Maplewood Rock and Gem Club

2020 June

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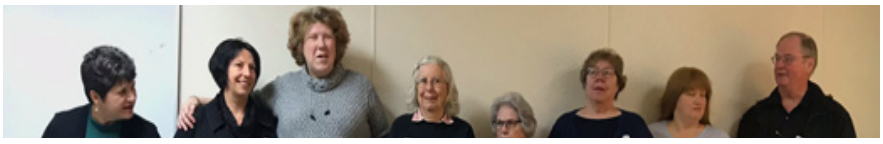
General meeting on June 15

We hope you will join us at our June meeting which will be Monday, June 15 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.

Zoom in to the Board meeting

Members are invited to join our next board meeting on July 2 at 7 pm. Watch your email for a link to the meeting space on Zoom.



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.

Alexandrite ring
photo by Christina Rutz, license

June Birthstones

Alexandrite, Moonstone, and Pearl

If you were born in June, you are fortunate to have three exotic birthstones: alexandrite, moonstone, and pearl. All three change colors: they are pleochroic.

Moonstone pendant

Alexandrite

Alexandrite is unusual among pleochroic gems; it appears to be different colors (green, red, and orange-yellow) depending on the wavelengths of light. The gem absorbs a lot of yellow light in a narrow range of frequencies, so in the yellowish light of an incandescent bulb or in dim light, a high-quality gem appears purplish red. In the full-spectrum light of sunshine that gem would likely show blue-green hues. Unfortunately, high quality alexandrite gems are rare. Most natural stones are yellowish green in daylight and brownish red in incandescent light.

Basic Characteristics

Moonstone
- Mohs: 6.0 - 6.5
- Luster: opalescent
- Group: orthoclase feldspar

Pearl
- Mohs: 2.5 - 4.5
- Luster: glossy
- Groups: carbonate mineral and protein

Alexandrite
- Mohs: 8.5
- Luster: vitreous
- Group: chrysoberyl (not similar to beryl)

Moonstone

Moonstone has been treasured for millennia for its ethereal colorful glow. Ancient Romans and Hindus believed moonbeams were trapped within. Actually, the colors are light reflecting off of microscopic (.5 microns) planes of orthoclase and albite feldspar. Light shining between theses thin planes reflects in many directions.

Pearl

Gem quality pearls reflect a soft iridescence, the effect of layers of conchiolin (a complex protein secreted by a mollusk) and calcium carbonate ($CaCO_3$). These two compounds layered together are called "nacre". Gem quality pearls are primarily made by pearl oysters and freshwater mussels.

Pearl Necklace

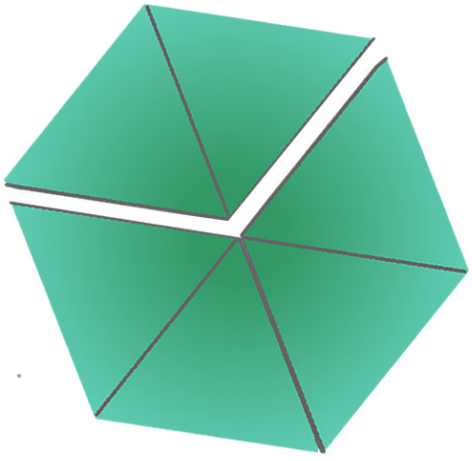
Calendar

Date	Event - all events are cancelled for now
June 15 at 7 pm	Meeting on Zoom Show and Tell
July 20 at 7 pm	Meeting Rock of the Month presentation: open
Aug. 8 - 9	14th Annual Rock and Mineral Sale
Aug. 17 at 6:30 pm	Meeting: BBQ Potluck and Meet and Greet
Sept. 21 at 7 pm	Meeting Rock of the Month presentation: open
Oct. 19 at 7 pm	Meeting Rock of the Month presentation: open
Nov. 14 – 15	Annual Fall Show
Nov. 16 at 7 pm	Meeting: Rock of the Month presentation: open
Dec. 5 – 6	Annual Winter Bazaar
Dec. 14 at 6:30	Meeting: Holiday Party

Crystal twinning and trilling

When two separate crystals share part of their lattice in a symmetrical structure, crystal twinning occurs. The surface which is shared by the two crystals is called a twin plane. In the illustration below, the twin planes are shown as gray lines.

Alexandrite crystals form trillings, which are three twins joining together to form a symmetrical hexagonal structure. Each twin adjoins its neighbor at a 120° angle, so three twins together form a hexagonal cross section. In the image at the right you can see two crystal twins are joined together forming a "V" shape. If the top twin also joins the structure together they will form a trilling.



Synthetic and Simulated Alexandrite

Being a rare and valuable gemstone, synthetic and simulated Alexandrite are more common than the natural stones. The difference among these is important if you value the monetary worth in addition to the beauty of the stone. Generally, the cost of gems decrease as you move from natural to synthetic to simulated stones.

Synthetic gems

A synthetic gemstone is manufactured to have the same chemical composition, crystal structure, and physical properties as the natural stone. Some synthetic gems are difficult to distinguish from their natural versions; common characteristics that reveal whether a stone is natural are inclusions, striations, and color.

A gemologist has a variety of methods for making synthetic gemstones. The reason for choosing one method over another can be that one method might

- cost hundreds of dollars more per carat
- produce higher quality gems

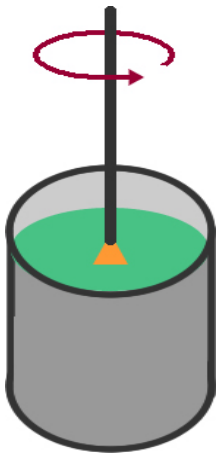
Flux grown method

Alexandrite gems grown with the flux method are difficult to distinguish from natural ones because they contain inclusions.

Czochralski pull method

When alexandrite is produced with this method, gemologists can easily identify them as synthetic because they have nearly no inclusions and they have microscopic curved striations. Pulled alexandrite can be blue stones that change to red, but no natural stone has been found with that color variation.

The process (as illustrated at the right) begins with melting beryllium and aluminum oxides in a crucible with vanadium, chromium, and ferric oxides. A seed crystal is mounted on a rod and rotated while immersed in the crucible. As the rod turns it also pulls upward to lengthen the crystal. The temperature, pulling speed, rotation speed are closely controlled to create a single large crystal.



Hydrothermal lab-grown method

Alexandrite stones manufactured with this method are identical to natural stones in physical and chemical properties. The presence of inclusions makes it difficult to distinguish these from natural stones.

Simulated alexandrite

Simulated gems have different chemical and physical properties from their natural counterparts, but they are made to look like the natural versions. Generally, they are far less expensive to manufacture. Simulants can be simply colored glass, doped glass (contains nanosized inclusions of metals), plastic, or other compounds.

Unfortunately, some gem sellers refer to simulated alexandrite as "synthetic." While they might admit that their stones are corundum, they sometimes imply that the gems are synthetic alexandrite. These simulated stones can have a pleochroic effect caused by the addition of trace elements such as vanadium or spinel. Many buyers are happy to purchase a stone with a lower monetary value and diminished pleochroic character at a much reduced price.

Color phenomena

Alexandrite shows both color change and pleochroism. When two or more colors are seen by viewing the stone from various angles, the stone is pleochroic. Alexandrite typically flashes dark red, orange, and green. Alexandrite also exhibits color change as it is viewed in different frequencies of light. In daylight high value natural alexandrite is usually bluish green, and under incandescent light or dim light, it appears purplish red.

Adularescence (also called "Schiller")

As a moonstone is forming, orthoclase and albite feldspars separate into alternating layers. In the stone when light falls between these thin layers it is reflected producing the phenomenon called adularescence. The light appears to waft across the gem creating an effect in which the color floats in a wide indistinct swath rather than a specific point. Other feldspar minerals that can also show adularescence include labradorite and sanidine.

Iridescence

Iridescence happens when light passes through a twinning plane or a thin, transparent film that has a different refractive index from the surrounding material. The color patterns in soap bubbles are iridescent. Pearl nacre and mother-of-pearl can have just the right structure to display flashes of color which define iridescence.

We made history!

Our May general meeting was our first virtual Zoom meeting ever!

Birthstone Trivia

1. Moonstone is another name for moon rocks.
   T - true
   F - false
2. Nacre is
   a. also called "mother of pearl"
   b. produced by mollusks
   c. iridescent
   d. all of the above
3. Baroque pearls are
   a. not spherical, perhaps even lumpy
   b. in antique jewelry
   c. softly musical when rubbed
   d. two of the above
4. Alexandrite is a form of chrysoberyl which is a form of beryl.
   T - true
   F - false
5. Trillings are
   a. 3 identical crystals bound together
   b. 3 different crystals bound together
   c. 3 twins bound together
   d. gems made of 3 minerals
6. A pleochroic gem is one that
   a. is relatively colorless (white to pale gray)
   b. appears to be different colors when viewed with different angles or light
   c. is ground to a powder and used as a colorant
   d. two of the above
7. Moonstone is the third hardest of the common gemstones.
   T - true
   F - false
8. A twin plane is a crystal surface that is shared by two crystals of the same kind.
   T - true
   F - false
9. Alexandrite was named for
   a. Alex Trebek
   b. Alexandria, Egypt a city near where the gem was first discovered
   c. Alexander the Great, Greek King of Macedon
   d. None of the above
10. The unearthly glow from within a moonstone is
    a. caused by light reflecting off microscopic layers of feldspar
    b. are moonbeams trapped within
    c. adularescence
    d. two of the above
11. Alexandrite exhibits both color change and pleochroism.
    T - true
    F - false
12. Metamerism is
    a. a method for synthesizing gemstones
    b. a branch of philosophy concerned with mer-people
    c. a perceived color change with different lighting
    d. none of the above
13. The FTC allows any gemstone to be sold as "real" if it is
    a. natural
    b. natural or synthetic
    c. natural, synthetic, or simulated
    d. FTC has no stance on "real" gems
14. Synthetic pearls can be made with the Czochralski pull method
    T - true
    F - false

Field trips – All trips are cancelled for now

The Washington State Mineral Council lists many field trips for this year. At this time all trips have been cancelled. However, some may be rescheduled when the travel and gathering restrictions for the pandemic have been lifted. 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
6/23 – 6/28	Agate, jasper, thunder eggs, petrified wood	Madras, OR	Host: All Rockhounds Pow Wow 8 am Jefferson Fair Ground Tools: dig and hard rock
6/27	Petrified wood, maybe opal	Saddle Mt	Host: Marysville Rock Club 9 am Mattawa W Mattawa Lep Re Kon Market (Harvest Foods) Tools: dig and hard rock
7/20	Travertine, Sauk R 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

Date	Rock or Mineral	Location	Details
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.

Word of the Month

Metamerism

Alexandrite is a rare stone that exhibits metamerism, which is the perception of color changing as from blueish green to purplish red as the lighting changes.

Because human eyesight is designed to see greens better than reds, in good natural sunlight alexandrite appears greenish. However in low light and incandescent light the reddish color dominates.

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.

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.

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 July 2. 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

Birthstone Trivia answers

Quick Scoring

1. F	4. F	7. F	10. d	13. b
2. d	5. c	8. T	11. T	14. F
3. a	6. b	9. d	12. c	

Trivia details

1. Moon rocks are from the moon. Moonstones are from earthly sources.
2. Gem-quality pearls are almost always nacreous and iridescent, like the interior of the shell that produces them.
3. Baroque pearls have an irregular non-spherical shape. Spherical pearls are more highly valued, but baroque ones can also be gorgeous. The shapes vary from nearly spherical to ovoid, curved, or lumpy.
4. While the name "chrysoberyl" contains the name "beryl" they are not related. Chrysoberyl is $BeAl_2O_4$ and beryl is $Be_3Al_2SiO_6$ so they each contain beryllium.
5. Trillings are crystals comprised of three twins chemically bound so their structures overlap or share some of the molecules. So a trilling has 6 crystals of the same type bound together.
6. *Pleochroic* is a word derived from Greek pléōn, "more" and khrôma, "color". Pleochroic stones are ones that appear in two or more different colors depending on the light source and angle of viewing. A dichroic gem reflects two colors when viewed at different angles.
7. This was a trick question. Alexandrite is the stone that is the third hardest of the common gemstones with a Mohs of 8.5.
8. When two crystals of the same stone share part of their crystal structure, together they form a twin. A crystal surface that is shared is a twin plane.
9. There have been a lot of Alexander's throughout history, but none of these is the namesake. It was probably named for Czar, Alexander II.
10. Adularescence is the ethereal optic effect of light reflecting off of microscopic layers of feldspar. The colors seem to float across the stone rather than be located in specific spots.
11. Alexandrite exhibits color change and pleochroism.
12. Metamerism is a perceived color change under different light frequencies.
13. Both synthetic and natural stones can be called "real."
14. Pearls are only created by mollusks.

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.

This issue

Maplewood Rock and Gem Club News

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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.