



Bulletin of the Mineralogical Society of Southern California

Volume 91 Number 5 - May, 2018

The 956th meeting of the Mineralogical Society of Southern California

With Knowledge Comes Appreciation

May, 11th, 2018 at 7:30 P.M.

**Pasadena City College
Geology Department, E-Building, Room 220
1570 E Colorado Blvd., Pasadena**

Program: "50 Unusual Things in the Mojave"

Presented by Tony and Sandie Fender

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Remember: If you change your email or street address, you must let the MSSC Editor and Membership Chair know or we cannot guarantee receipt of future Bulletins

About the Program: "50 Unusual Things in the Mojave" Presented by Tony and Sandie Fender

Come join us for another trip to explore the local desert with Tony and Sandy Fender. They have spent many years exploring our desert areas and can take us along with their pictures and talk.

From the Editor:

I want to start off by thanking our President, George Rossman for his wonderful mineral articles. I really enjoy them and hope you do too. Also, Thank you Ann for your regular article on other free activities we can add to our lives. Great job. both of you!

I am always looking for articles that may be of interest to our membership. Any that I receive are used when space allows. Don't be disappointed if you have to wait a month or more to see your article in print. Also, if there is anything that is date specific, I put the bulletin out by the first of the month so anything for June, for example, should be in my hands by the 22nd of May. I received an excellent article from Marek Chorazewicz last month about the April 28th field trip. As the next bulletin to be published would be out after the field trip date, I sent a special email to all MSSC members that I have email addresses for so they would know about the trip. I haven't heard if the field trip was a success as yet, but I hope interested members were able to attend. Please, everyone, get your date specific informaton to me by the 22nd of the month before your event to get it into the Bulletin! Linda Elsnau

From the President: Interesting Minerals, A to Z. Installment 5, the letter "E": by George Rossman

Euclase

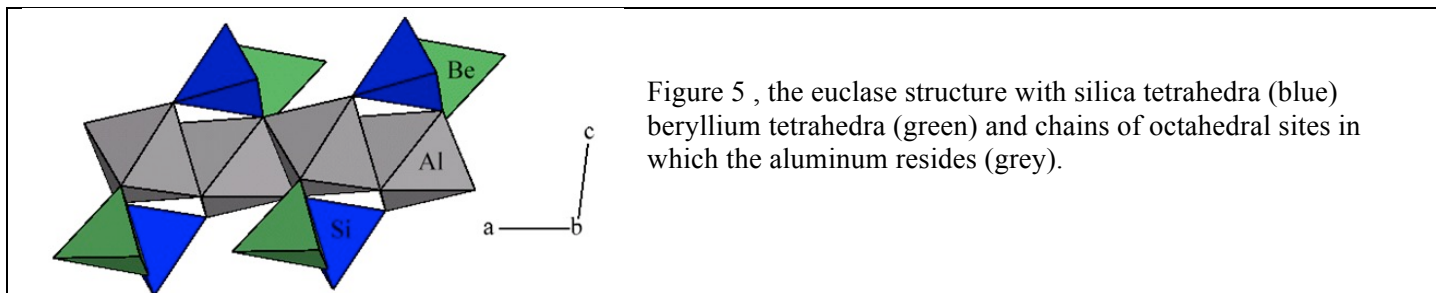
Euclase, $\text{BeAlSiO}_4(\text{OH})$, is a beryllium mineral found in pegmatites and in alpine veins. This mineral goes back to at least 1792 when it was described in an article entitled *De l'euclase, Observations sur la Physique, sur l'Histoire Naturelle et sur les Arts*, 41, 155-156. It is not particularly common but is found in several localities in Brazil as well as in Europe, Africa, and Asia. This is a mineral you are not likely to find in California. Mindat.org has no California localities reported for euclase.

Euclase is colorless when pure (Figure 1) but can have some iron replacing the beryllium in which case it can be various shades of blue (Figures 2, 3). All it takes is less than 0.05 wt% iron. Really dark-blue euclase can have about 1.5 wt% iron replacing the aluminum.



Why is it blue? The reason has to do both with the chemistry and the structure. The blue euclase has iron in both the 2+ and 3+ oxidation states. Let's call this 'mixed oxidation state' iron. The structure of euclase is such that we have chains of octahedra running along the a-axis of the crystal (Figure 5). Normally, aluminum would be in these sites. But, iron can also enter the aluminum sites, and when an iron 2+ sits right beside an iron 3+ in an adjacent octahedral site, something wonderful happens. Iron in the 2+ oxidation state has 6 electrons in its outer orbitals whereas iron in the 3+ oxidation state has just 5 electrons. When light of the right wavelength range enters a crystal of euclase with both iron oxidation states, the energy of the light can make the 6th electron on the iron 2+ jump over to the neighboring iron 3+. That process absorbs

those wavelengths which happen to be in the red portion of the spectrum. What are not absorbed are the blue wavelengths. So, the crystal appears blue. We scientists call this intervalence charge transfer (valence refers to the charge on the iron).



This is an important process that gives color to minerals. There are many minerals that have iron present in two different oxidation states and have the intervalence process as the source of their color. Blue beryl (variety aquamarine), blue cordierite (gem name: iolite), blue corundum (variety sapphire), blue omphacite (found in blue Jade from Guatemala), blue kyanite, blue sillimanite, and many darker minerals such as amphiboles, pyroxenes, micas and tourmalines are examples of minerals that have intervalence charge transfer as a source of color (Figure 6).



Be happy that minerals have mixed up oxidation states. It makes things pretty.

Minutes of the April 13, 2018 Meeting

On Friday, April 13, 2018, the **955th Membership Meeting** of the Mineralogical Society of Southern California (MSSC) was called to order at 7:33 p.m. by Secretary Angie Guzman. President George Rossman and Vice President Renee Kraus were both out of town for the meeting. Dr. George is presenting at the Sinkankas Symposium and Renee accompanying her husband on a business trip. As per our Standing Rules, President Rossman appointed someone, Secretary Angie Guzman, to chair the membership meeting.

A message from Dr Rossman: The International Mineralogical Association's Committee on New Mineral Names now lists 5,327 known mineral species. There are actually more than that. Tony Kampf of the L A County Natural History Museum and colleagues at Caltech have recently had another mineral approved that has not yet made it into IMA's

official list of mineral names. It is a new hydrated copper, magnesium tellurate from the Tintic district of Utah.

Regular Business

Minutes: (A) 4 months of Membership and 1 month of Board Minutes to be approved for the record. All of the minutes have been published in the *Bulletin*. Angie asked for a motion to approve the Membership minutes as follows: (1) December 9, 2017 minutes published in the January 2018 *Bulletin*, (2) January 13, 2018 minutes published in the February 2018 *Bulletin*, (3) February 16, 2018 minutes published in the March 2018 *Bulletin* and (4) March 9, 2018 minutes published in the April 2018 *Bulletin*. The **MOTION to approve the 4 Membership meeting minutes as stated** was made by Laura Davis and seconded by Ahni Dodge. Angie asked if there were any additions or corrections and seeing none, called for the vote. The motion to approve the Membership meeting minutes as stated **passed unanimously**. (B) Angie then asked for a motion to approve the Board Meeting Minutes of December 3, 2017 as published in the January 2018 *Bulletin*. The **MOTION to approve the Board minutes of December 3, 2017** was made by Leslie Ogg and seconded by Rudy Lopez. Angie asked if there were any additions or corrections and seeing none, called for the vote. The motion to approve the Board Meeting Minutes as stated **passed unanimously**.

Bulletin: Items for submission to the *Bulletin* should be sent to Editor Linda Elsnau by the 22nd of the month.

Membership Meeting: The next membership meeting will be Friday, May 11, 2018.

Board Meeting: The next Board meeting is scheduled for June 17, 2018 at the Carter residence.

Annual Picnic: The annual picnic is set for August 12, 2018 at the Carter residence. No theme has been set yet, but we will have our silent auction, great food, good stories and great camaraderie. Watch the *Bulletin* for updates.

Announcements

Field trip: (1) Dr. Bob Housley announced the upcoming Friends of Mineralogy outing, April 28, to Ord Mountain. He and Marek Chorazewicz will be going – Angie had a handout of trip particulars that was sent by Marek. Bob says there are malachite, azurite, actinolite and even gold to be had! There may be opportunity to go to a second location nearby and go into the mine but anyone who goes in must be properly outfitted with hard hat, head lamp, etc.; (2) Angie mentioned the Gem Faire is coming up in May at Orange County Fair Grounds, announcement cards are up front; (3) Rudy Lopez announced the Conejo Gem and Mineral Club Gem Show next weekend, April 21-22, 2018 at Borchard Park in Newbury Park and it's free; (4) Jim Kusely says that we're in process to take care of our website for another 2 years, and (5) Jim also reports that a friend of his has a house in Quartzsite and does very well in a month (January).

Membership and Webmaster: nothing new to report.

Programs: Chair Rudy Lopez reported (1) MSSC's success at the 4th annual Nature Fest at the County museum. Saturday there were a lot of teachers and Sunday had lots of kids. Over the 2-day event, MSSC gave out over 1,100 mineral samples to kids, (2) Rudy stated that he has speakers lined up through March 2019 including a repeat in July by Peter Goetz, our presenter tonight.

Rudy then introduced guest speaker Peter Goetz. We met Pete at a Science in the Park event MSSC participated in last year. Pete is the President of the American Opal Society (AOS). AOS has been around since the mid 1960's and it has an annual show [*Secy Note: next AOS show will be November 2018*]. AOS also have classes and programs that show how to finish opals. This is a potential future event for MSSC. While Pete himself says he's not the ultimate expert, he certainly knows a lot about opal. His San Diego State degree is in Physical Geography with a minor in geology.

Program

Opal is a hydrated amorphous [*Secy Note: non-crystalline, mineraloid*] form of silica. It has a lattice structure of silica microsphereoids closely packed. The ordered spheres have spaces between them and water seeps into those spaces. The water around the spheres' internal structure causes interference and, as a result, diffracts light. This spacing of the spheres, how they line up or lie, their individual shape on a particular plane all give the opal color prisms. Its chemical formula is $\text{SiO}_2 \cdot n\text{H}_2\text{O}$ and, as mentioned, opal is hydrated, they contain water [*Secy Note: Water content is 3-21% but generally 6-10%*].

The best opal is found 50 meters below ground surface in the Artesian Basin, Australia.

Opals form in low temperature fissures of most any rock, most commonly rhyolite, sandstone and basalt, to name a few. Colors range from clear, to reds, blues, greens all the way to black (rarest), whereas white and green opals are most common. Opal will change color over time, say 40 years, due to cleaning. How opal color is defined is dependent on the structure sphere size: small sphere = blue, larger sphere = red and uniform sphere = more intense color brilliance. The best way to view your opal is by using a 100-watt light bulb at about 18" off the table where your specimen lies. Fluorescent lighting is not good for viewing opal.

There are three theories as to *how* opal forms: weathering model, syntectonic model and the microbe model. The weathering model needs a source of silica and, sandstone is required. For example, 100 million years ago in the east-central Australian landscape, that Great Basin began drying out leaving acidic levels that released the silica which weathered from sandstone and turned to gel. The silica-rich gel was trapped in fissures caused by fractures and faults (earthquakes) and it started to harden. Syntectonic model, similar to weathering model, also needs cracks and fissures. Water below ground forced opal to rise into the fractures of rock, then water dissipated, leaving the opal "embedded" in the rock. The Microbe model uses smectite [*Secy Note: a group of phyllosilicate mineral species*] clay, a habitat for microbes. Microbial waste acids and enzymes work on the clay and with introduction of water yields raw material for opal.

There are natural, treated, synthetic and stimulant (imitation) opals in the gem industry.

Natural opal is a stone, not changed from its natural state. Natural opal is described as solid, boulder, and matrix. Solid is without non-opal material attached. Boulder opal has an ironstone parent (backing); it is regarded as a solid natural opal because this backing occurs naturally. Australian boulder is the 2nd most valuable following the black opal. Matrix is

mixed throughout a parent rock rather than in a seam or in patches. Pete mentions Koriot and Yowah. These are towns in Australia that mine opal.

Treated opal is cooked. Andamooka (a location in Australia) opal is treated with sugar for the purpose of improving its color. It then is put in an acid bath that turns the white sugar around the pockets into black carbon that does not diffract the light. The outcome is a darkened matrix.

Synthetic opal is grown in a lab. The so-called Gilson opal has a market in the inlay business.

Stimulant opals are imitation – if the material contains silica, its synthetic opal. If it does not contain silica, its stimulant opal. Slocum stone, a silicate glass, is used in stimulant opals. Opalite is a trade name for opalized glass, a man-made stimulant opal.

So, where to find opal? Australia has the lion's share about 90-95% of precious opal is found in the Artesian Basin area of the country. There, opal country is in the eastern central locations: Lightning Ridge (black), Coober Pedy (black but not jet black), Minibie, Koriot and many other places. There is opal in Canada (most is not commercial), Sonora, Mexico (blue), Honduras, Ethiopia, America, Brazil (hard to get) and Indonesia. In the U S, Virgin Valley (not stable, keep in water) in NE Nevada, Spencer, Idaho (blue in rhyolite-pink) and Okanagan area in British Columbia. Oregon has "contra luz" (put a light in back to see the opal), Arizona, Tucson area, has blue with red fire and Louisiana has a grey quartz base with red and green opal.

Buying opal advice: Be Careful! Where did it come from? Inspect if it is doublet or triplet! [*Secy Note: An opal triplet is similar to doublet but has a third layer dome cap of clear quartz or plastic.*] Watch out for antique jewelry with opal (it may have faded). Beware. The value of opal is individual. We in the United States like red, in Japan, the favorite is blue. Remember, the base color is clear to jet black. The Fire colors rule is that more is better. Intensity rule: brighter is better. The higher the brightness, the greater the value!

Great presentation followed by a short Q&A. Pete brought in some beautiful specimens of gorgeous opal for all to see. Thank you, Pete Goetz!

Guests: Angie asked the guests to introduce themselves. Rebecca Pry (Cal Poly, Pomona) and Rigo Cervantes (Cal Poly, Pomona) attended out of interest after they made contact with MSSC at the Nature Fest.

Show and Tell

Dr. Bob Housley brought in some items he picked up at the last Friends of Mineralogy field trip. He brought enough samples of Glauberite (Bertram Mine) for everyone who wanted one. Thanks, Bob.

Door Prize: The drawing was won by Rebecca Pry, one of our guests. Congratulations!

Adjourn: The meeting was adjourned at 8:58 pm. Enjoyable conversation continued in the break room. Thanks to Laura David for the refreshments. Respectfully submitted by Angela Guzman, MSSC Secretary (Advance apologies for misspelled names, elements and/or other words.)

List of Upcoming MSSC Events : Mark your Calender!

Event	Date	Comments / Scheduled Program (if known)
Meeting Dates:	June 8, 2018	The Webers: The Colorful Agates of Patagonia, Argentina
	July 13, 2018	Chuck Howser: How and Why We Study Active Faults in California
	August 12, 2018	MSSC Picnic
	September 14, 2018	Eric Scerri: What is This Thing Called Science (An Introduction to the Philosophy of Science).
Board Meeting	June 17, 2018	Board Meeting at Bruce Carter's house
Annual Picnic	August 12, 2018	at Bruce Carter's house

Note: Dates and programs shown above are subject to change. Check your bulletins to confirm final information each month.

MSSC Board Meeting Minutes: March 25, 2018

1. Call to Order and Roll Call

The meeting was called to order at 1:00 p.m. by President Dr. George Rossman. The following Officers, Directors and Committee Chairs were present: George Rossman, Renee Kraus, Jim Kusely, Angela Guzman, Bruce Carter, Jo Anna Ritchey, Ann Meister, Pat Caplette, Leslie Ogg, Pat Stevens, Linda Elsnau, Rudy Lopez and Cheryl Lopez. The following were excused: Bob Housley and Al Wilkins.

2. Treasurer's Report (Jim Kusely):

(A) Jim Kusely provided partial finance update as follows:

- CFMS membership report as of End of Year 2017 shows 63 members,
- Banquet: There were 41 reservations, 60 auction items and payout for speaker Bill Besse;
- MSSC Overall picture showed that, since the sale of MSSC's show trailer, all in all, we are down maybe \$300-\$400 which is mostly due to fluctuations in banquet/picnic auctions.
- PMC January 2018: Jim explains he does not have the report for the Conference but says the net income is approximately \$300

A short discussion followed regarding PMC finances and location of next conference.

Discussions:

- Monrovia Rock Hounds club will be closed as of the end of their fiscal period, March 31, 2018, what they need to do with any assets and, how they handle their bank accounts per the By-Laws. Remarks were offered by JoAnna Ritchey;
- Should we fold, what is MSSC's position regarding bank accounts/assets and how are the balances distributed or what happens? Ann Meister referred to the By-Laws that states the monies are to go to a non-profit or corporation dedicated exclusively to Earth Science purposes [501 (c) 3 or 501 (c) 4]. Dr Rossman stated we need to consider a plan in the event of this situation.

(B) Angie Guzman apologized for and disclosed that she was almost a victim of an e-mail scam. The scam was thwarted, and payment stopped on the check in a timely manner. The cost for the Stop Payment was paid by Guzman. However, in the process, it appears our bank account may be transferred to Merrill Lynch's holding bank, Bank of America. Jim states that our bank representative will not be back in the office for a couple more weeks, so the matter is not yet finalized and that he will change banks next month. Dr Rossman said that anytime there is a call for payment, to verify before proceeding. General discussion regarding e-mail scams followed.

3. Membership Chair report (Cheryl Lopez):

- Cheryl reports that our membership consists of 8 Life, 5 Honorary, 39 single and 24 household for a total of 76, members - down about 11. Income from memberships is \$1,140. Recent mailing of the annual roster included postage of \$183 and printing of \$93 for an average cost per person of \$3.60.
- Discussion followed concerning other methods of getting the roster to members. Ann Meister states, due to privacy issues, the roster is only to be snail mailed (no electronic transmission). A reason is, in the past, dealer-members used the roster for their own mailing list (commercial or other purposes).
- Other discussions about how to increase our membership with younger people included Dana Club at PCC and students at CalTech who are not interested in attending an organized meeting and prefer to see it on YouTube. Jim says we could show how minerals and collections could become a financial asset. JoAnna states that mineral shows used to bring out people to see exhibits – not so much anymore. Ann adds collections are more valuable and people are cautious. George mentioned that the Jonas Mine Tourmaline was stolen from Tucson! Rudy offered a solution saying field trips are a good way to attract interest.

5. Society Field Trips (Bob Housley and Marek Choracewicz):

Dr. Rossman wanted to know what is planned and, is there interest?

Friends of Mineralogy of Southern California is this weekend. Has anyone volunteered to go with Bob and Marek? Rudy says that we're waiting for a date. Bob and Marek are interested in having more people go along – anyone who is interested. There is an absolute need to have a signed liability waiver for anyone who participates. We need a form.

4. Pacific Micromount Conference (Al Wilkens/Bob Housley –both absent)

- George asked: Should Fallbrook remain the location for PMC in the future? Someone said Bob Housley said we should go back to Fallbrook next time. Should we continue efforts to find other locations or keep Fallbrook? Comments from attendees included how cramped the space was, the parking could not have been better, Fallbrook is not ADA compliant, staff were helpful, but, equipment set up (laptop) was on boxes and a fire escape exit was blocked;
- Funding PMC: Refer to #2 above for Treasurer report on monies spent and received for this event. How much was donated to Fallbrook for hosting? How was that figure calculated? Al Wilkens advised Jim, who wrote the check. Jim states Fallbrook did not ask for a stipend, but he said the donation was a fair amount based previous PMC (hall) costs. Timely payment was given, and cordial thank you letter was sent;
- Was the Fallbrook community involved in the PMC? Aside from Garth and Janice Bricker and a couple of staff, not much other participation from Fallbrook.

It was agreed that the board needs to receive further information and insight about costs and location from Al and Bob.

6. Society Historian's Activities (Ann Meister):

- Field trip report submitted to *Bulletin*; next month's edition will have Vince Morgan article on collecting tips; (*Editor's note: I didn't get it, hopefully, next month*)
- George wanted to know the status of a complete collection of the *Bulletin*. Ann said she was not sure we have one although Jim has incomplete collection of old ones and Bob (previous Treasurer) gave some to someone but can't recall who;
- Ann wanted to know what history members would like to read about. She'd like to write about the Himalaya Mine (circa 1950' or 1960's). Bruce said he enjoys reading about historical (field) trips and individual articles about minerals;
- Ann wants to re-type in some of the mimeographed copies of the *Bulletins*. Possibly do a brief write up of some of the early members.

7. CFMS Director (JoAnna Ritchey):

- No CFMS show this year, no one wanted to step up, but there will be a meeting, without a show, at Feather River Club in Chico, CA in September 15-16. The 2nd meeting of the year will be in Visalia in November.
- Report and discussion: Monrovia Rock Hounds status, shows, funding issues and vendor request of possibility of MSSC taking over MoRoks' show space at the Arboretum (admission, insurance, etc.) and costs.
- George wanted to know if we should give a show. Discussion included: Rudy offered that it is a lot of work set up and tear down; Ann said that's why we have Dana Club; Bruce said we could probably get Dana Club to participate at an event; MSSC would need to rent display cases. Nothing decided at this time.

BREAK == = Thanks to Cathy Carter for the wonderful refreshments!

8. Program Chair (Rudy Lopez):

- Speakers are booked through January 2019. Aaron Celestian, Minerals Sciences curator at the Natural History Museum will speak in October and Denise Nelson will speak at our annual banquet in January. Rudy mentioned La Brea Tar Pits' Page Museum speaker and that he will exchange speaker lists with PLS. There may be a Caltech student who will speak and Alfredo, who is in Japan, is a great speaker;
- Field trips: Private tour at Natural History Museum is in the works; Bob Housley and Marek are working on field trips for April (Ord Mtn.) and May.

9. Webmaster (Leslie Ogg):

- In the last 3 months there have been numerous "hits" to our web page regarding PMC (178), *Bulletin* (150), Meetings (100), and educational materials are up. George wanted to know the % of who were students. Cannot be determined at this time. Rudy mentioned that the website was pushed at the Nature Fest.

10. *Bulletin* Editor (Linda Elsna):

- Linda reports: 6 snail mail *Bulletins* at a cost of \$15/mo. Having 14 pages, additional pages create extra postage;
- Linda asked if the minutes of this meeting need to be sent for the next edition but there is no need to rush;
- Jim thanked Linda for a great *Bulletin*. Applause for Linda!
- *Bulletin* fillers: Ann will get to Linda. Of course, Linda always is looking for contribution stories, news.

11. Other Discussions (Rudy Lopez):

- MSSC handed out 1,100 rocks and minerals to the kids in attendance at the Nature Fest. But, we need contributions. Rudy will pick them up.
- (1) Crystal cut outs, like the ones on our website, are the next project if we don't have enough handouts. The idea is to print them on card stock, get some scissors and glue sticks. The crystal cut outs were fashioned by our member Janet Gordon. The cost for 1,000 is \$271 at Staples. Rudy could print at home for \$155 (ink cartridges). (2) MSSC needs more (updated) flyers. Printing at Staples with 2 colors and double-sided would be approximately \$300. Rudy could print at home for \$182.
- Discussion about purchasing rocks 2# at \$18 is not good.
- **MOTION** to allot to Rudy, not to exceed \$300 for printing of 1,000 crystal cut outs, glue sticks and scissors and 300 MSSC flyers, color, double-sided was made by Dr. Rossman and seconded by Pat Stevens. There was no further discussion. The vote was taken with all in favor of the motion – it **passed**.
- Website update on Teacher's Resource looks great.
- Field trips if we need more rocks.

Discussion: Materials at PCC are with Ann, the coffee pot and door prizes; Request to link MSSC to other activities = no. The annual Picnic will be August 12, 2018 at Bruce and Cathy Carter's home; VP Renee Kraus inquired about By-Laws, she needs a copy. Ann will send to her and email the Agenda outline (for April); Picnic food will stay the same and with the same cook. Rudy will have a projection next Board meeting; and, the next Board meeting will be June 17th at Bruce Carter's home.

The meeting adjourned at 3:28 p.m. Thank you to Bruce and Kathy for the hospitality. Thanks to all who attended today.

Respectfully submitted by Angela Guzman, Secretary

Other (Free) Things to Do...Ann Meister

The **Watson Lecture** at Caltech's Beckman Auditorium is on Wednesday, **May 23** at 8 PM. The speaker is Mikhail G. Shapiro, Assistant Professor of Chemical Engineering and Heritage Medical Research Institute Investigator at Caltech. The title of his talk is, "**Talking to Cells**." Treating patients with engineered cells may one day become as common as it is now to be treated with drugs. As therapeutic agents, cells have much greater sophistication than simple molecules: they can be engineered to migrate to sites of disease such as tumors, sense their local environment, make logical decisions, multiply themselves, release therapeutic molecules and self-destruct. However, cell therapy today is a risky proposition. Once the engineered cells enter your body, there is no effective way to monitor their location, see what they are doing, or give them further instructions. To solve this problem, we are developing molecular "communications equipment" that allows us to use methods such as ultrasound to remotely monitor cells' activity and give them commands deep inside the body.

The **Von Kármán Lecture** on Thursday/Friday* **May 17 and 18** is titled, "**Juno and The New Jupiter: What Have We Learned So Far?**" The speaker is Dr. Steve Levin, Juno Project Scientist and lead co-investigator for Juno's MicroWave Radiometer instrument. Juno is a solar-powered spacecraft which has been orbiting Jupiter since July 4, 2016. For a few hours every 53 days, Juno passes within a few thousand kilometers of the giant planet and collects a wealth of new information about Jupiter. The data collected so far have revolutionized our understanding of Jupiter, and of giant planets in general. Dr. Levin, Project Scientist for the Juno spacecraft, will present some of Juno's current science results on the planet's origins, interior structure, deep atmosphere, and magnetosphere, and discuss the science expected from Juno in the coming years. *Thursday is at the Von Kármán Auditorium at JPL and Friday is at the Vosloh Forum at PCC. Start time is 7 PM.

The **UCLA Meteorite Gallery** lecture is on Sunday, **May 20**. The speaker is Dr. Alan Rubin, Researcher in Cosmochemistry at UCLA and co-Curator of the UCLA Meteorite Collection. The title of his talk is "**Searching for links between Asteroids and Meteorites**." Meteorites are fragmental breccias consistent with the high abundance of impact craters on asteroids and old formation ages of meteorites indicate that they formed on small bodies that cooled within a few million years. Compositional links are provided by spectral reflectivities that match those of asteroids, and densities that indicate the presence of appreciable metal. LL-chondrite samples were returned to Earth from Asteroid 25143 Itokawa; other spacecraft missions will return more samples during the next decade. The Meteorite Gallery in Geology room 3697 is open with a docent present every Sunday from 1 till 4. The lecture, which is always on a Sunday afternoon at 2:30 pm, is in room 3656 near the Meteorite Gallery.

Ride Share Listing

Can You Provide A Ride?

Would You Like Company On The Drive To Meetings?

We have heard from several of our members that they would like to ride-share with someone to the meetings. We will list the names, general location and either a phone number or an email address of anyone who would like to connect for a ride-share. If you would like to catch a ride or would like company for the trip, let me know at msscbulletin@earthlink.net and I'll put the information in this section of the bulletin. After that, any final arrangements made are up to you. Also, If you make a connection that works for you, let me know so that I can remove your information from the bulletin. The Editor

Looking for	Who	Where	Contact at
A ride	Richard Stamberg	North Orange County, near Cal State Fullerton	<i>See email bulletin</i>
A ride	Catherine Govaller	San Bernardino, CA	<i>See email bulletin</i>

WEST COAST GEM & MINERAL SHOW

May 18 - 20, 2018

Minerals ♦ Fossils

Gemstones ♦ Jewelry

Meteorites ♦ Beads

Decorator Items

Lapidary

Metaphysical



Epidote on Calcite
Eldorado City, CA
Photo by Jeff Scovil

FREE Admission

FREE Parking

Open to the Public

Wholesale section

for Qualified Buyers

SANTA ANA, CA ♦ HOLIDAY INN / ORANGE COUNTY AIRPORT

2726 S. Grand Ave. (Take 55 Fwy Exit 8 for Dyer Rd. to S. Grand Ave.)

www.MineralShowsLLD.com

MineralShowsLLD@gmail.com

MSSC Advertisement Policy:			
Mineral-related ads are allowable in the MSSC bulletin. Below is the price per month			
	Business Card	\$5.00	
	1/3 page	\$10.00	
	1/2 page	\$20.00	
	Full Page	\$35.00	
In addition, any advertiser who purchases 12 months of space in advance will receive a discount of 12 months for the price of 10 months. The copy for the ads should be mailed to the editor at bulletin@mineralsocal.org and the payment should be sent to the MSSC Treasurer 1855 Idlewood Road, Glendale, CA 91202			

Calendar of Events:

Only local area shows are listed here. Other CFMS Club shows can be found at: <http://www.cfmsinc.org/>

MAY

May 4, 5 & 6: YUCAIPA, CA

Yucaipa Valley Gem & Mineral Society

Yucaipa Music & Arts Festival

Yucaipa Blvd and Adams St

Hours: Fri 6 pm - 9 pm; Sat 12 noon - 10 pm, Sun

12 noon - 7 pm

Website: www.yvgms.org [Show Page](#)

May 5 - 6: ANAHEIM, CA

Searchers Gem & Mineral Society

Brookhurst Community Center

2271 W. Crescent Avenue

Hours: Sat 10 - 5; Sun 10 - 4:30

Website: www.searchersrocks.org

JUNE

June 8 - 10: LA HABRA, CA

North Orange County Gem & Mineral Society

La Habra Community Center

101 W. La Habra Blvd.

Hours: Fri 5 - 8; Sat & Sun 10 - 5

Website: www.nocgms.com

June 9 - 10: ESCONDIDO, CA

Palomar Gem & Mineral Club

California Center for the Arts, Escondido

340 N. Escondido Blvd.

Hours: 10 - 5 daily

Website: www.palomargem.org [Show Page](#)

June 9 - 10, 2017: GLENDORA, CA

Glendora Gems

Goddard Middle School

859 E. Sierra Madre Avenue

Hours: Sat 10 - 5; Sun 10 - 4

June 23 - 24: CULVER CITY, CA

Culver City Rock & Mineral Club

Veterans Memorial Auditorium

4117 Overland Blvd

Hours: Sat 10 - 6; Sun 10 - 5

Website: www.culvercityrocks.org [Show Page](#)

JULY

No shows listed for July

AUGUST

August 3 - 5: NIPOMO, CA

Orcutt Mineral Society

Nipomo High School

525 Thompson Avenue

Hours: Fri-Sat 10 - 5, Sun 10 - 4

Website: www.omsinc.org

With Knowledge Comes Appreciation !

Random Quote from Mineralogical Literature:

“Definition of a Crystal.—A crystal* is the regular polyhedral form, bounded by smooth surfaces, which is assumed by a chemical compound, under the action of its interatomic forces, when passing, under suitable conditions, from the state of a liquid or gas to that of a solid.

As expressed in the foregoing definition, a crystal is characterized, first, by its definite internal structure, and, second, by its external form. A crystal is the *normal* form of a mineral species, as of all solid chemical compounds; but the conditions suitable for the formation of a crystal of ideal perfection in symmetry of form and smoothness of surface are never fully realized. Further, many species usually occur not in distinct crystals, but in massive form, and in some exceptional cases the definite internal structure is absent.

* In its original signification the term *crystal* was applied only to crystals of quartz, which the ancient philosophers believed to be water congealed by intense cold. Hence the term, from κρύσταλλος, *ice*”

From: A Textbook of Mineralogy by Edward Salisbury Dana, 4th Edition (1922) Page 7 ¶2.

2018 MSSC Officers:

OFFICERS		
President	George Rossman	president@mineralsocal.org
Vice President	Renee Kraus	vicepresident@mineralsocal.org
Secretary	Angie Guzman	secretary@mineralsocal.org
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2016--2018	Leslie Ogg	
2018-2019	Pat Caplette	
2018-2019	Pat Stevens	
COMMITTEE CHAIRS		
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Hospitality	Laura Davis	
Membership	Cheryl Lopez	membership@mineralsocal.org
Micro Mount Conf. Chairman	Al Wilkins	
Program and Education	Rudy Lopez	programs@mineralsocal.org
Publicity	Linda Elsnau	bulletin@mineralsocal.org
Webmaster	Leslie Ogg	webmaster@mineralsocal.org

About the Mineralogical Society of Southern California

Organized in 1931, the Mineralogical Society of Southern California, Inc. is the oldest mineralogical society in the western United States. The MSSC is a member of the California Federation of Mineralogical Societies, and is dedicated to the dissemination of general knowledge of the mineralogical and related earth sciences through the study of mineral specimens. The MSSC is a scientific non-profit organization that actively supports the geology department at Pasadena City College, Pasadena, California. Support is also given to the Los Angeles and San Bernardino County Museums of Natural History. The Bulletin of the Mineralogical Society of Southern California is the official publication of the Mineralogical Society of Southern California, Inc.

The MSSC meetings are usually held the second Friday of each month, January, February and August excepted, at 7:30 p.m. in Building E, Room 220, Pasadena City College, 1570 E Colorado Boulevard, Pasadena, California. The annual Installation Banquet is held in January, and the annual Picnic and Swap Meeting is held in August. Due to PCC holidays, meetings may vary. Check the Society website for details.

The Society also sponsors the annual Pacific Micro mount Symposium held at the San Bernardino County Natural History Museum during the last weekend of January.

Annual Membership dues for the MSSC are \$20.00 for an individual membership, \$30.00 for a family membership. Bulletins are delivered by email, there is an additional annual \$20.00 fee if you prefer paper bulletins mailed to your address. The Society's contact information:

Mineralogical Society of Southern California

1855 Idlewood Rd.,

Glendale, CA 91202-1053

E-mail: treasurer@mineralsocal.org

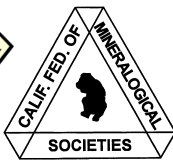
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DISCLAIMER: The Mineralogical Society of Southern California, Inc. is not responsible, cannot be held responsible or liable for any person's injuries, damages or loss of property at or traveling to or from any general meeting, board meeting, open house, field trip, annual show or any other MSSC event.

MSSC Bulletin Editor
3630 Encinal Ave.
Glendale, CA 91214-2415

To:



**With Knowledge Comes
Appreciation**

***Your MSSC
Bulletin Is
Here!***