BRECCIA

Santa Clara Valley Gem and Mineral Society

Volume 73 Number 1, January 2026

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Events

January 27, 7:30 PM: The General Membership Meeting will feature **Sonia Dyer** on Amber. Please bring your amber for show and tell. The Bragging Rights theme is **"Pink"**.

February 3, 7:30 PM: Board Meeting on Zoom. All Members are welcome to attend. If you do want to attend, please contact Jim Herbold.

February 24: The General Membership Meeting.

The Mineralogist, 1830—a coloured lithograph by George Madeley, after a drawing by George Spratt.

Editor's Message

Welcome to the New Year!

Many thanks to **Michael Paone**, **Missy Fox**, and everyone else who helped with the Holiday Dinner. It was another great success!

Our 2026 Annual Show will be March 21 and 22. **Margo Mosher**, **Frank Mullaney** and others have already had three meetings.

The Board voted to allocate four $3,000 grants for students, 3 from SJSU and 1 from Santa Clara University. The students will make presentations at a General Meeting and spend time at our Annual Show helping out to earn the grants.

I have included another batch of **Sonia Dyer's** photos from her presentation on the Rocks and Minerals of Michigan.

Dues for 2026 are now due.

Do you have anything that other members might enjoy?

The deadline for submissions is the Sunday after each General Meeting.

Deb Runyan, Breccia Editor

editor@scvgms.org, 408-628-7789

Sunshine

Kyle Van Woerkom has been in the hospital on and off. He is being treated for prostate cancer. Kyle is an enthusiastic member of our club and we miss seeing him at the meetings. We wish him a the best in his fight against cancer.

If you know of anyone needing some sunshine in their lives, please email **Margo Mosher at** margomosher@yahoo.com.

Field Trips

Currently there are no Field Trips planned.

Check back next month!

DID YOU KNOW from the Exploratorium

… on Venus, a day is longer than a year? It takes Venus about 225 earth-days to travel once around the sun—a Venusian year. But a day on Venus—the time it takes the planet to revolve once around its axis—is equal to 243 earth-days. It's the only planet in our solar system that takes longer to rotate on its axis than it does to revolve around the sun.

… an average bolt of lightning is approximately five times hotter than the surface of the sun? The sun's surface glows at approximately 9980 degrees Fahrenheit (5800 degrees Kelvin), but the plasma—superheated gas—of a lightning bolt is around 50,000 degrees Fahrenheit (30,000 degrees Kelvin)!

… if you could drop something as tall as Mount Everest into the deepest part of the ocean, not only would it completely disappear, but you'd also have to dive through about 7,000 feet of seawater just to reach it? The summit of Everest is 29,028 feet above sea level—but the deepest place in the ocean, the Mariana Trench (near Guam in the western Pacific) is around 36,000 feet deep!

… those pennies you throw into fountains help keep them clean? The copper dissolves in the water and helps control the growth of algae.

President's Message

Happy January, everyone! I trust that your holiday season was delightful and that you are ready to make the most of 2026. I'm delighted that the Santa Clara Gem & Mineral Society will be a part of your fun in the upcoming year.

The club does have a couple of activities this month. Margo Mosher has been running the planning meetings for our big Annual Show in March, and the third of these meetings will have happened on January 7 by the time you read this. It's not too late to join the volunteer group that she is managing—please contact her directly if you would like to step into this planning group.

And of course we will have our regular general meeting on January 27, 2026. Stephen May will run this meeting, and Sonia Dyer will be presenting to everyone—her topic this time is Amber. Also to note about the general meetings this year—to simplify things and to account for what is always very low usage, we will not be broadcasting our meetings via Zoom in 2026.

So be safe and be well, and if you are heading to Quartzsite or Tucson this year, perhaps I will see you there!

Enjoy!

Jim Herbold

SCVGMS President

[Editor's Note: Here's an old shot of a fluorescent dinosaur bone fossil with holiday colors…]

Bragging Rights

This month's Bragging Rights theme is **"Pink"**.

The February *Breccia* should have several beautiful pictures of pink specimens.

When nature is cooler than AI - an absolute beast of a turquoise specimen.

Sonia Dyer found this great photo.

Courtesy of The Arkenstone, iRocks.com.

From: https://www.reddit.com/r/MineralPorn/s/xJaNRlUCmH

Jim Fox's Touch Table

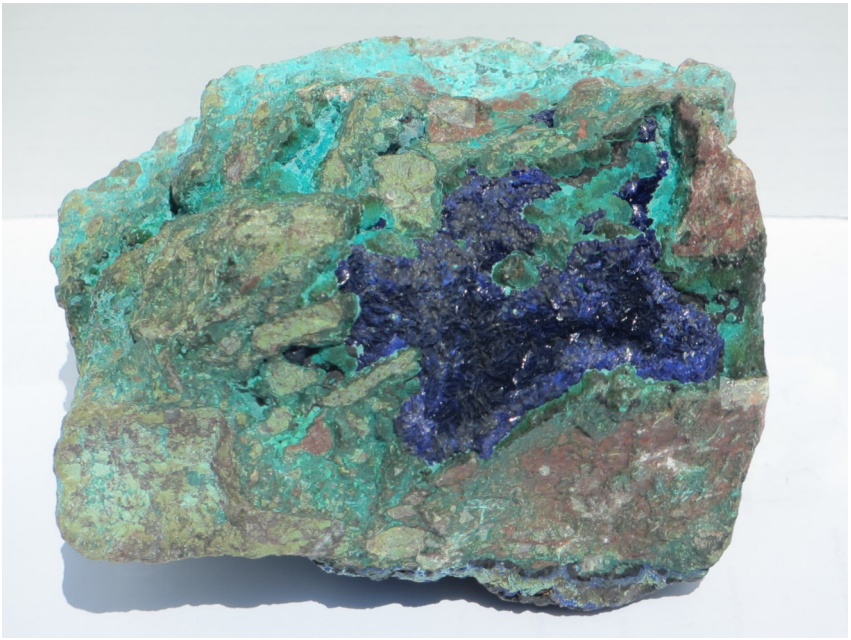
Azurite, Malachite with Chrysocolla

Azurite, **Malachite**, and **Chrysocolla** are commonly found together due to their similar chemical compositions and geological origins. All three are copper-based minerals that form under similar environmental conditions.

Azurite ($Cu_3(CO_3)_2(OH)_2$) and malachite ($Cu_2(CO_3)(OH)_2$) are both basic copper carbonate minerals that form when copper-bearing solutions interact with carbonate-rich environments.

Chrysocolla (Cu-Al-Si-O-OH) is a hydrous copper silicate mineral that often forms in the same copper-rich geological settings. These three minerals frequently co-occur because they can precipitate from the same aqueous solutions containing dissolved copper, carbonate, and silica. Changes in factors like pH, redox conditions, and evaporation rates can cause the selective precipitation of azurite, malachite, or chrysocolla, or mixtures of the three. The presence of these three minerals together is a good indicator of copper mineralization and a potential target for copper exploration and mining. Their close association is a result of their shared geochemical origins in the weathering and alteration of copper-bearing ore deposits.

Mohs hardness of 3.5 to 4.0.



This piece came from the Bisbee, AZ mine.

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Amethyst Lace Agate

Amethyst Lace Agate is a banded chalcedony featuring white, pink or salmon-pink highlights and massive purple quartz, better known as amethyst. Amethyst Lace Agate is essentially an Amethyst that became embedded in Lace Agate (the white parts of the stone) and interwoven with agate type banding. This material originates in Durango, Mexico and, at last report, is no longer mined.

The color in amethyst comes from color centers in the quartz. These are created when trace amounts of iron are irradiated (from the natural radiation in the rocks). Amethyst has long been called the "sobriety stone." In ancient Rome, crushed amethyst was added to wine cups to prevent drunkenness.

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/

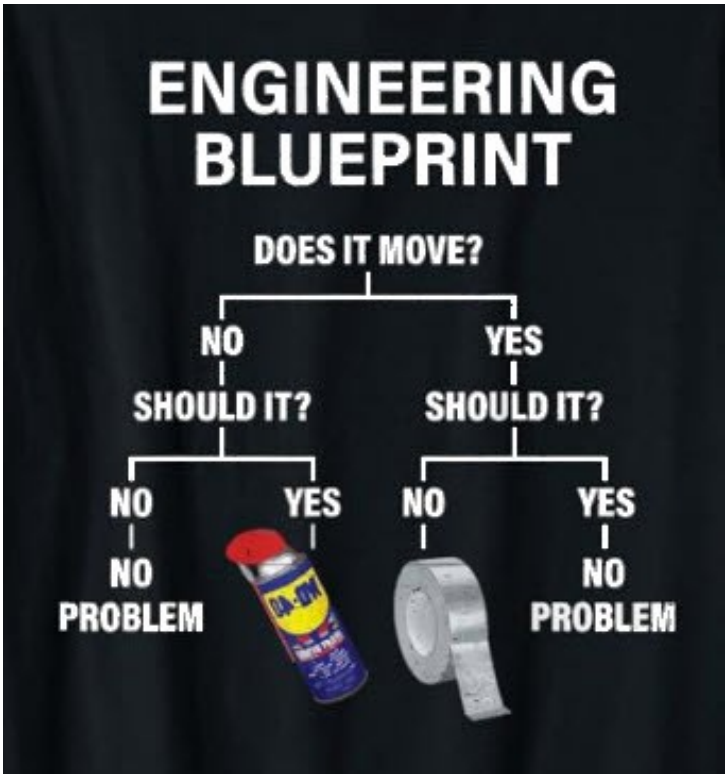
Or

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.



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

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

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

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

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

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

Smiles

Depression is just anger without enthusiasm.

Bacteria is the only culture some people have.

A clear conscience is a sign of a bad memory.

Change is inevitable except from vending machines.

If you are sure no one cares anymore miss a couple of payments.

If you believe in psycho-kinesis raise my hand.

Information on Shows

2026

January 17-18 – Exeter, CA

Tule Gem and Mineral Society

Exeter Mineral Building, 324 N. Kaweah Ave.

Hours: Sat 10-5, Sun 10-4

Contact: ebcalpoly@aol.com

Web: http://www.tulegem.com

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

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

Web: https://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

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

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

Web: https://www.vgms.org

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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

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

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

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
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
Web: https://www.facebook.com/AndLemoore/

The Four Stages of Life

1. You believe in Santa Claus.
2. You don't believe in Santa Claus.
3. You are Santa Claus.
4. You look like Santa Claus.

- Anonymous

Orange Stones—Part 2

Philip R. Kesten, Ph.D.

Fire opal. Opal, or more properly "common opal", is a relatively nondescript, whitish stone. (See Fig. 5a) The variety of opal known as "precious opal" is far more colorful—it exhibits a chromatic effect known as "play-of-color", or "iridescence". A polished cabochon of precious opal, which displays this play-of-color, is shown in Fig. 5b. And there is plenty of orange visible in the polished cabochons of precious opal shown in Fig. 5c.

Fig. 5a.

Fig. 5b.

Fig. 5c.

Fig. 5a. A specimen of common opal. https://gemsbygerald.com/wp-content/uploads/2014/04/MO143-IMG_3827sh.jpg

Fig. 5b. A polished cabochon of precious opal. https://images.jtv.com/gemstones/JTV-16353A-1-medium.jpg

Fig. 5c. Polished cabochons of precious opal. https://tse1.mm.bing.net/th?id=OIP.CIJbFP-juMJxavjdmeyDRgHaHa

The internal structure of a specimen of precious opal presents gaps—somewhat akin to slits—to light that enters the stone. These gaps cause light rays of different colors to be scattered off in slightly different directions, so the net effect is that when a piece of precious opal is illuminated by white light—light which is a mixture of all colors—different regions on the surface of the stone reflect back different colors. Even slight movements of the specimen will result in flashes and swirls of these different colors of light heading off in different

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directions. And in these flashes will be, indeed, all of the colors of the rainbow. Including, yes, orange!

And "fire opal"? The colors of this stone are deeper and more vibrant than those of common opal, as you can see in the polished cabochon of precious opal.

But wait. Is opal, or precious opal or fire opal, orange in color? ("Orange" is, after all, the topic of this essay.) As Fig. 6a. suggests, there is certainly plenty of orange to be seen in a piece of fire opal, and the rough specimen of opal shown in Fig. 6b. is most definitely orange—a very orange orange!

Fig. 6a. A polished cabochon of fire opal. https://opalgalaxy.com/wp-content/uploads/2023/03/DSC7654o-Copy-1000x1001.jpg

Fig. 6b. A rough (unpolished) and orange specimen of opal. https://www.radiantrocksct.com/cdn/shop/products/1_273cb0d4-7830-4769-ab4f-35913098daa0_large.jpeg

In a way, opal is similar to citrine and to quartz: opal is a form of silica, and citrine and quartz are both silicas. In particular, opal is an amorphous, hydrated form of silica; "amorphous" indicates that opal does not exhibit a crystal structure, and "hydrated" means that the silica molecules have become chemically bonded to water molecules. Silica is SiO_2, that is, a silicon (Si) atom bonded to oxygen (O) atoms. Water molecules are two hydrogen (H) atoms bonded to an oxygen (O) atom, or H_2O. The molecules in opal, then, are $SiO_2 \cdot nH_2O$. Here, "n" indicates that the number of water molecules can vary.

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Creedite. For starters, the chemical composition of the mineral creedite results in the molecules of which it is comprised having one of the longest names of any mineral: Molecules in creedite are, formally, "hydrated calcium aluminum sulfate fluoride hydroxide". (If you are a stickler, yes, the various pieces of this name are often rearranged, for example, creedite is sometimes referred to as "hydrated calcium aluminum sulfate hydroxide fluoride".)

What can we extract from the long name of the molecules in creedite? First, the "hydrated" part of the name indicates that one of the components of these molecules is water. Also embedded in the molecules in creedite is aluminum sulfate... aluminum (Al) atoms bonded to sulfates, that is, to silicon (Si) and oxygen (O) atoms. And yes, sprinkled into this mix are calcium (Ca) and fluorine (F) atoms. The equation that describes the chemical composition of creedite is, then, $Ca_3Al_2SO_4(F,OH)_{10}{\cdot}2(H_2O)$. As the name implies, and as this chemical formula implies, this molecule is (yikes!) complex. And long, too!

Creedite is a stone—like many others stones—that gets its name from the location where it was discovered. Creedite was first found, in the early part of the twentieth century, near the town of Creede, Colorado. (For your enjoyment, I present a photo of the town of Creede taken near the end of the nineteenth century, in Fig. 7.) As an aside, this town was named for Nicholas Creede, a prospector whose discovery of silver in that area in the later part of the nineteenth century was the opening salvo in the "Colorado Silver Boom". And as another aside, when Creede discovered a vein of silver running through a local lead and zinc mine, he is said to have yelled "Holy Moses"! Which led to the name of the mine: the "Holy Moses Mine!". This mine is located in the aptly named Mineral County in Colorado. And by the by, who would blame Creede for being excited after discovering a vein of silver?!

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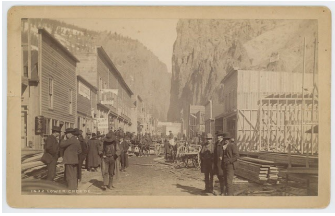

Fig. 7. The town of Creede, CO, circa 1900. https://live.staticflickr.com/4663/38864905245_a606da24c0_z.jpg

A specimen of creedite is shown in Fig. 8. Creedite can take a number of forms, but clusters such as the one shown in the figure—sprays of fine, orange prismatic crystals that appear to radiate from a common point—are common. And, oh my(!), creedite is most certainly orange.

Fig. 8. A specimen of creedite. https://www.dakotamatrix.com/images/products/creedite31727d.jpg

Orange garnet, orange sapphire, and orange diamond. You have guessed, no doubt, that these are orange-colored varieties of garnet, sapphire, and diamond, respectively. Orange garnet? Not surprising, perhaps… you likely think of garnet as a reddish stone, so an orange variety would not seem out of the ordinary. But sapphire and diamond?!

The marketing of sapphires and diamonds probably makes you think of sapphires as blue, and diamonds as white, or at least pale, in color. Of course, this is not true in general… sapphires can be pink or red, green, or purple, and even yellow. And yes… sapphires can also be orange. The same is true for diamonds. Brown and yellow diamonds are the most common colors of diamonds that are not colorless. But although they are less common, pink, blue, red, and—oh, my!—orange diamonds can also be found.

You can see an image of an orange garnet, an uncut (rough) orange sapphire, and an uncut orange diamond in Fig. 9a., Fig. 9b. and Fig. 9c., respectively. The color of an orange garnet, an orange sapphire, and an orange diamond results from trace impurities. Orange sapphires, for example, get their color from trace amounts of chromium and iron, and diamonds take on an orange hue when a

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small amount of nitrogen atoms are sprinkled in between the carbon atoms that make up the bulk of a diamond specimen. (And by the by, many specimens of garnet, sapphire, and diamond—such as the ones shown in these figures—have a dodecahedron crystal habit.)

Fig. 9a.

Fig. 9b.

Fig. 9c.

Fig. 9a. A specimen of orange garnet. https://cdn.irocks.com/storage/media/12754/conversions/spess-06a-large.jpg

Fig. 9b. A specimen of orange sapphire. https://i.etsystatic.com/25816439/r/il/98876e/4988210785/il_1588xN.4988210785_7a7q.jpg

Fig. 9c. A specimen of orange diamond. https://media.springernature.com/lw685/springer-static/image/chp%3A10.1007%2F978-3-030-35717-7_2/MediaObjects/429173_1_En_2_Fig10_HTML.png

I hope that this overview of some orange minerals makes you ready to add some orange rocks to your rock and mineral collection. Go out and get some!

Prof. Philip R. Kesten, Ph.D., Department of Physics, Santa Clara University

More Smiles

Apparently, exercise helps you with decision-making. It's true. I went for a run this morning and decided I'm never going again.

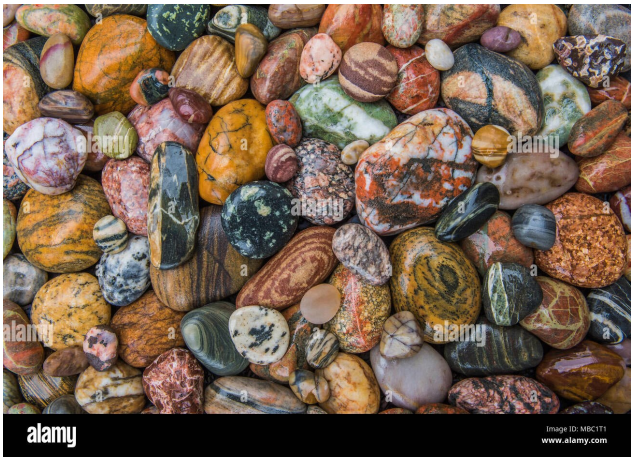
The most expensive vehicle to operate, by far, is the Costco shopping cart.

Rocks and Minerals of Michigan—Part 2

Sonia Dyer, Oct 28, 2025

Lake Superior Agates

Source: rockngem.com



Source: Alamy.com

Source: Pinterest

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Pudding stones (rhyolite or basalt breccia with red jasper chunks)

Source: Drummond Island Tourism Assn

Source: Michigan Rock Hunters

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Leland Bluestone (slag from iron smelting dumped in Lake Superior in the 1800s)

Source: YouTube

(To be Continued.)

SCVGMS ELECTED OFFICERS

President: Jim Herbold, 650-743-3254

Vice President: Stephen May, 408-306-6782

Secretary: Cynthia Porter, 408-978-5848

Treasurer: Frank Mullaney, 408-691-2656

Board Members at Large

Jim Fox, 408-356-7711

Missy Fox, 408-356-7711

Cathy May, 408-248-3993

Michele Smith, 408-374-1897

Michael Paone, 408-340-3258 (Federation Director)

Paul Kidman, 408-356-4995 (Alternate Federation Director)

Deb Runyan, 408-628-7789

SCVGMS COMMITTEE HEADS

Bragging Rights Chair: Cesar Nuñez

Donation Receiving Committee Chair: Michele Smith

Editor: Deb Runyan

Fairgrounds Booth Chair: Michele Smith

Fairgrounds Liaison: Frank Mullaney

Fairgrounds Volunteer Coordinator: Margo Mosher

Field Trip Coordinator: Stephen May

Founder's Day Bingo: Sonia Dyer

Founder's Day Picnic Chair: Jim Herbold

Founder's Day Raffle: TBD

Hospitality: Margo Mosher

Installation Dinner: TBD

Member Displays: TBD

Refreshments: TBD

Show Chair: Margo Mosher

Silent Auction: TBD

Sunshine: Margo Mosher

Trophies: Frank Mullaney

Santa Clara Valley Gem and Mineral Society

P.O. Box 54, San Jose, CA 95103-0054

Website: www.scvgms.org

Email: inbox@scvgms.org

Phone Number 408-265-1422

Like us on Facebook:

https://www.facebook.com/santaclaravalleygemandmineralsociety

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 and by phone at 408-628-7789. The Breccia is proofread by **Pat Speece** and **Sonia Dyer**.

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