk River bars	Sweetwater	Host: Darrington Rock Club 11 am Darrington Rock Show Tools: dig and hard rock
8/15 -8/16	Agate, jasper, opal, and petrified wood	Greenwater	Host: Dennis Bachchelor 360-870-8741 BBQ on Saturday 9 am Enumclaw Ranger Station Tools: dig and light hard rock
9/12 -9/13	Geodes, agate, jasper, and jade	Red Top/ Teanaway	Host: All Rockhounds Pow Wow 8 am Teanaway at Middle Fork Campground Tools: dig and hard rock
9/19	Thunder eggs, WA Lilypad, and fossils	Little Naches	Host: Tony Johnson 253-863-9238 10 am Hwy 410 and Forest Road 19 Tools: dig and light hard rock
10/24	Picture jasper	Money Creek Skykomish	Host: Marysville Rock Club 9 am Money Creek Campground Tools: dig and river bar pick
11/21	WA dalmatian stone, chert	Blanchard Hill	Host: Darrington Rock Club 9 am I-5 exit 240, Gas Mart Tools: hard rock

Looking for a party venue?

The Maplewood Clubhouse is a great venue for gatherings. If you are planning a family reunion or a party that would overfill your home, consider renting the Clubhouse for a day. Members get 50% off the daily rate of $350. For more information or to schedule a date, contact Mary Ann Collins at 650-383-7625.

Rock of the Month

Now is a good time to think about giving a Rock of the Month presentation when our meetings resume. Do you have expertise in geology, rock hounding, or some other topic that would interest our members? It might be fun to take some time now and plan a presentation. Contact a Board member to propose your idea.

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 and for beneficial land use policies compiling and sharing maps and other information publicizing shows and field trips so members learn about events at other clubs.

Word of the Month

Subadamantine

A mineral having an adamantine luster, like diamond, has a superlative luster. These gems are transparent or translucent and have a high refractive index of 1.9 or more. There are not many minerals having this coveted luster.

Ruby, garnet, corundum, and some other minerals, have a luster that is nearly as excellent, but not quite. These gems have a subadamantine luster.

The Council has a new website address: https://mineralcouncil.wordpress.com

Their email address has also changed. You can contact them at mineralcouncil@zoho.com.

Show and Tell

Do you have a couple rocks or minerals you'd like to share with us? They might be interesting rocks you found on a rock hounding trip or specimens you saved long ago because they were beautiful or interesting.

You may share your Show and Tell stories during the zoom meeting or here in the newsletter. Send a photo and a short blurb about what makes these rocks interesting to newsletter editor, Nancy Samuels at mrgc@nancysamuels.com.

Board meeting

Members are always invited to attend board meetings. Please join the board at their next meeting which will be held on Zoom on August 6. Watch your email for a link to this meeting.

Rockhounding Coordinates Needed

The Washington State Mineral Council needs the GPS coordinates of the collecting sites in the state.

In an effort to make the map booklets as accurate as possible the Mineral Council is asking for everyone to record GPS readings while on field trips

The data can also be used to help in our fight to keep our collecting areas open.

Please email coordinates you have to the Mineral Council: mineralcouncil@zoho.com

Connect with us

Visit our web site:
http://www.maplewoodrockclub.com/

Connect with us on Facebook:
https://www.facebook.com/MaplewoodRCG

Our address is
8802 196th St SW,
Edmonds, Washington
98026

Join our two new Facebook groups

Join us in a new group:
MRGC Sales and Trades

MRGC Zoom

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 into the ocean the eastern section 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.

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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.