



# BRECCIA

## Santa Clara Valley Gem and Mineral Society

Volume 73 Number 2, February 2026

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### Events

February 24, 6:30 PM: Member Sale

If you have something to sell, please contact [Jim Herbold](#).

February 24, 7:30 PM: The General Membership Meeting will feature presentations by our Student Grant Recipients.

### March 21-22: SCVGMS Annual Show

Santa Clara County Fairgrounds  
344 Tully Rd., San Jose  
Hours: Sat 10-5, Sun 10-4

March 24: The General Membership Meeting will feature Paul Kidman talking about his John Day National Fossil Beds trip.

April 7, 7:30 PM: Board Meeting on Zoom. All Members are welcome to attend. If you do want to attend, please contact [Jim Herbold](#).

## Editor's Message

[Field trips](#) are starting up again! All of you who do not consider a DRC sale to be a challenging field trip; get ready to rock and roll!

Our [Annual Show](#) is coming up on March 21 and 22. Setup will be on March 20. Those of you who help out at least 4 hours, and meet the other criteria, will be eligible for the [Camp Paradise Drawing](#).

I am asking for help from our members. You could contribute anything from a short "how-to" or "my favorite thing", up to 2 to 3 pages of whatever you think others would find interesting. Rock related photos are appreciated. The deadline for submissions is the Sunday after each General Meeting.

Do you have anything that others might enjoy?

Deb Runyan, Breccia Editor

[editor@scvgms.org](mailto:editor@scvgms.org), 408-628-7789

## Sunshine

Long time member **Pat Speece** fell and fractured her hip. The surgery went well and she just returned from a rehabilitation facility. We all wish her a speedy recovery and hope to see her at the meetings soon.

**Kyle Van Woerkom** is slowly getting better. He is one of our most enthusiastic rock collectors. We miss him and hope he gets better and better.



If you know of anyone needing some sunshine in their lives, please email **Margo Mosher** at [margomosher@yahoo.com](mailto:margomosher@yahoo.com).

## DID YOU KNOW from the Exploratorium

... a pencil with a hard lead will write for 30 miles—that's about three hundred thousand words!

## Field Trips

Note: Driving times are from Campbell and are approximate.

**February 21 (Saturday): Yuba Gold Fields, Smartsville & Timbucktoo, 4-hours**

Materials: Yuba Blue a blue serpentine, and other river rocks; pan for GOLD!

Sponsors: Nevada Gem & Mineral, Co-Op Field Trip

**May 1–3 (Friday–Sunday): Arizona petrified national forest and Adjacent DoBell Ranch, Holbrook AZ, 13-hours**

Park tour. Arizona petrified "picture wood", fee dig \$60 at DoBell Ranch

Sponsors: Calaveras Gem and Mineral Society, Co-Op Field Trips

Contact: Dan Coughlin: [drcough@icloud.com](mailto:drcough@icloud.com), 530-957-2677

**May 9 (Saturday): Clear Creek Management Area, Paicines CA, 3-hours**

Materials: Jadeite, Plasma Agate, Petrified Wood, Serpentine, Druzy Quartz, Cinnabar, Spessartite Garnet

**May 31 (Sunday): Pleiades Fluorite Mine, Austin NV, 8-hours**

Pay to Play Fluorite mine. \$200 per bucket

**June 7 (Sunday): Rainbow Ridge, Virgin Valley NV, 10-hours**

Pay to Play Opal, \$900 for up to 3 adults

**For questions about field trips**

Contact: Stephen May, [Stephenmay0990@gmail.com](mailto:Stephenmay0990@gmail.com)

Phone: 669-248-3993 or 408-306-6782

## Rockhound of the Month

Our rockhound of the month is Michael Paone, for handling the catering at the holiday dinner!



## February 2026 President's Message

Hello! I'm writing this message from Tucson, Arizona - I am at the tail end of my annual visit to the Quartzsite and Tucson mineral shows. The weather has been great and it's a lot of fun to be among so many rocks and rock people.



*Quartzsite sunsets are the best...*

The Quartzsite shows, of which there are really two, have changed a lot in recent years. I expect evolution with shows, but it's good that this show is still the one that has the highest availability of dinosaur gembone. There's got to be at least 10 dealers who sell at least some gembone, and two of them focus on this material exclusively. I don't buy as much gembone as I used to a decade ago—prices have increased a

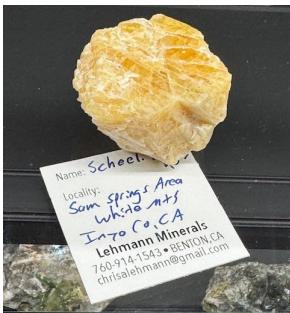
lot in that time and the number of folks collecting gembone has increased dramatically. There's a Facebook group dedicated to gembone and petrified wood that has seen membership swell to over 25,000 people. But it was nice to see the dealers that I know and some of the prominent collectors who have become friends.



*Calcite with three zones of fluorescent colors under midwave UV. Source location entirely unknown.*

The Tucson shows are largely the same. Mineral City is the best place to visit (by far!) in my estimation because it has a really fun mix of high-end and expensive museum-grade

material and very accessible material. I always find compelling bargains at Mineral City and across all of the Tucson shows.



*Scheelite crystal from Sam Springs area in Inyo County, CA. Yes, it glows, but I found no reference to such a location on the internet. Too bad, I'd love to go find more...*

*(Continued on page 5)*

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The fluorescent mineral community descends on Tucson every year. I attended two swap meets, the annual meeting of the Fluorescent Mineral Society which included a presentation on fluorescent photography, and one private sale held by a prominent dealer of glow rocks. Tucson is always a nice mix of hunting for cool rocks and seeing old friends and acquaintances.



*A substantial piece of polished rhodochrosite from Argentina. Not fluorescent, but beautiful!*

I am looking forward to our next general meeting on February 24—we will have four presentations from the students that are receiving our annual scholarship grants. This is always my favorite meeting of the year and I hope that you can attend!

And now that we are in February it means that our annual show at the Fairgrounds will be held in little over a month. Prepare to volunteer and look out for related communications.

So be well and go play with some rocks!

Enjoy!

Jim Herbold  
SCVGMS President

## Mineralica Magazine

"We are aiming to offer a well-designed and fresh-looking magazine, collector-focused and featuring in-depth articles, exceptional photography, and international insights into mineral finds, localities, and the people behind them. You can preview our issues at: Mineralica Magazine <https://mineralica.com/en/magazine/>"

## Donations for Silent Auction at the Show

Hello Club Members,

We will have a silent auction at the Annual Show this year. We had one last year and it was quite successful. I'm hoping to receive some donations from club members for this year's Silent Auction. Anything that is rock related such as rough, slabs, cabs, magazines or books will be greatly appreciated.

You can bring your donation to the February general meeting. Or if you are not coming to the general meeting let me know and we can work something out.

Thank you,

**Missy Fox**

## Camp Paradise Drawing

It's time to start thinking about Camp Paradise. The drawing will be held during the April general meeting. I know from personal experience that the camp is great. Our club pays for room and board and the classes for you and a guest/relative. Some of the special classes like Silver Smithing will have an added materials fee.

The requirements for entering the drawings include:

- ◆ You have attended 3 or more general meetings in the last year.
- ◆ You volunteer 4 hours help at the Show, setting up, or taking it down.
- ◆ You have not been a winner and attended Camp Paradise in the last 3 years.

This is a good time to volunteer for the Show—4 hours will take care of one of the requirements.

Applications are available in this month's Breccia. The deadline for submitting your application is the beginning of the March general meeting.

I'll be talking about Camp Paradise in the February general meeting.

If you have any questions about the camp or the drawing please contact **Missy Fox** at [jfox152@comcast.net](mailto:jfox152@comcast.net) or call 408-356-7711.

## SCVGMS Continuing Education Application 2026

Filling out this application and returning it to Missy Fox enters you into the Continuing Education drawing. The winner receives tickets for two people to attend one of two week-long stays at Camp Paradise at the end of August. The drawing will be held at the April 28th general meeting. The SCVGMS Board welcomes you all to fill out the application if you have met the eligibility criteria below:

- ◆ Attended three or more SCVGMS general meetings in the last year.
- ◆ Volunteered four or more hours at the annual show or in preparation for the show.
- ◆ Have not been a winner and attended this camp in the last three years.

Name: \_\_\_\_\_

What is the best way to contact you? Phone: \_\_\_\_\_

Email: \_\_\_\_\_

Please tell us what interests you about this opportunity. We like to hear what inspires people in this hobby. If you are a winner, we would like to share your words with the club members via the Breccia Newsletter. Don't worry, we'll edit for spelling and punctuation.

**Why would you like to attend Camp Paradise this coming season?** \_\_\_\_\_

What is your favorite part of our hobby? \_\_\_\_\_

### **Things you need to know:**

- ◆ The drawing will be held at the general meeting on April 28. You do not have to be present to win.
- ◆ Up to five names will be drawn. If, for any reason, the winner is unable to attend the camp, the second person will be contacted, and so forth.
- ◆ The winner is responsible for his/her transportation to/from the camp and any additional material fees for special classes. The tickets include accommodations, meals and classes.
- ◆ To assure your accommodations and meals in one of the Paradise camps, you must contact Jill Atkins, CFMS head of Earth Science camps to make arrangements by **July 1**. Contact information for Jill Atkins can be obtained from Missy Fox, Continuing Education Chair.

**The winner will share his/her camp experience with the club by taking photos, doing a show and tell at a meeting, or writing a short article for the Breccia.**

**Mail or turn forms into Missy Fox, 16344 Shady View Lane, Los Gatos, CA 95032**

**The submission deadline for the Camp Paradise drawing for is before 8:15 PM at the April 28th general meeting.**

**The two dates for the Camp Paradise classes are:**

**Week 1: August 16 to 22, 2026**

**Week 2: August 23 to 29, 2026**

**Questions ??? Contact Missy Fox at [jfox152@comcast.net](mailto:jfox152@comcast.net)**

## Membership Dues for 2026 Are Due

SCVGMS membership dues are due for the year 2026. Your dues are essential to the operation of SCVGMS.

Dues are \$5.00 for Junior, \$20.00 for an individual, and \$30.00 for the household.

You can now easily pay online, at <https://www.scvgms.org/product/membership-dues/>

Or

Pay Frank at a meeting

Or

Send your check to Treasurer, Santa Clara Valley Gem and Mineral Society, Box 54, San Jose, CA 95103-0054, or to: Frank Mullaney, 5705 Begonia Drive, San Jose, CA 95124

Thank you.

## Jim Fox's Touch Table

### Benitoite



Benitoite is the state gemstone of California. It is without a doubt, the rarest Gemstone in the world! Gem quality stones and unbelievable mineral specimens can only be found one place on earth, a small 40 acre parcel of land in the Diablo Mountain Range of San Benito County, California. Benitoite

was first discovered there in 1907. The mine has gone by many names over it's 106 year history. It is now called the California State Gem Mine.

Benitoite is found with a few other rare minerals such as black, red Neptunite, snow white Natrolite and brown, yellow Joaquinite.

Benitoite is 6 – 6.5 on the Mohs Hardness Scale.

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## Chinese Writing Rock



This is an unusual stone that is popular with rock collectors. It is named for its interesting shapes of white feldspar crystals in a black or dark grey-green basalt base which resemble Chinese writing characters. It strongly resembles chrysanthemum stone found in China, but the pattern of the feldspar crystals is different. Colors range from a very dark gray or almost black to creamy white, both of which have a slight greenish cast. A dramatic looking stone, it is a 5-6 on the Mohs scale. Chinese Writing Rock is a type of porphyry rock, an igneous rock consisting of large-grained crystals such as feldspar or quartz dispersed in a fine-grained silicate rich, generally aphanitic matrix or groundmass.

It was discovered in Auburn, California while cutting a highway. Unfortunately, the area is now inaccessible. There have been finds in other locations, but not plentiful.

## Contraluz Opal

Contraluz opal is sometimes the first words a new opal buyer will hear when asking about opals. It is one of those words like harlequin pattern that everyone in the opal world talks about. Contra Luz in Spanish means "against the light". This type of opal is famous due to its diffracted play of colors that is unlike other valuable opal. It is a glass-like opal in that the light can pass through the stone. Contraluz is known as the rainbow within the opal when it is backlit. Only a small percentage of opal can show this effect.

Contraluz opal is mostly from Mexico and has a worldwide reputation for fire colors. Some Ethiopian and Australian opals have been classified as this type of opal, but it is really rare.



The most famous one was found in Oregon, USA. It is called the Nebula because it appears to have captured a Universe or a Hologram, more than just a stone.

The Butte opal mine in Oregon is where, the facetor told me, this stone came from.

## Bragging Rights

January's Bragging Rights Theme was "Pink".



*Star Rose  
Quartz and  
Madagascan  
Star Sphere -  
Neil Delfino*



*Rhodochrosite  
Slab and  
Tumbled -  
Stephen May*



*Rhodochrosite -  
Jim Fox*



*Rose Quartz,  
South Dakota -  
Joan Schram*



*Lavic Junction  
Jasper -  
Stephen May*

*Tourmaline -  
Stephen May*



*Rose Quartz,  
Baumholder  
Germany -  
Michelle Powers*



*Rose Quartz -  
Simon*



*Cobalt in Calcite -  
Steve Skala*



The winner is **Steve Skala's Cobalt in Calcite**.

There will be no Bragging Rights at the February General Meeting.



## Mark Your Calendars for the CO-OP Seminar Meeting!!

All CO-OP Society/Club Membership are Welcome to Attend!

Where: Sacramento County Extension Building 4145 Branch Center Rd  
Sacramento Ca 95827.

When: March 8th, a Sunday.

Check in will be 9-9:30 am. Our Program starts at 9:30 am.

Our speaker is Greg Francek, topic is "Mastodons Among Us"  
Insider view of a discovery of a fossil site and associated scientific studies.

Join Us For Our Live Auction Following The Program!

Lunch will be pulled pork sandwiches, green & potato salads, coleslaw, chips and  
drinks. Cost \$8.00.

Morning tea & coffee & snacks \$1.00 donation asked.

Must RSVP if you're staying for lunch! Contact Misty Watson  
[mistywatsonc21@hotmail.com](mailto:mistywatsonc21@hotmail.com) Text/Call (209) 480-3176

Presentation title: Mastodons Among Us

Imagine a wild landscape of grassland, forests and erupting volcanoes... add a robust population of mammals including camels, rhinos, ancestral elephants and bone-crushing dogs—such is the scene during the Late Miocene in what we know as present-day California. Join Ranger/Naturalist Greg Francek as he shares his account of the discovery of a significant northern California fossil deposit and the ongoing collaborative study being conducted by EBMUD, CSU Chico and a cadre of elite scientists.

Greg Francek is a Ranger/Naturalist who is employed by East Bay Municipal Utility District in the Mokelumne Watershed. As a patrol ranger, Greg's work includes public safety duties such as regulation enforcement, wildland firefighting, Search & Rescue and medical response. His discovery of the Mokelumne fossil site has launched an intensive on-the-job education in paleontology with a team of elite scientists.

## 2026 Show Updates

Yes, the Show is next month. Mark your calendars for March 21 and 22.

First off, I want to thank all the members that signed up to volunteer at the Show. I was surprised at the positive response. If you missed signing up it's not too late to call, text or email me. Fun positions go fast. And remember, if you volunteer at least 4 hours, you can enter to win a trip to Camp Paradise during the last weeks of August. After your shift at the show you can get an application from me.

[Editor's Note: Or print the [application](#) in this Breccia.]

### Gem, Mineral & Jewelry Show

March 21 & 22, 2026

10:00 am - 5:00 pm Saturday

10:00 am - 4:00 pm Sunday



Educational Exhibits - Rocks that Glow in the dark  
Kids area – open a geode and see what is inside

How to make Arrowheads - Other demonstrations

Santa Clara County Fairgrounds

[www.scvgms.org](http://www.scvgms.org)

[inbox@scvgms.org](mailto:inbox@scvgms.org)

<https://www.facebook.com/santaclaravalleygemandmineralsociety>

For those of you on a rock collecting, or minerals social media site, please attach a copy of the Show Card, or the picture to the left, as an invitation to attend.

We are looking for your perfect photo to use as the Show Card for 2027 and 2028. If you think you have the best specimen, send a photo to either Frank or me. Your special rock could be the one featured. Good luck to everyone.

The next Show meeting will be March 5th at 6:30 in the reserved room at Mountain Mike's, 301 Hamilton, Campbell. Mark your calendars!!

-Margo Mosher

## Rattlesnake Stew

For those of you who run into rattlesnakes...

### Rattlesnake Stew

Rattlesnakes are sometimes referred to as "desert whitefish."

You will need one medium-size snake (1-2 lbs.).

Remove head, tail, and skin (save and dry to make a hat band in true Cowgirl-style) and clean the snake. Cut the snake into small pieces, cover in flour, and fry in bacon grease or lard. Add seasonings like salt and pepper. A few sagebrush leaves will enhance the flavor.

Cover the snake with water and bring to a boil. Turn down the heat and simmer for 1 1/2 hours or until tender (add additional water if necessary).

While the snake is stewing, melt some bacon fat in a medium saucepan and fry some onions, carrots, celery, and garlic on low until the onions are translucent.

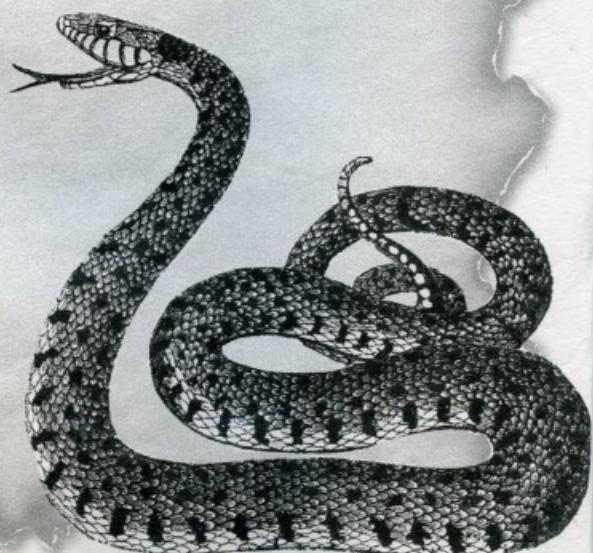
Peel and dice some potatoes.

Add the vegetables to the snake pan and cook slowly until the potatoes are done, about another 30 minutes.

Serves 3-4

*"When you are looking for something to eat, a rattlesnake can do just fine."*

—MARY S. HAWKINS JOURNAL,  
Wyoming Territory, 1899



Imagine you are out Recreational Rockhounding and you get stuck in the sand in the desert, you run out of snacks and food, and the closest fast-food drive through is 90 miles away. And you are thinking, the only thing left is to live off the land for a night or two? Here is one way to do that, from the Cowgirl Cookbook 1899 and 2008.

## Website Links

### Your Window to the World of Important Websites

SCVGMS Website: <https://www.scvgms.org/>

SCVGMS Facebook Page: <https://www.facebook.com/santaclaravalleygemandmineralsociety>

American Federation of Mineralogical Societies (AFMS): <https://www.amfed.org>

American Lands Access Association (ALAA): [www.amlands.org](http://www.amlands.org)

BLM Rockhounding: <https://www.blm.gov/programs/recreation/rockhounding>

California Federation of Mineralogical Societies (CFMS): <https://www.cfmsinc.org/>

"CO-OP"—The Cooperative Field Trip Chairmen Association's Website: <https://www.co-opfieldtrips.com/field-trips>

GemKids: <https://gemkids.gia.edu/>

Mindat.org (world's largest open database of minerals, rocks, meteorites): <https://www.mindat.org/>

Smithsonian Science How Webcast Archives: <https://naturalhistory.si.edu/education/school-programs/grades-3-5/smithsonian-science-how/smithsonian-science-how-webcast-archives>

Smithsonian National Museum of Natural History: <https://www.youtube.com/@nationalmuseumofnaturalhistory>

## New Members

We welcome new members to SCVG&MS!

Carlos Osuma

Georgiana Rudge (returning)



## Information on Shows 2026

### February 12-March 1 – Indio, CA

San Gorgonio Mineral and Gem Society  
Riverside County Fairgrounds, 46350 Arabia St.  
Hours: Thu-Fri (12-13th, 19-20th, 26-27th) 3-10, Sat-Mon (14th-16th) 10-10, Sat-Sun (21-22nd, 28th-March 1) 10-10

Contact: 951-963-6751,  
[peggylrichard@yahoo.com](mailto:peggylrichard@yahoo.com)  
Web: <https://sgmgs.org>

### February 21-22 - Antioch , CA

Antioch Lapidary Club  
Contra Costa County Fairgrounds  
1201 West 10th Street  
Hours: Sat 10-5 & Sun 10-4  
Contact: Kelly Plumb, 510-693-9075,  
[kellyplumb900@yahoo.com](mailto:kellyplumb900@yahoo.com)  
Web: [www.antiochlapidaryclub.com/](http://www.antiochlapidaryclub.com/)

### February 28-March 1 – Vallejo, CA

Vallejo Gem and Mineral Society  
McCormic Hall (Solano County Fairgrounds),  
900 Fairgrounds Drive

Hours: Sat & Sun 10-5

Contact: 707-644-9764,  
[vgms01@yahoo.com](mailto:vgms01@yahoo.com)

Web: <https://vjgems.co/>

### February 28-March 1 – Newark, CA

East Bay Mineral and Lapidary Club  
The Newark Pavillion, 6430 Thorton Ave.

Hours: Sat 10-6, Sun 10-5  
Contact: 510-353-3787,  
[info@ebml.club](mailto:info@ebml.club)

Web: <https://ebml.club>

### March 7-8 – Ventura, CA

Ventura Gem & Mineral Society  
Ventura County Fairgrounds, 10 W. Harbor Blvd.

Hours: Sat 10-5, Sun 10-4  
Contact: 805-312-8467,  
[info@vgms.org](mailto:info@vgms.org)

Web: <https://www.vgms.org>

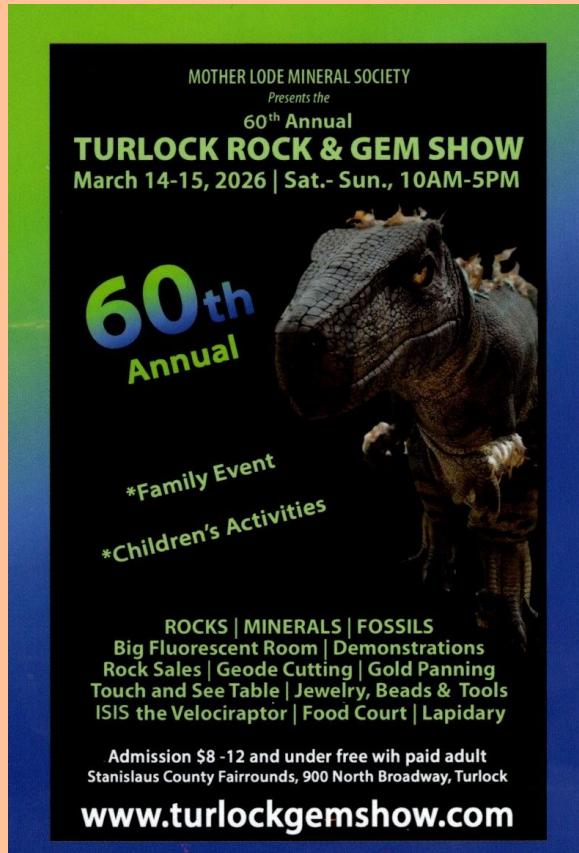
### March 13-15 – Apple Valley, CA

Victor Valley Gem and Mineral Club  
7 Miles down Stoddard Wells Rd.

Hours: 9-5  
Contact: 760-490-8401  
Web: <https://vvgmc.org>

*(Continued on page 16)*

March 14-15 – Turlock, CA  
 The Mother Lode Mineral Society  
 Stanislaus County Fairgrounds  
 900 N Broadway  
 Hours: Sat & Sun 10-5  
 Contact: [mgibson\\_76@hotmail.com](mailto:mgibson_76@hotmail.com)  
 Web: [motherlodemineralsociety.com/](http://motherlodemineralsociety.com/)



March 15 – Fallbrook, CA  
 Fallbrook Gem and Mineral Society  
 123 W. Alvarado St.  
 Hours: Sun 12-3  
 Contact: 760-728-1130,  
[info@fgms.org](mailto:info@fgms.org)  
 Web: <https://fgms.org/>

March 20-22 – Clovis, CA  
 Fresno Gem and Mineral Society  
 Clovis Rodeo, 748 Rodeo Dr  
 Hours: Fri & Sat 10-5, Sun 10-4  
 Web: <https://fgms.rocks/>

March 21-22 – San Jose, CA  
 SCVGMS Annual Show  
 Santa Clara County Fairgrounds  
 344 Tully Rd.  
 Hours: Sat 10-5, Sun 10-4  
 Contact: 408-265-1422  
 Web: <https://www.scvgms.org> or  
<https://www.facebook.com/santaclaravalleygemandmineralsociety>



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March 28-29 – Angel's Camp, CA  
 Calaveras Gem & Mineral Society  
 Calaveras County Fairgrounds  
 2456 Gun Club Rd.  
 Hours: Sat 10-5, Sun 10-4  
 Web: [calaverasgemandmineral.net/](http://calaverasgemandmineral.net/)

March 28-29 – Lancaster, CA  
 Antelope Valley Gem & Mineral Club  
 Antelope Valley Fairgrounds,  
 2551 W Ave H  
 Hours: Sat 10-5, Sun 10-4  
 Contact: [marylandoriole@gmail.com](mailto:marylandoriole@gmail.com)  
 Web: <https://AVGem.weebly.com>

March 28-29 – Lemoore, CA  
 Lemoore Gem and Mineral Club  
 Trinity Hall, 470 Champion St.  
 Hours: Sat 10-6, Sun 10-4  
 Contact: [lemooregemandmineralclub@gmail.com](mailto:lemooregemandmineralclub@gmail.com)  
 Web: [facebook.com/AndLemoore/](https://facebook.com/AndLemoore/)

March 28-29 – Torrance, CA  
 South Bay Lapidary & Mineral Society  
 Ken Miller Recreation Center  
 3341 Torrance Blvd  
 Hours: Sat 10-5, Sun 10-4  
 Web: [southbaylapidaryandmineralsociety.com](https://southbaylapidaryandmineralsociety.com)

April 1-5 – Joshua Tree, CA  
 Antelope Valley Gem & Mineral Club  
 Joshua Tree Lake RV & Campground  
 2601 Sunfair Rd  
 Hours: Wed-Sat 9-5, Sun 9-4pm  
 Web: [www.facebook.com/groups/1620716395007100](https://www.facebook.com/groups/1620716395007100)

April 8-19 – Thousand Oaks, CA  
 Conejo Gem and Mineral Club  
 Borchard Community Center  
 190 N. Reino Road  
 Hours: Sat 10-5, Sun 10-4  
 Web: [www.CGAMC.org](http://www.CGAMC.org)

# Mélange—Part 1

By Prof. Philip R. Kesten, Ph.D.

Got a rock in your pocket? You might. And if you do, gosh, it might have an interesting shape, that is, it might have an interesting crystal habit. Or it might, perhaps, have an interesting color.... or perhaps an interesting application. Let us take a moment to consider what might be interesting about a rock or a crystal.

Before we really get rolling, I am compelled to note that “mélange”, the title of this essay, is a word that can be associated with rocks. Geologists use “mélange” to refer to a certain variety of breccia, a variety in which the component rocks are large. And breccia is a rock composed of angular fragments of other rocks, cemented together in a matrix. (The word “breccia”, by the by, comes to us from the same word in Italian, meaning “rubble” or “gravel”.) An example of a small specimen of breccia is shown in Fig. 1A., a specimen with larger component rocks is shown in Fig. 1B., and a rock wall formed from breccia with much larger component rocks is shown in Fig. 1C. (The red Swiss Army knife sets the scale of the rocks in Fig. 1B., and the car in Fig. 1C. can give you a sense of the scale of that photo.) And “large”, as it relates to “mélange”? Examples of breccia with blocks as large as one kilometer across are known to exist!



*Fig. 1A. A specimen of breccia with relatively small component rocks.*

<https://www.alexstrekeisen.it/immagini/diagrammi/25.jpg>



*Fig. 1B. Some component rocks in this specimen of breccia are more than twenty centimeters across.*

<https://sites.pitt.edu/~cejones/GeoImages/5SedimentaryRocks/ClasticSedRocks/ConglomeratesBreccias/BrecciaRestingSpringsPasSml.jpg>

*(Continued on page 19)*

(Continued from page 18)



*Fig. 1C. The face of this rock wall is formed from large-scale breccia.*

<https://tinyurl.com/large-scale-breccia>

Let us start off this essay on mélange with crystal habits. (Which, I must say, is where my own interest in rocks and crystals began. For me, way back when I was young, it was the varied—and beautiful!—shapes of crystals that first fired my interest to collect rocks and minerals. Sure, I certainly appreciated their often-spectacular colors, but the habits of crystals, with their almost always smooth faces coming together at sometimes spectacular angles, is what got me hooked on rocks.)

And the number of different shapes in which crystals are found? Truth to tell, that is a large enough number that I will not be able to include, in this essay, a complete list, nor a complete set of descriptions, of crystal habits. Instead, I will present a subset of crystals that stand out because of their shapes.

Quartz is a good crystal with which to start. For starters, its crystal habit as well as its translucent nature make it attractive. And because quartz is relatively easy to acquire (or to find out in nature!), quartz is often one of the first rocks that a newbie collector will place in her collection. (Oh, my: the very first rock that I put into my own collection is a piece of quartz... a specimen that I actually picked up off the ground. Yes, I picked it up off the ground while walking along a trail on the property that my family owned in the Catskill Mountains.) A quartz crystal is usually hexagonal in cross-section—that is, it has six, smooth sides—and is terminated in a six-sided pyramid. Colorless specimens of quartz, such as the ones in the cluster of crystals shown in Fig. 2A, are composed of pure silicon dioxide. That is, the molecules in these crystals are all composed of one atom of silicon (Si) bonded to two oxygen atoms (O), or  $\text{SiO}_2$ .

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*Fig. 2A. A cluster of quartz crystals.*

<https://assets3.fossilera.com/sp/162810/quartz-crystals/quartz.jpg>

Impurities can contribute to quartz taking on hues of a variety of colors... such as the color seen along the bottom of the cluster shown in Fig. 2A. A few hematite molecules added to silicon dioxide, for example, change the color of the crystal from clear and transparent to orange! (An orangish crystal of "tangerine quartz" is shown in Fig. 2Ba.) And trace amounts of iron together with a few aluminum atoms result in a yellow quartz crystal known as citrine (see Fig. 2Bb.). Other colors of quartz can also be found—smoky quartz is black or brown, for example, amethyst is purple, and rose quartz is reddish or pink. (See Fig. 2Bc., Fig. 2Bd., and Fig. 2Be.)



*Fig. 2Ba. A crystal of tangerine quartz gets its orange color from trace amounts of hematite.*

[https://crystallis.com/wp-content/uploads/IMG\\_3929-001.jpg](https://crystallis.com/wp-content/uploads/IMG_3929-001.jpg)



*Fig. 2Bb. Citrine gets its color from trace amounts of iron and aluminum.*

<https://m.media-amazon.com/images/I/61-FPLyUF-L.ACSL1000.jpg>



*Fig. 2Bc. Smoky quartz is brown, or black.*

<https://www.mindat.org/imagecache/34/60/07922190017271926672807.jpg>



*Fig. 2Bd. Amethyst is a purple variety of quartz.*

<https://cdn.irocks.com/storage/media/99186/conversions/ibm23-9-wm-large.jpg>

(Continued on page 21)

(Continued from page 20)



*Fig. 2Be. Rose quartz is pink, or reddish.*

[https://miro.medium.com/v2/  
resize:fit:1400/0\\*8cU3b5F567IjGIKG](https://miro.medium.com/v2/resize:fit:1400/0*8cU3b5F567IjGIKG)

In addition to the wide variety of colors exhibited by crystals of quartz, this stone is special for another reason: quartz is one of only a few minerals that can be found as a doubly terminated crystal. Most crystals form by growing out and away from another rock, so while the end of crystal far from that other rock is terminated in a point, the end where it was attached to that rock is either flat or shapeless. But sometimes crystals—crystals such as quartz—can form in a fluid-filled pocket within a rock, which allows those crystals to form free-floating in that liquid. In that way, neither end of the crystal is attached to a solid surface, so both ends of the crystal grow with faceted, pointed terminations. The resulting crystal is termed “doubly terminated”; a doubly terminated quartz crystal is shown in Fig. 3A. (This particular quartz crystal has in it trace amounts of hematite, lepidolite, alurgite, and piemontite. Hematite is black or dark red, lepidolite is a purple stone, alurgite is orange-red, and piemontite is deep red; together, these trace elements give this crystal of “strawberry quartz” its pinkish, purplish color.)



*Fig. 3A. A doubly terminated crystal of quartz.*

[https://dreaminggoddess.com/wp-content/  
uploads/2022/05/ST-STRAW-QTZ-DT-5.jpg](https://dreaminggoddess.com/wp-content/uploads/2022/05/ST-STRAW-QTZ-DT-5.jpg)

As an aside, feldspar, epidote, and topaz are some of the other minerals that can form as doubly terminated crystals; examples of each are shown in Fig. 3Ba., Fig. 3Bb., and Fig. 3Bc, respectively. And crystals of dogtooth spar calcite are most often doubly terminated; a representative specimen of dogtooth spar, in which you can see its habit of two, four-sided pyramids back-to-back, is shown in Fig. 3Bd.

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*Fig. 3Ba. A doubly terminated crystal of feldspar.*

<https://tse4.mm.bing.net/th?id=OIP.hVaYwJpg4YDG5oBtIdEnHwHaFj>



*Fig. 3Bb. A doubly terminated crystal of epidote. The terminations of this crystal are flat.*

[https://i.etsystatic.com/13212571/r/il/fbbaf2/4534462518/il\\_794xN.4534462518\\_o72m.jpg](https://i.etsystatic.com/13212571/r/il/fbbaf2/4534462518/il_794xN.4534462518_o72m.jpg)



*Fig. 3Bc. A doubly terminated crystal of topaz.*

[https://www.crystal-treasure.com/images/product\\_images/popup\\_images/mj01-584-0.jpg](https://www.crystal-treasure.com/images/product_images/popup_images/mj01-584-0.jpg)



*Fig. 3Bd. A specimen of dogtooth spar calcite.*

<https://www.mindat.org/imagecache/a6/ef/00779950017362410282819.jpg>

(To be Continued.)

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### An Invitation

This society is pleased to invite guests to attend general meetings, study groups, and field trips. **General meetings are held the fourth Tuesday of every month with meet and greet time beginning at 7:00 followed by the meeting at 7:30 PM at 100 Belwood Gateway (the Cabana Club), Los Gatos, CA 95032.** Belwood Gateway is just south of Blossom Hill Road between Leigh Avenue and Harwood Road.

**Our Society's Purpose:** The inculcation of a love of rocks and minerals by the furtherance of members' interests in the earth sciences and by education in all facets of related educational activities with the promotion of good fellowship, proper ethics, and conduct.

**Our Membership Requirements:** Attendance at two general meetings within twelve months.

This society is a member of the California Federation of Mineralogical Societies (CFMS) and is affiliated with the American Federation of Mineralogical Societies (AFMS).

**Our Newsletter, the Breccia,** is published 11 times annually. The deadline for all articles is the Sunday after each general meeting. The Breccia editor is **Deb Runyan** who may be contacted by email at [editor@scvgms.org](mailto:editor@scvgms.org) and by phone at 408-628-7789. The Breccia is proofread by **Pat Speece** and **Sonia Dyer**.

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