

# *The Golden Frog*



**Robin Williams, Newsletter Editor  
Calaveras Gem and Mineral Society  
P.O. Box 517  
Angels Camp, CA 95222**

**JULY 2021 EDITION**

**Calaveras Gem & Mineral Society, Inc.**

P.O. Box 517  
Angels Camp, CA 95222

Clubhouse: 2500 Meacham Ranch Road

Website: [www.calaverasgemandmineral.org](http://www.calaverasgemandmineral.org)

Est. in 1948 and incorporated in 1950 as a non-profit charitable organization dedicated to share our love of rocks & minerals and all the lapidary arts with our community.

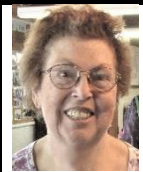
Member of both the California and American Federation Mineralogical Societies.

**JULY BIRTHSTONE**



The Carmen Lucia Ruby at Smithsonian

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[achristiansen7132@comcast.net](mailto:achristiansen7132@comcast.net)



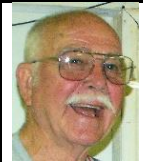
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Lynn Becker  
[beckerbk@sbcglobal.net](mailto:beckerbk@sbcglobal.net)



**SECRETARY**  
Debby Brooks  
[dbb49@att.net](mailto:dbb49@att.net)



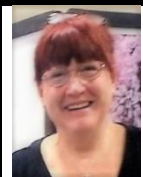
**TREASURER**



**FEDERATION DIRECTOR**  
Marion Roberts  
[mvroberts1@comcast.net](mailto:mvroberts1@comcast.net)



**FIELD TRIP CHAIRMAN**  
Bob Young  
[ryoung1738@aol.com](mailto:ryoung1738@aol.com)



**NEWSLETTER EDITOR**  
Robin Williams  
[robinski@yahoo.com](mailto:robinski@yahoo.com)



**1st DIRECTOR**  
Pat Gulyas  
[golddustmurphy@yahoo.com](mailto:golddustmurphy@yahoo.com)



**2nd DIRECTOR**  
Jim Vicars  
[jvicars62@yahoo.com](mailto:jvicars62@yahoo.com)



**3rd DIRECTOR**  
Phyllis Kyle  
[boomakyle@yahoo.com](mailto:boomakyle@yahoo.com)



**ADDITIONAL CLUB POSITIONS:**



**SHOP Steward**  
Bill Bruce  
[dbruce@hughes.net](mailto:dbruce@hughes.net)



**Shop Steward**  
Neil Mckeown  
[tinkaviking@hotmail.com](mailto:tinkaviking@hotmail.com)



**WEBmaster**  
Andrew Brown  
[brown.andrewg@gmail.com](mailto:brown.andrewg@gmail.com)

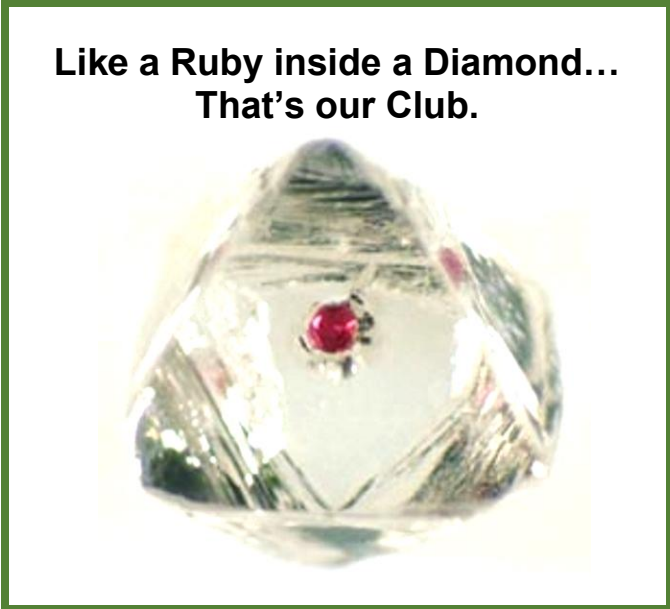


**HISTORIAN**  
Loretta Pagni  
[lorettapagni@aol.com](mailto:lorettapagni@aol.com)



**PROGRAMS**  
Rich Lundin  
[wondjinaman@gmail.com](mailto:wondjinaman@gmail.com)

**A Message from  
Our PRESIDENT...  
Anna Christiansen**



JULY ~ TABLE of CONTENTS	
Pg	~ DESCRIPTION ~
2	List of 2021 Board Members & Info
3	President's Message & Meeting Date
4	JUNE 20, 2021 General Meeting Minutes
5	cont. JUNE 20, 2021 General Minutes
6	Tardigrades
7	More Tardigrades
8	JULY CALENDAR 2021 & Birthdays



**JULY 18<sup>th</sup> Meeting Info**



JULY 18, 2021  
**ANOTHER  
POT LUCK  
MEETING**

● There will be a Pot Luck at this meeting. Bring a dish to share. Food can be hot, cold, salads, desserts, typical potluck style. Ok to bring your own food if not comfortable eating at a group meal.

**POT LUCK RETURNS!  
Lunch at NOON!  
MEETING STARTS at 1:00!**

- 3<sup>rd</sup> Sunday, JULY 18, 2021
- Meet & Greet at 11:00 a.m.
- POT LUCK LUNCH at NOON
- General Membership Meeting 1:00 p.m.
- opt: Board Meeting TBA

And now,  
**REALLY BAD  
EARTH SCIENCE JOKES**



**Mountains aren't funny...  
They're just hill areas.**

## GENERAL MEETING MINUTES from JUNE 20, 2021

### GENERAL MEETING MINUTES Calaveras Gem and Mineral Society JUNE 20, 2021

**Call to Order** at 12:44 p.m. by President Anna Christiansen

#### Pledge of Allegiance

**Introduction:** 17 members 3 Guests

#### Board Members Absent:

Vice President:	Lynn Becker
Newsletter Ed:	Robin Williams
Field Trip/CO-OP	Brad Becker
Federation Director	Marion Roberts

**Minutes:** May 16, 2021

- Jerry Kyle made a motion to accept the May 16, 2021 minutes as corrected. Jim Vicars seconded the motion. Motion passed, to accept the minutes as corrected.

**Club Correspondence:** Debby Brooks

- See under New Business

**Treasurer's Report:** Debby Brooks

- A report on the April/May bank balances income and expenses.

### COMMITTEE REPORTS

**Federation Report:** Phyllis Kyle

- The first week of Camp Paradise is rapidly being filled up. Interested club members need to get your application in to reserve a space.

**Field Trips:** Bob Young

- A trip to Gabbs Nevada is being planned for August.

- The club received notification of a Co-Op field trip, August 6-14 to a Co-Op member's home who is down-sizing his extensive rock collection.

**Field Trip – Suggestion:** Rich Lundin

- Rich suggested a trip to Mina, Nevada to visit the volcano that is brewing in that area.

**Historian:** Anna Christiansen

- Loretta, club historian continues to be at Avalon Health Care in Sonora.

**Sunshine:** Rich Lundin

- Rich reports that Claudia Brackett has broken a bone in her leg. She is at home and is on the mend.

**Newsletter Editor:** by Anna Christiansen

- Some members have reported they are not receiving the newsletters via email. Anna will find out what the issue is.

- Thank you, Robin for a wonderful newsletter.

**SHOP REPORT:** Bob Young

- Bob transported the non-working saws to a saw repair guy in Idaho to receive an estimate of repair and hopefully have the saws repaired. There is a two-month turnaround time.

- The saw that was recently purchased is working well.

- The genies in the genie room are all working well.

- The saws have recently required a lot of repair and have reached a point of needing more repair and parts than the club is able to do.

### OLD BUSINESS

**Club Logo Clothing Update:** Anna C.

- The club shirts and hats that were purchased are at the club house to pick up.

## Cont...GENERAL MEETING MINUTES from JUNE 20, 2021

### NEW BUSINESS

**Program Director:** Rich Lundin

- July meeting –Rich announced there will be a program on the new volcano located in the Mina Nevada area.

**Gem Show Report:** Anna Christiansen

- RE: Fairgrounds deposit. The club received notice that the Calaveras County Fair Board will not refund the \$2000.00 deposit for the two Covid-19 cancelled shows, 2020 & 2021. President Anna Christiansen will attempt to talk to the Fair CEO.

- If needed she will contact CFMS and consult with their legal advisor.

#### New Members

- Kenneth Klescewski and
- Anna Kamedulski were voted in by majority to become members of the Club.  
Welcome to CFMS.

**Next Meeting:** July 18, 2021

- Meeting adjourned at 1:07 p.m. by President Anna Christiansen.

**Minutes respectfully submitted,**

Debby Brooks,  
CGMS 2021 Secretary

### It's Elemental my Dear.

I just found the ingredients  
for my favorite candy:

Carbon Holmium Cobalt  
Lanthanum & Tellurium

**= CHoCoLaTe**

It's time to vote for



of the Year ~ 2021

Be thinking of the member you feel has carried us victoriously through this past insane year!

Message from Secretary Debby Brooks to The Calaveras Gem and Mineral Society

RE: Rockhound of the Year – 2021

The Calaveras Gem and Mineral Society sponsors a “Rockhound of the Year” to recognize and honor an individual or couple who have provided exemplary service over the course of the year.

The Rockhound of the year has promoted and furthered the goals of the Calaveras Gem and Mineral Society.

Such individuals are awarded a certificate and pin from CFMS and their good works are publicized in both the CFMS and AFMS newsletters.

The time has come to vote for the Calaveras Gem and Mineral Society Rockhound of the Year.

A ballot box is located on the desk in front of the building along with nominating slips.

Please write your candidate names on the slip and place in the ballot box. All paid members are eligible to be considered for Rockhound of the Year and to vote.

The individual/couple with the majority of votes is the club selection for this honor.

The due date for ballots is June 30, 2021.

Winner will be announced at July meeting.

# SCIENCE DISCOVERS the **TRUE ORIGIN** of MINERALS!

Just when you thought you knew it all.

We all know that calcium from shellfish settled on the sea bottom and lithified into the calcium minerals like calcite, limestone, aragonite, and dolomite.

But what about all the remaining minerals? Well, science now knows that they are made out of tardigrades! Yes.

Minerals are made out of tardigrades that first appeared on earth over 500,000,000 years ago AND, these tiny multi-celled mineral-formers are nearly indestructible.

When their living conditions deteriorate they just simply morph into a mineral and wait out the weather! They can remain in their morphed state via cryptobiosis, “essentially dead but still alive”, for hundreds of years. Sure blows up Schrodinger’s CAT experiment!

And, there’s 1,300 different kinds of tardigrades which also explains why we have so many different kinds of minerals!

Scientists sent them to the MOON!

It will take a bit more time to figure out “which tardigrade makes which mineral” but the implications are mind-boggling.



Just like synthetic gemstones, we’ll be able to make any mineral we want, and as much as we want. The earth alone is filled with zillions of tardigrades...happy, adorable, nearly indestructible, TARDIGRADES.

P.S. Wherever you find water and vegetation, you’re going to find tardigrades. They are likely all over your lettuce but cause no harm to humans whatsoever.

**HUH?**



Margaret K., Pat, and Debby

Gotcha! Have you ever tried to get any information off the net? ...Tardigrades were discovered in 1773 BUT I just heard of them last week – so, I looked them up. I’m reading along and the author says, “tardigrades have truly mastered the process of cryptobiosis to transform themselves into a mineral”. Tardigrades turning into minerals!?! Well, that was an amazing revelation to me, so I begin looking up every thing ever printed about tardigrades. I read and read. Just one problem, no where could I find that “tardigrades turned into minerals”! Totally baffled, I went back to the first article and read it more carefully. Oopsies. I missed a couple of tiny words...“tardigrades have truly mastered the process of cryptobiosis to ALL BUT transform themselves into a mineral”. I laughed heartily at my mistake and then I

pondered...Gee...what would an article look like based on my bogus info? Then I went crazy and wrote one. April Fool’s. Now you know how mis-information gets started...

See next page for TRUE info about tardigrades (aka “moss piglets & water bears”)... the TRUTH is even more amazing than the stuff I made up!

## Tardigrade Quick & True Facts:



“Water Bear or Moss Piglet”

- A tardigrade is a microscopic, multi-celled, 4-segmented water-dwelling organism about 0.5 mm long, belonging to the phylum Tardigrada.
- First appeared on earth 500,000,000 years ago!
- They are short and plump, with four pairs of legs, each ending in claws or suction disks.
- Their hind legs point towards front of body, the opposite direction from the rest of its legs, creating a kind of grasping, opposable leg arrangement that allows it to better cling to whatever it is trying to eat, kill, or mate with. (Lays eggs. Some with spikes!)

- Live in water - up to 25,000 animals per liter of water...either fresh or salty ocean water.
- Found in hot springs, Himalayas, Mariana's trench! And now, moon.
- 2019: Spacell's spacecraft, the Beresheet Lunar Lander crashed into moon at 2,200 mph spewing its payload and its tardigrades!
- Colours: (transparent, white, red, orange, yellow, green, purple, black).
- Without water they go into survival mode and via cryptobiosis turn into a “tun”. Tun = metabolism 0.001% of normal but it will still use up its energy stores and eventually die.
- Normal life cycle 2 years...as tun, 100 years.
- They might not form into minerals but their tun state leaves them like a piece of glass...(which is sort of a mineral?)

### NOT QUITE CUTE AND CUDDILY

- Tardigrades live in water mosses and eat fluids - sucking the nutrient-rich goop out of plant and animal cells.
- Tardigrade's claws and telescopic mouth are designed to tear open and puncture cells, allowing it to stick its mouth into all the gooey innards and slurp up whatever it can get to.
- Some tardigrades are cannibalistic.
- Really could be found in your salads.



Read more: <https://www.newscientist.com/article/2124893-tardigrades-turn-into-glass-to-survive-complete-dehydration/#ixzz6x8THdBH9>

### THE FUTURE! Another tardigrade superpower:

A protective protein that renders them resistant to damaging X-rays!

AND...researchers were able to transfer that resistance to human cells! Wow.

Tardigrades in a tun state have been recovered and reanimated after enduring temperatures as low as -328 degrees F. and as high as 304 degrees F.

If researchers could find a way to recreate in other living cells what the tardigrade does to turn into its tun state, it could revolutionize the storage and preservation of essential medical tissue, such as sperm and egg cells, blood used for transfusions, and possibly even entire organs that can be used for transplantation.

Hurray for TARDIGRADES!

# How to Think Like a Geologist

“Gee, what is this rock?” If you’re tired of asking that question and are serious about wanting to know the right answer then you’ll need to think like a Geologist.

To them, each “new find” is a mystery and they willingly become Sherlock Holmes and start asking questions and collecting clues.

## QUESTION 1: Where did you find it?

Rocks form in different “neighborhoods” so are you near a Volcano? Granite quarries? Caverns? Desert? Seaside?

- Study your state geologic map.
- Read books about your site’s history and what has already been found there.

You don’t need to reinvent the wheel. The info you need is probably already documented and waiting for you.

## QUESTION 2: Is Your Rock Legit?

Make sure your rocks are associated with a real outcrop of bedrock from your site. Are the loose rocks on the ground the same as what’s in the outcrop?

- Pieces of brick, concrete, slag, and metal are commonly misidentified as natural stones.
- Landscaping rocks, road metal and fill material may come from far away.
- Many old seaport cities contain stones brought as ballast in foreign ships.

## QUESTION 3: Is Your Rock Dirty?

Fresh faces matter. Rocks get dirty and decay in a process called weathering. You may have to use your rock hammer & safety goggles to chip off the “dirty” outer layer to be able to see the real details of your rock.

Now take out your 10X magnifier and examine the rock’s fresh color.

- is it dark or light?
- are there different minerals visible?
- What colors are they?

Wet the rock and look again.

- Does it crumble?
- Does it lighten, darken or change color?
- Does it dissolve?

## QUESTION 4: What’s its Texture?

Observe the rock’s texture, close up.

- What kind of particles is it made of?
- How do they fit together?
- What’s between the particles?

## QUESTION 5: What’s its Structure?

Does it have layers? Does it split easily? If so, what size and shape are they? Do the layers have ripples, waves, folds? Is the rock bubbly? Is it lumpy? Is it cracked, and are the cracks healed? Is it neatly organized, or is it jumbled? Does it look like one kind of material has invaded another?

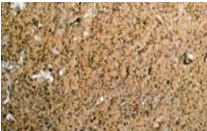




- Basalt Lava Flow -

The choice may not be clear at first but observations you make after this should help confirm or contradict your choice.



Igneous? Sedimentary? metamorphic?

 <p>Rhyolite</p>	<p><b>Igneous rocks:</b> grains fit tightly; look like something you might bake in the oven.</p>
 <p>Limestone</p>	<p><b>Sedimentary rocks:</b> sand, gravel or mud turned to stone. Generally, they look like the sand and mud they once were.</p>
 <p>Gneiss</p>	<p><b>Metamorphic rocks:</b> are rocks of the first two types that were changed by heating and stretching. They tend to be colored and striped.</p>

Now you're ready to use your book(s) on Identifying Rocks and Minerals

There are a zillion "types" of methods, one for every rock hound on the planet. Choose the one that suits you.



The last two questions have to deal with MINERALS (those pesky hard-to-identify things that rocks are made of)...

**QUESTION 6:** How hard is it?

Rocks are not usually identified by their hardness, but Metamorphic rocks are usually harder than Sedimentary rocks. Now, ponder these: True or False?

T F	Sandstone, a sedimentary rock made out of mostly quartz minerals is harder than Calcite, a sedimentary rock made out of calcium carbonate minerals.
T F	Sandstone, a sedimentary rock made out of mostly quartz minerals is harder than Quartzite a metamorphic rock made of quartz sandstone.

Then we have to consider hardness compared to toughness.

Confusing?

**Hardness** is usually taken to mean *resistance to abrasion*

**Toughness** refers to *resistance to crushing or impact.*

Mohs Scale is used to determine a MINERAL's **HARDNESS** as a means of identifying one mineral from a similar looking mineral.

- Steel is usually hardness 5-1/2,
- Coins are hardness 3, and
- Fingernails are hardness 2.

Use pocket knife, a coin, and fingernail.

Use the hardness charts in your ID books to narrow down all the choices to your mineral's name.

**QUESTION 7:** What's its Streak?

This might be the most fun part. Use the unglazed backs of old ceramic tiles (or purchase a porcelain streak plate) to scrape your mineral across.

Work's like magic! Actually it's showing you what color your mineral would be if you ground it down to powder.

DIDJUNO...I found 528 minerals that give a blue streak!

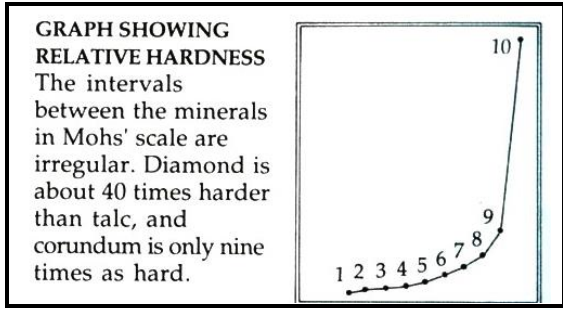
It's very fun to slide a piece of black-gray metallic hematite across the plate to then see a beautiful RED streak.

There's a reason for so many "test questions" when it comes to identifying rocks and minerals. It's because no one test will do the job...it takes all of them together to whittle down the imposters.

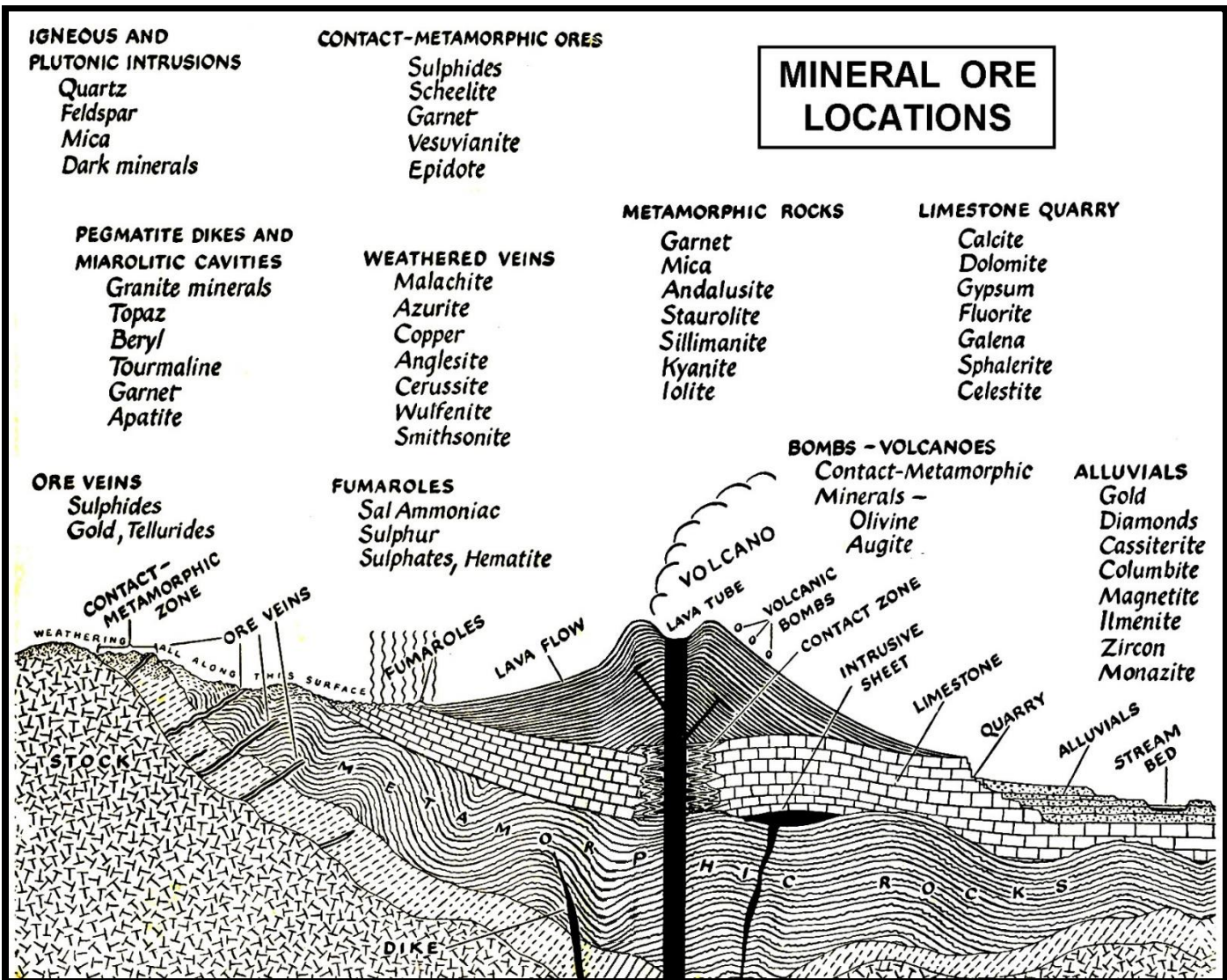
Original article "How to Look at a Rock Like a Geologist" was submitted by Marilyn Bodle. Edited and condensed for The Golden Frog.

**Moh's Hardness Scale**

The bonds holding atoms together determine a mineral's hardness. In 1812, the Austrian mineralogist Friedrich Mohs devised a scale of hardness that is still in use today. He selected ten minerals as standards and arranged them so that any mineral on the scale would scratch only those below it. Everyday objects can be used to test where a mineral fits into the scale. A fingernail has a hardness of 2.5, and a penknife is 5.5. Minerals of six and above will scratch glass; glass will scratch apatite and other minerals below it.



1	2	3	4	5	6	7	8	9	10
Talc	Gypsum	Calcite	Fluorite	Apatite	Orthoclase	Quartz	Topaz	Corundum	Diamond



**“I JUST LOVE YOUR RUSTED ALUMINUM!”\***



\*That was a famous line from Russ Shoemaker of Stories in Stone...he was of course referring to The Ruby, the beautiful red gemstone of the mineral CORUNDUM, whose formula is  $Al_2O_3$  or aluminum oxide...which is rusted aluminum!

Pure corundum is colorless but when chromium is available a red Ruby is born.

**Brief History of the Prized Red Stone**

- Ruby gemstones have been revered since ancient times particularly in Asian countries; traded along China’s North Silk Road as early as 200 BC.
- Burma has been a significant ruby source since at least 600 AD. and Burmese rubies are still some of the most prized.
- After classical Burmese mines were depleted, the Mong Hsu region of Myanmar started producing rubies in the 1990s.
- These lacked the rich red hue of Burmese rubies, so they were treated with heat to improve saturation and transparency.
- Heat-treated rubies is a common practice nowadays.
- Imitation ruby dates back as far as Roman times, though it wasn’t synthesized until the early 1900s.
- The red fluorescence power of ruby helped build the 1<sup>st</sup> laser in 1960.
- Rubies—both natural and synthetic—are still used to make lasers, as well as watches and medical instruments.

**VARIETIES**

**Burmese Ruby** - Ruby with an exceptional red color (usually but not necessarily from Burma). Can also used to describe a synthetic Ruby.

**Pigeon's Blood Ruby** - Highly-desirable form of Ruby of a blood-red color with a hint of blue.

**Ruby Fuchsite** - Describes a dark red Ruby in a green Fuchsite mica matrix found in India.

**Ruby Zoisite** - Mixture of opaque red Ruby in green Zoisite from Tanzania; is used as a minor gemstone, being polished into cabochons and carved into Ornamental figures

**Star Ruby** - Well-known form of Ruby displaying asterism, most often in the form of a six-rayed star.

**Buyer Beware Fake Ruby Names**






- Adelaide Ruby
- American Ruby
- Arizona Ruby
- Australian Ruby
- Bohemian Ruby
- California Ruby
- Cape Ruby
- Colorado Ruby
- Elie Ruby
- Montana Ruby
- Rocky Mt. Ruby

- Alabandine Ruby is Almandine Garnet
- Ancona Ruby is Rose Quartz
- Balas Ruby is Pink to pale red Spinel
- Brazilian Ruby is Pink Topaz
- Copper Ruby is Cuprite
- Garnet Ruby is Red Garnet
- Geneva Ruby is Synthetic Ruby
- Ruby Copper is Cuprite
- Ruby Jack is Red Sphalerite
- Ruby Garnet is Red Garnet
- Ruby Spinel is Red Spinel
- Siberian Ruby is Red Tourmaline
- Spinel Ruby is Red Spinel
- Verneul Ruby is Synthetic Ruby



# JULY 2021

SUN	MON	TUES	WED	THURS	FRI	SAT
				1	2	3 SHOP 10-2
4	5	6	7	8	9	10 SHOP 10-2
11	12	13	14	15	16	17 SHOP 10-2
18 Meet-Greet 11 a.m. POTLUCK at NOON	19	20	21	22	23	24 SHOP 10-2
25	26	27	28	29	30	31 SHOP 10-2

JULY BIRTHDAYS	JULY 2021 ~ UPCOMING EVENTS = 0									
<h2 style="margin: 0;">HAPPY BIRTHDAY!</h2> <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <tr><td style="padding: 2px;">Greta Alexander</td><td style="padding: 2px;">2</td></tr> <tr><td style="padding: 2px;">Loretta Pagni</td><td style="padding: 2px;">17</td></tr> <tr><td style="padding: 2px;">Debby Brooks</td><td style="padding: 2px;">21</td></tr> <tr><td style="padding: 2px;">Steve Minneci</td><td style="padding: 2px;">21</td></tr> </table> 	Greta Alexander	2	Loretta Pagni	17	Debby Brooks	21	Steve Minneci	21	<p style="text-align: center;">Did you know that you can go on-line and purchase all kinds of TARDIGRADE STUFF?</p>  <p style="text-align: center;">CROCHETED TOYS...</p>  <p style="text-align: center;">MAILBOXES...</p>	 <p style="text-align: center;">SLIPPERS...</p>  <p style="text-align: center;">&amp; RACE CARS. Good Grief! Who knew?!!</p>
Greta Alexander	2									
Loretta Pagni	17									
Debby Brooks	21									
Steve Minneci	21									