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Message from the President

I want to thank all of the people involved in our 75th anniversary celebration on September 25th. It was an awesome event; check out some pictures below. Thanks also to Tom Staatz with the Four Corners Geology Society for donating the items gifted to kids who attended. Let's get a new generation excited!

In 1947 our Club was established by a group of “rockhounds,” and the rest is history. I started thinking about what other notable events happened in 1947 and this is what I have learned from the Internet (the source of all knowledge), of course. What I list below is just a sampling of what I found, but these events are what I found interesting.

1. The Roswell UFO incident.
2. Chuck Yeager was the first to break the sound barrier.
3. The transistor, Polaroid camera, and Frisbee were introduced.
4. Stephen King, David Bowie, and Meat Loaf were born.
5. Bazooka bubble gum was introduced.

6. The coldest temperature in North America was recorded at -81.4 F in Snag, Yukon, on February 3.
7. The Cold war begins.
8. There were 17 earthquakes with magnitude 7.0-7.9 in the World.
9. First of the Dead Sea scrolls were discovered.
10. Miracle on 34th Street was a popular movie.

And, to put it on in perspective the average cost of a house in the United States is estimated to have been **$6,600**.

Did you see all those turquoise shirts on folks in the party pictures? We have NEW club shirts with our NEW logo on them! Small, Medium and Large (these

run true to size, folks, and don't shrink!) shirts will be available for purchase at our **October Annual Membership meeting on Monday the 3rd**.

$10 each!

Come to our meeting and pick one (or more than one) up!

Upcoming October Annual Membership Meeting

The Annual October Membership Meeting is tomorrow night! **Monday, October 3rd at 6:30 pm at the Gem Club**. This is your opportunity to elect Board Officers and Directors and provide input on the Club's direction and future. Per our new Bylaws, this is the meeting where ALL Club members vote and we need to have a quorum of 12% of our membership - currently about 22 of our 180 members.
Please attend, cast your vote, buy a new Club shirt, visit with friends and enjoy a lovely fall evening (possible drinks provided)!

Below is the slate of outgoing and nominated (in red) Officers and Directors. Additional nominations can be made at the meeting. Directors serve three-year terms, and each year two new directors are voted in, whereas the remaining four are still serving their terms. Officers serve one-year terms and must be re-elected each year. They are term-limited to two years an any given officer position.

Officers	**2022**	**2023**
President	David Gonzales	***David Gonzales***
Vice President	Megan Maurillo	***Toby Mourning***
Secretary	Keri Hatley	***Carlos Manon***
Treasurer	Jama Crawford	***Jama Crawford***
Directors	Keri Bliss Hemphill	Nancy Holman

	Cindy Pugsley	Carl Lindemann
	Nancy Holman	John Laggart
	Carl Lindemann	Mary Katherine Benson
	John Laggart	***Jennifer Nisco***
	Heather Bates	***Cindy Pugsley***

Please visit our Club calendar to see when meetings and events are scheduled.

Upcoming Classes, Field Trips, and Events in October!

Stone Pendant, **October 8 from 10:00 am to 4:00 pm.** Create a pendant that features metal overlay and stone setting techniques, as well as beginning soldering. A $150 class fee covers all materials. Contact Jama Crawford at jama@frontier.net for more information or register for the class.

Metal Inlay, **October 9 from 10:00 am to 4:00 pm.** Learn how to inlay copper, silver, brass or bronze designs into precious or base metal backgrounds. A $150 class fee covers all materials. Contact Jama Crawford at jama@frontier.net for more information or register for the class.

October 15, Hike and train ride. Enjoy a hike on a section of the Colorado trail from Molas Park to the Animas River and then hop on the train for a ride home. The cost is $55 and the co-leaders are David Gonzales, Steve Cumella, and May Gillam. This is a collaboration between the Club, the Four Corners Geological Society, and Fort Lewis College. For more information go to http://www.durangorocks.org/field-trips.html

Rock and Mineral Identification, **October 19 from 3:00 pm to 6:00 pm** at the Gem Club. Want to know what kind of rocks and minerals you have been collecting and piling up at home? Our own Club members with an expertise in ROCK and MINERAL

knowledge and identification are going to be at the Gem Club to help you identify the rocks and minerals you so desperately want to know about. Thank you to David Gonzales, Eckhard Stuart, and Toby Mourning!
They request that you bring a fist-sized sample at minimum and the collection location is also helpful to provide!

Statement Ring Class and Introduction to Silversmithing, **October 22 from 9:00 am to 5:00 pm.** An in-depth introduction to the basic principles of silversmithing that allows you to leave with a personalized statement ring. A $180 class fee covers all materials. To register or get more information for the class please go to the Club's calendar.

Turquoise Shadowbox Pendant, **October 23 from 9:00 am to 5:00 pm.** An in-depth introduction to silversmithing that guides you through the steps to create a shadowbox pendant with a stone of your choice. To register or get more information for the class please go to the Club's calendar.

If you want to know more, visit the Club's calendar at www.durangorocks.org/events.html.

Open Shop Hours

Tuesday 1-4 pm

Tuesday 6:30-9 pm

Wednesday 9am-noon

Wednesday 1-4 pm

Thursday 1-4 pm

Thursday 6:30-9 pm

First & Third Saturdays 10am-2pm

Open Shop Punch Card

If you like using open shop, remember we have a punch card for multiple use. Prepurchase 10 visits for $45 - a $5 savings - and don't worry about having your "shop fee" when you come in!

Equipment Issues

Oil was added to the Genie, and it is back in action, but it is evident from the pattern of wear on the grinding wheels and hole in one of the water hoses that our beloved Genie is not being treated with the proper care.

I have created a simple guide that will be placed near the machine to help remind users of the key steps in using the Genie. If you use the Genie, please refer to the guide and ask a Steward for assistance.

Rock On: Zoned Out

Minerals are defined as: naturally formed, inorganic and solid materials with a crystalline structure and predictable composition. In most minerals the chemical composition is similar throughout the structure, but in some minerals a phenomenon known as zonation can occur. When minerals form, they often do it in stages at different times. In some case these different growths can be separated by millions of years. In each stage of growth, a layer of different composition is created and uses the existing mineral to “grow”. An analogy of zonation is the different colored layers in a Gobstopper candy which has different flavors from the center to the outside.

A zoned mineral contains layers from the center to the rim that vary in timing of formation, composition, and sometimes other properties. Zonation often happens in crystals that form from magmas and hydrothermal solutions but is also visible in crystals formed in metamorphic rocks. The formation of a new zone on a mineral often results from changes in the conditions of formation along with changes in chemistry or simply changes in the composition of magmas and fluids.

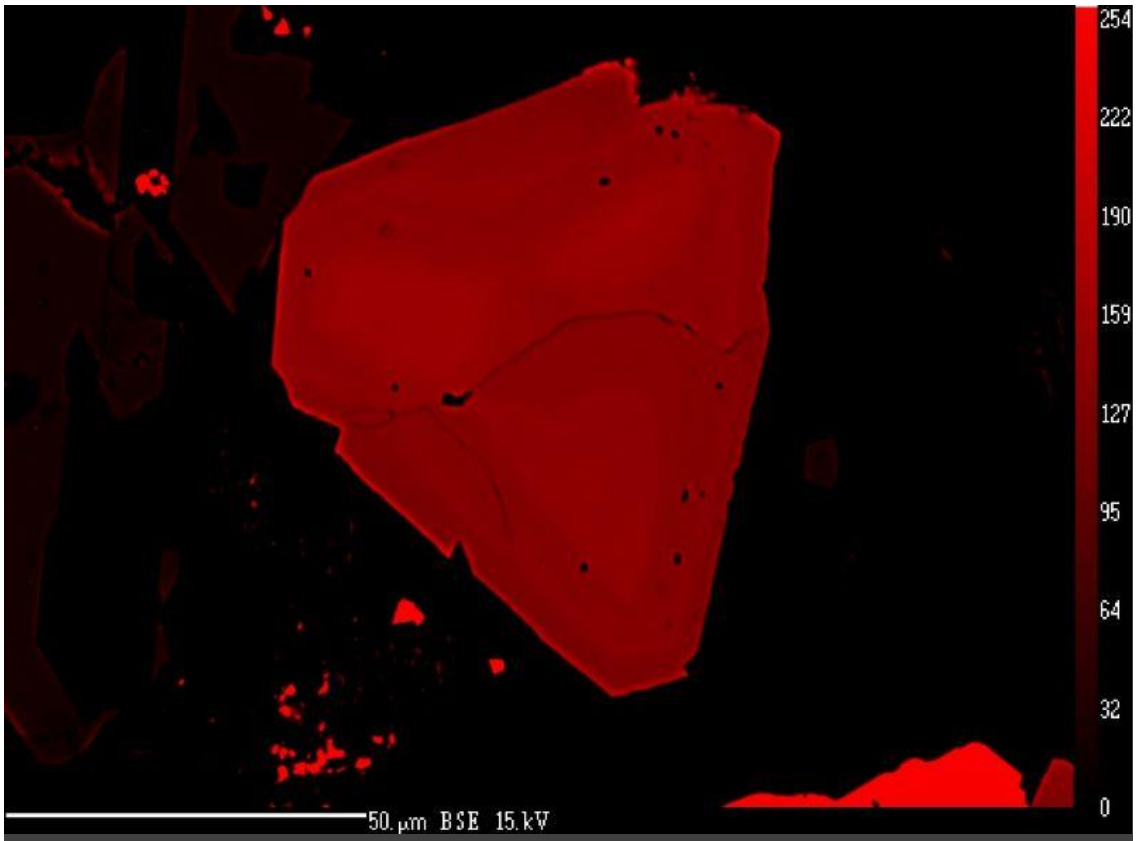
Zoning is present in many minerals but in most hand specimens it is often not visible. Under a petrographic microscope, however, zonation is often very common and apparent where is zone has different colors and optical properties. In still other cases detailed chemical analyses are needed to detect zoning’s presence.

Most zoning is concentric, forming growth rings on the first crystal that is seen at the core. Occasionally, it is more complex and results in compositional zones that are difficult to explain and interpret. Complex zonation can happen.

Zoned fluorite crystals from China https://opengeology.org/Mineralogy/4-crystals-and-crystallization/

A zoned hornblende crystal in an andesite from Greece in thin section under uncrossed polarization with a petrographic microscope (field of view is 7 mm). The different colors of the zones represent different periods growth with different compositions; https://www.alexstrekeisen.it/immagini/vulc/orneblendaverde2013(2).jpg

A complex-zoned tourmaline crystal in a deformed granite dike at Elba Island, Italy. The different colors represent different compositions that formed over time. Photograph taken with a petrographic microscope under uncrossed polarization: https://www.alexstrekeisen.it/immagini/meta/calamita(37).jpg.



A perovskite crystal in mafic dike sample from the Navajo volcanic field with complex zones shown in a false-color backscatter image taken using a microprobe at New Mexico Tech. Photograph taken by David Gonzales.

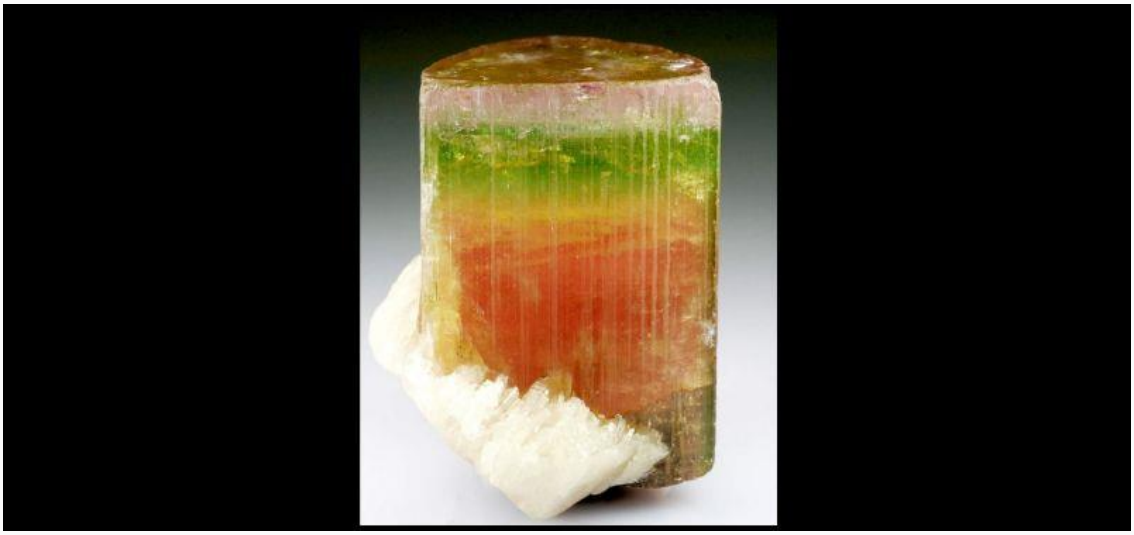
October Birthstone (Libra, September 23-October 22; Scorpio, October 23-31)

Those born in the dates listed above are blessed with two spectacular birthstones, opal and tourmaline. These stones dazzle with a spectacular range of colors and interference colors. Opal also has the notoriety of not being a mineral since it lacks an organized crystalline structure.

Tourmaline is the newer birthstone for October. The name of this mineral comes from the Sinhalese word toramalli which means “stone with mixed colors”. Tourmaline displays many different colors though the black variety of schorl is common. Most tourmaline forms

in certain varieties of granitic pegmatites but can also form in metamorphic rocks. Important mines of tourmaline are in Brazil, Afghanistan, Pakistan, Kenya, Madagascar and Mozambique (among other countries in Africa). In the United States tourmaline was mined in California and Maines. Although it is the color and hardness (H = 7) that make tourmaline an attractive gemstone, I personally find the trigonal symmetry and combination of crystal forms intriguing. Tourmaline often forms in prismatic crystals with distinctive vertical growth striations.

Below: “Watermelon” tourmaline (var. elbaite) from Paprok, Kamdesh district, Nuristan, Afghanistan. https://www.mindat.org/photo-169245.html



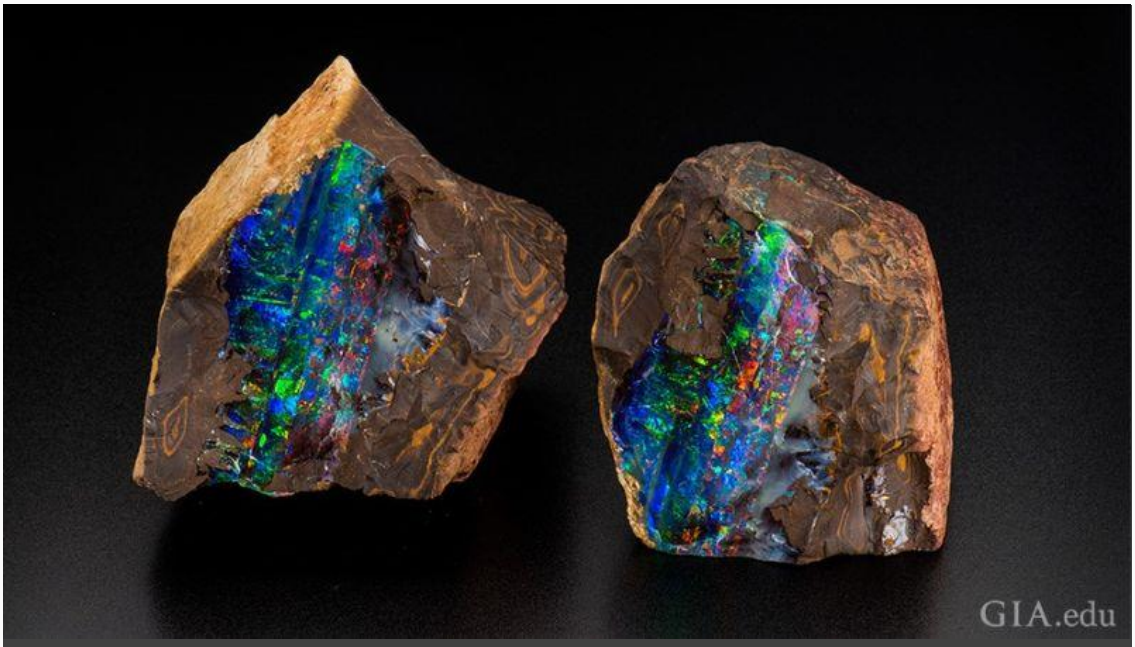
A spectrum of colors in tourmaline. [October Birthstones | Opal & Tourmaline Birthstone Information | GIA]

Opal is the traditional birthstone for October. In Sanskrit, upala means “precious stone” and in ancient Latin the term opalus was applied. Most opal is not considered a precious stone, and is known as “potch”. It is the variety with a rainbow of colors created by interference in the atomic structure that are coveted the most. According the GIA ancient Greeks considered that opals “bestowed the gift of prophesy and protection from disease”. Precious opal is mine mostly in Australia, Ethiopia, Mexico, and Brazil.

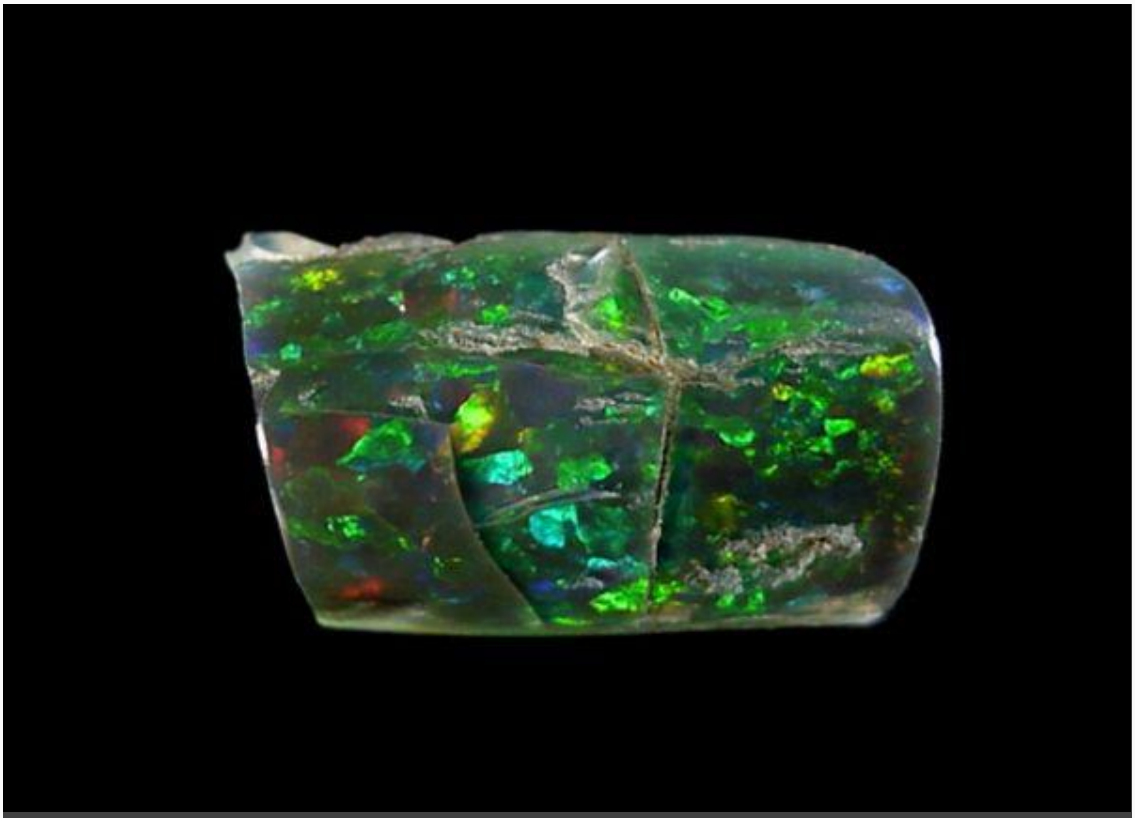
Although it is still regarded as a valid mineral species for historical reasons, opal is not a true mineral in the accepted definition as it is either composed of cristobalite and/or tridymite or composed of amorphous silica.

Opal is formed from SiO_2 and water. It can contain up to 20 weight percent of “water” which can keep the Si and O from connecting into a crystalline structure. Most precious opal forms by movement of water in the earth which dissolves silicon from existing materials forming a silicic acid solution. As the silica enriched fluids move down along fractures and cavities where the loss of water can supersaturate the solution and cause the

precipitation of opal, sometime in many cycles. The size of the silicon atoms influences the diffraction of light and the creation of the “play of colors” which range from blue and green to red and orange. The process of “opalization” is not much different than for the formation of petrified wood where silica replaces that wood structure with chalcedony and other varieties of quartz.



Boulder opal from Queensland, Australia. Photograph taken form October Birthstones | Opal & Tourmaline Birthstone Information | GIA



Precious “black” opal from the Virgin Valley, Humboldt County, Nevada. Photographic taken from https://www.mindat.org/photo-979.html

A corona of sapphire and diamonds around a central opal. Photographic taken from [October Birthstones | Opal & Tourmaline Birthstone Information | GIA]