Bulletin of the Mineralogical Society of Southern California

Volume 92 Number 12 - December, 2019

The 975th meeting of the Mineralogical Society of Southern California

With Knowledge Comes Appreciation

December 13th, 2019 at 7:30 P.M.

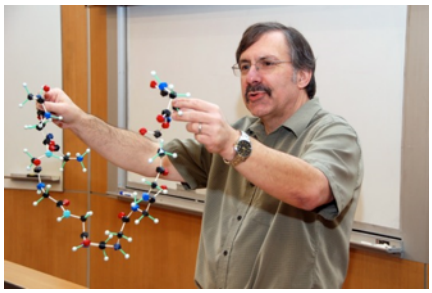
Pasadena City College
Geology Department, E-Building, Room 220
1570 E Colorado Blvd., Pasadena

Program : **Minerals Containing Carbon: Presented by Dr. Steve Hardinger**

In this Issue:

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: Minerals Containing Carbon: Presented by Dr. Steve Hardinger



We are all familiar with carbon as the basis for life as we know it, but what about its presence in minerals? In this talk we will explore what makes carbon special among the elements, some aspects of how carbon's bonding influences the properties of minerals, general structures of carbon-containing minerals, and their origins.

Dr. Steve Hardinger has been a mineral collector for 42 years and a dealer (Dragon Minerals; www.dragon-minerals.com) for 17 years. His collecting interests include gypsum, 'tortured' (etched, bent, etc.) minerals, and unusual mineral species association. After nearly 30 years in academia, he recently retired from UCLA as a University Distinguished Senior Lecturer (Chemistry). His new co-authored book on "Mineral Cleaning, Preparation and Storage" is nearing completion.

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From the Editor:

Here we are at the end of the year 2019! Where has the year gone? It's time to pay your membership dues and reserve your seat at the January Banquet while you are at it. It looks like there is a great list of speakers lined up for 2020. Here's wishing everyone a safe, happy and healthy holiday season. Linda Elsnau

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FROM THE PRESIDENT: Interesting Minerals, A to Z. Installment 23, the letter W by George Rossman

This time we will discuss a pair of minerals that start with the letter "W". They are both salts of the organic acid, oxalic acid. They are whewellite and weddellite.

Whewellite, chemically, is $CaC_2O_4 \cdot H_2O$, a monohydrate of calcium oxalate ***(Figure 1).*** Some authors think that this mineral was first characterized from a deposit in Cavnic, Romania, where others say it first came from a locality in Hungary. We do know that it was named in honor William Whewell from Lancaster, Lancashire, England who was a naturalist and scientist. He was Professor of Moral Philosophy and inventor of the system of crystallographic indexing. He coined the words 'scientist', 'physicist', and many others. The mineral's name appeared in 1852 in a mineralogy text by Phillips *et al.:*

Figure 1. Whewellite from Schlema, Erzgegirge, Saxony, Germany.
Photo credit: Rob Lavinsky, iRocks.com

Phillips W, Brooke H J, Miller W H (1852) Whewellite. In *An Elementary Introduction to Mineralogy*, Longman, Brown, Green, and Longmans (London) 523-524.

Whewellite can be associated with coal deposits and also is formed when organic materials in rocks oxidize. But it can also form in hydrothermal veins apparently unrelated to any organic precursors. These crystals can also form if you clean any mineral or rock specimen that contains a Ca-bearing soluble species with oxalic acid.

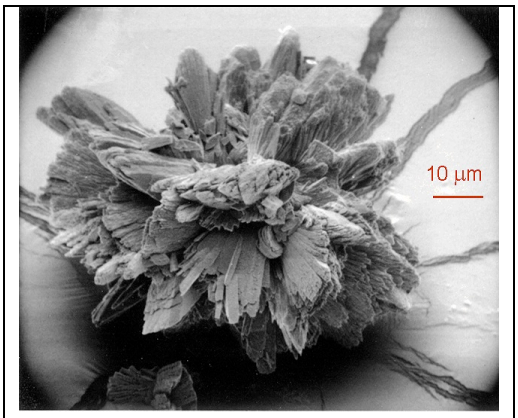

Figure 2. Calcium oxalate monohydrate crystals that formed in the kidney of an alcoholic person.
From: Lewis RD, Lowenstam HA, Rossman GR (1974) Oxalate nephrosis and crystalline myocarditis. Archives of Pathology 98, 149-155.

Whewellite is also a biomineral. Namely, it is a mineral material that

forms from biological activity. ***Figure 2*** shows a SEM image of calcium oxalate crystals recovered from the kidney of a patient at a local hospital. Similar crystals were also found in the patient's myocardium and thyroid gland. Crystals of whewellite are also found in cactus tissue.

Another calcium oxalate minerals is Weddellite, $CaC_2O_4 \cdot 2H_2O$. It was named after its discovery locality, the bottom of the Weddell Sea, Antarctica.

Samples of foraminifera were collected in the material brought back from depths of 4434-5008 meters from the bottom of the Weddell Sea by an oceanographic expedition known as the Scotia Expedition. A Mr. A. Earland picked out minute crystals and crystalline nodules from the sediments. He then separated them by their external characters into three groups. The description of these crystalline components by optical and X-ray methods seemed desirable because the substances identified had not been previously recorded from ocean bottom deposits. An account of their examination was first reported in a 1936 publication of the British Museum of Natural History. But, no name was given to the new hydrated calcium oxalate discovered in these sediments.

> Bannister F A, Hey M H (1936) Report on some crystalline components of the Weddell Sea deposits, Discovery Reports 13, 60-69

The new crystals were transparent, colorless, tetragonal bipyramids varying in size from 0.2 to 0.3 x 0.15 mm. The mineral species name, weddellite, was finally announced in 1942 in a description of weddellite occurring as a biomineral.

> Frondel C, Prien E L (1942) Carbonate-apatite and hydroxyl-apatite in urinary calculi. Science 95, 431-431.

Weddellite was not exactly a common phase. One gram of unpicked material from the Weddell Sea expedition at sampling station 286 yielded about fifty crystals of weddellite weighing only about one-half of a milligram. The other mineral residues consisted principally of fragments and rounded pebbles of clear, colorless quartz. But there were also fragments of green hornblende, pink almandine, orange hessonite garnet, brown biotite, and glauconite. Interestingly, there was also another calcium salt of an organic acid found at sampling station 417 in the Weddell sea, the mineral *earlandite,* $Ca_3(C_6H_5O_7)_2 \cdot 4H_2O$ -- hydrated calcium citrate (think of citric acid in lemon juice).

Weddellite is also found in peat-rich sediments. More importantly, it occurs as a biomineral. Frondel announced the name after finding it in urinary calculi. These begin as kidney stones ***(Figures 3,4).*** By the looks of the crystals, one could say OUCH! Weddellite can also occur in the thyroid ***(Figure 5)***

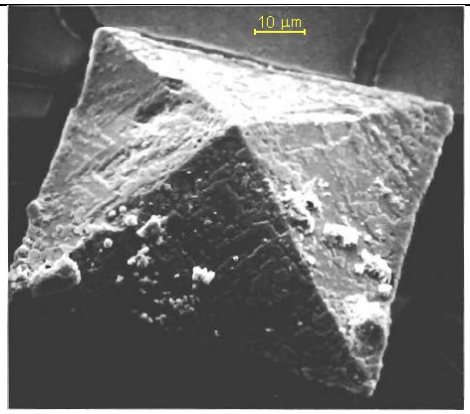

Figure 3. Calcium oxalate dihydrate from the kidney of a human patient From Lewis et al (1974).

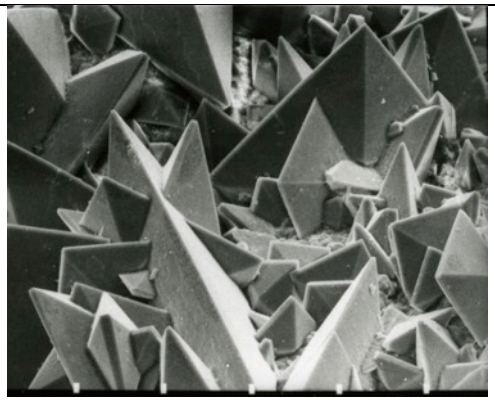

Figure 4. SEM photo of weddellite in a kidney stone. Photo credit: Eugen K Kempf

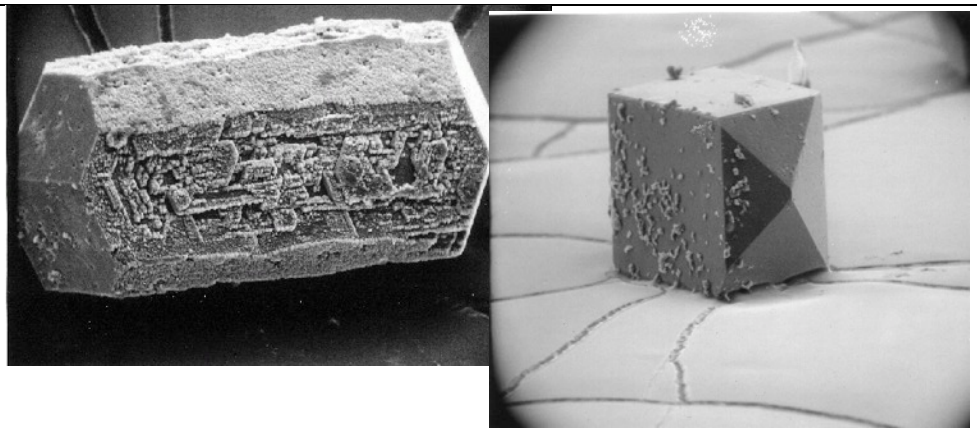

Figure 5a,b. SEM images of calcium oxalate dihydrate from the thyroid gland. Left: 0.14 mm wide. Right: 0.13 mm.
From Lewis et al (1974)

There are other calcium-based biominerals in humans and other animals. For now, we will ignore the calcium carbonate minerals such as are found in shells. They might be the topic at a later date.
Some animals have calcium iron phosphate in their external armor. The holothurians known as Molpadia (sea cucumbers) have an X-ray amorphous calcium iron phosphate in their exoskeleton ***(Figure 6).*** These granules are rigorously X-ray amorphous meaning that when they are put in an X-ray machine, they give no diffraction pattern. However, when they are heated, they show lines from hematite (Fe_2O_3) and carbonate apatite, $Ca_5(PO_4,CO_3)_3(OH,O)$.

Figure 6. Molpadia (sea cucumber) calcium iron phosphate skin granules.
Photo credits: left: H Lowenstam, right grr

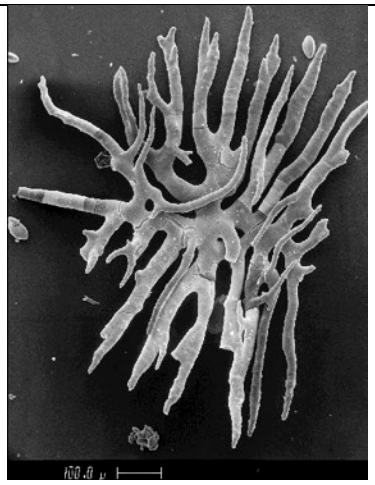

Figure 7. Calcium phosphate biomineral from Culeolus
Photo credit: H Lowenstam

Ascidians, a class of tunicates (known as sea squirts) have a tunic that protects them from predators. Many contain carbonate biominerals, but one known as Culeolus contains amorphous $CaPO_4$ in its armor. Have a look at ***Figure 7*** and imaging biting into that!

A whole variety of other minerals are found in organisms, both plant and animal. Silica is used by a wide variety of organisms including foraminifera, radiolarians, heliozoata, sponges, mollusks, echinoderms, anthropods and even bamboo ***(Figure 8)*** and palm trees.

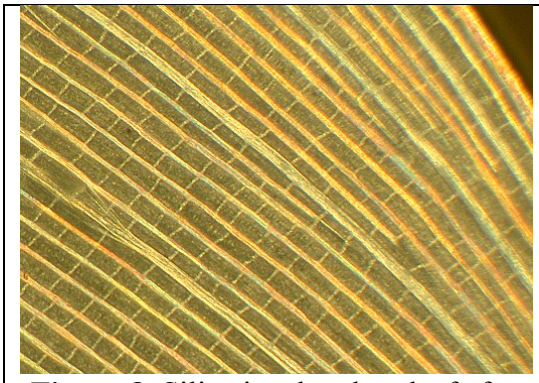

Figure 8. Silica in a bamboo leaf after the organic components were dissolved by bleach.
Photo credit grr

Figure 9. Black magnetite 'teeth' on the radula of a chiton.
Photo credit: H Lowenstam

Iron oxides and hydrous iron oxides are found in sponges, annelids, mollusk, anthropods, and even chordates (birds, for example). Magnetite, maghemite, goethite and lepidocrocite area all used by organisms. Chitons, small marine animals that scrape algae from underwater rock surfaces, have a tongue-like organ called a radula that contains magnetite, Fe_3O_4, "teeth" ***(Figure 9).*** Leptothrix bacteria, common in aquatic habitats, protect themselves by building a goethite [FeO(OH)] sheath around them.

Pyrite is used by Monera (blue-green algae). It is also used by gastropods that live a sedentary life at the base of black-smoker chimneys in the Indian Ocean. They have a foot covered by scales of the tough protein, conchiolin, mineralized with pyrite (FeS_2) and greigite (Fe_3S_4). Fluorite (CaF_2) statoliths (small grains that help the animal keep its orientation) are found in Opossum Shrimps. Celestine ($SrSO_4$) is used by marine algae and diatoms to form skeletons.

The point is that mineral materials have expanded far beyond the word or rocks. Life is teaming with minerals. Just remember, the next time a bee stings you, it is using microscopic crystals of magnetite in its abdomen to navigate.

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MINUTES of the November 8, 2019 Meeting

At 7:37 p.m., the 974th Membership Meeting of the Mineralogical Society of Southern California (MSSC) was called to order by Secretary Angela Guzman. Dr. Rossman, driving in from San Diego area, had earlier asked Ms. Guzman to begin the meeting in his anticipated tardiness or absence.

Regular Business

a) Minutes: Guzman requested the approval of the October 11, 2019 Membership

Meeting minutes as written and published in the November 2019 *Bulletin.* A **Motion to approve the Membership Meeting Minutes**, as above, was made by Leslie Ogg and seconded by Ahni Dodge. Guzman asked if there were any additions or corrections to the published Minutes and seeing none, asked for approval of the motion. The voice vote was cast and **the motion to approve the Minutes passed unanimously**.

b) Election of Officers: All of the MSSC officers, in their current positions, have agreed to the next term except for the Vice President seat. Renee Kraus is stepping down from her position as MSSC's Vice President. She will be missed, and we acknowledge and appreciate her service to the Society. Thank you, Renee.

Ms. Guzman opened the nominations for Vice President. Ahni Dodge was nominated and accepted. Ahni was asked to say a few words regarding her nomination. Ahni said she has been affiliated with MSSC for the past 15 years and feels she will contribute to the society as Vice President. There were no other nominations for any office, so the nominations were closed. Guzman asked for vote by acclamation to vote in the following officers for the 2020 year:

President – Dr. George Rossman
Vice President – Ahni Dodge
Treasurer – Jim Kusely
Secretary – Angela Guzman
CFMC Director – JoAnna Ritchey
Director 2020-2021 – Pat Caplette
Director 2020-2021 – Pat Stevens

The voice vote was called and unanimously approved. Congratulations to all!

[Note: The 2019-2020 Directors are Dr. Bruce Carter, Dr. Bob Housley and Leslie Ogg. Past President is Ann Meister. Committee Chairs remain the same: *Bulletin* Editor Linda Elsnau, Hospitality Laura Davis, Membership Cheryl Lopez, Mineral Micro Mount Conference Al Wilkins, Program and Education Rudy Lopez, Publicity Linda Elsnau and Webmaster Leslie Ogg]. [Note: Dr. Rossman arrived and agreed to let Angela Guzman continue to chair the remainder of the meeting.]

Announcements and Reports:

- Jewel Tunnel Imports Open House is 11-16-19 10am-4pm. RSVP by 11-13-19 to Ann Meister or Dr. Rossman;

- The **next Board Meeting** is scheduled for 12-1-19 (1-3 p m) at the Carter's residence;

- The **next Membership Meeting**, *MSSC's 975th*, will be Friday December 13, 2019 starting at 7:30pm, at PCC Geology building. The presentation will be Steve Hardinger's "Minerals Containing Carbon";

- **Field Trip Report** (Marek Chorazewicz): - please read his fantastic report on our website. And, we offer well wishes for a speedy recovery from sinus surgery, Marek;

- **Friends of Mineralogy Report:** Dr. Bob Housley reported on the FM symposium event at the Zzyzx Road facility. He says there was a good turnout of 50 people, including 15 college students. Attendees ranged in age from 15 years old to 91 years old. Dr. Housley led field trips to the Blue Bell Mine (45 went to Blue Bell) on Saturday and other collecting (turquoise) on Sunday near Halloran, very successful collecting;

- Program Chair Report (Rudy Lopez):

(a) The OC Parks event was a success with over 250 rock specimens handed out to youngsters, plus Rudy's fossil exhibit attracted a lot of attention (check the *Bulletin* and website for more of Rudy's report and pictures). Thanks to Rudy, Angie and Tessy Smith, Angie's sister, for holding down the fort. MSSC made contact with a volcano expert who has agreed to give us a presentation in the next rotation. We've been asked to participate again next year in this fun family event;

(b) Nature Fest, sponsored by Natural History Museum of Los Angeles County, is to be held March 2020. It is the 6th annual event and MSSC is honored to provide exhibits of rocks, minerals and fossils. We have been there since the beginning. This weekend event is a good outreach resource for our society;

(c) MSSC Installation Banquet will be held January 4, 2020 at Pinocchio's in Pasadena. Thanks to Rudy and Cheryl for hunting down a venue for the Banquet. For full details about the Banquet and donations for the Silent Auction, our primary fundraiser, please check the *Bulletin* or MSSC's website. Rudy prepared flyers and they are here tonight on the desk in front;

(d) Speaker List is full through 2020. However, we have latitude in case someone wishes to make a presentation;

(e) Question about Dinosaur bones – are they fossils or minerals? Dr. Rossman says they are biominerals unless they are fossilized, if solidified, they are petrified. Ann Meister says they are pseudomorphs. Rudy asked because of the recent (in the news) dispute about museum dinosaur bones as fossils vs. minerals.

- Membership Chair announcement (Cheryl Lopez): Cheryl announced that she is accepting dues payments from anyone who wants to pay now. Dues are due by the end of the year. Also, the roster is going paperless. Please update your e-mail address to ensure you receive it;

- Treasurer announcement (Jim Kusely): Jim had no general member announcements at this time;

- CFMS Director Report (JoAnna Ritchey): No report at this time;

- Show & Tell: Dr. Housley brought turquoise specimens collected during the Zzyzx Road Friends of Mineralogy symposium collection events. They will be on view and for the taking in the break room after the meeting. Anything left over will go to Ahni's class.

- Dr. Rossman announced there were **no new minerals approved by IMA** since our last membership meeting. There are still 5,516 approved minerals.

- Guests: Rosalinda Gonzalez introduced herself. She is the wife of our member Ricardo and is very happy to be attending her first meeting.

Program: Rudy Lopez introduced tonight's presenter, Renee Newman. In the 1980's Renee conducted tours in Asia, South America and the South Pacific. Her passengers wanted to know how to judge the quality of the gems they saw. She researched bookstores, libraries and realized little had been written about gem quality evaluations. That was when she decided to create books with photos that showed how to judge gem quality. Renee received her gemologist diploma from GIA, worked within the diamond wholesale district in downtown Los Angeles, graded diamonds and selected colored gems and pearls for jewelry. She has gained valuable experience in the field, gives lectures, and her books are so comprehensive that they are used as textbooks in gemology courses. Impressive!

One of Renee's books, Diamond Handbook, How to Identify & Evaluate Diamonds is a focal point of tonight's presentation entitled *The Allure of Diamonds*. Renee will point us in the right direction when looking at gems to purchase. She'll tell us what to look for and offer her experience and expertise about diamonds.

Renee begins her PowerPoint by telling us about several valuable and beautiful diamonds:

- ♦ 14.62 carat *Oppenheimer Blue* diamond (fancy vivid blue) sold at a Geneva Auction for $57.5 million in 2016;
- ♦ 45.52 carat *Hope Diamond* (fancy dark grayish blue) is in the Smithsonian Museum. It had been donated in 1958 by Harry Winston. It is insured for $250 million;
- ♦ 59.6 carat *CTF Pink Star (*fancy vivid pink), bought at auction in May 2017 by Chow Tai Fook (HK) for $71.2 million. The original rough 132.5 carat diamond was cut by Beny Steinmetz and took 20 months to complete. It was mined by DeBeers in 1999;
- ♦ 105.6 carat *Koh-i-Noor*, "Mountain of Light" (India) cut diamond, part of the British Crown Jewels is said, according to legend, to be over 5,000 years old but probably more like 700 years old. In 1849 it was taken over by the East India Company and in 1850 given to Queen Victoria. It is only worn by women and it is priceless;
- ♦ 503.20 carat Cullinan I, *Great Star of Africa*, the largest clear cut colorless diamond in the world. It was discovered in South Africa in 1905. It sits atop the Sovereign's Sceptre (UK). Renee tells us it has an estimated value of $2 billion.

Crater of Diamonds State Park in Arkansas is the only public diamond mine in the world. Discovered in 1977 at Crater of Diamonds, was the 4.25 carat rare and flawless canary yellow diamond, *Kahn Canary Diamond*. In 2015 Brooke Oskarson, visiting from Colorado, found a rough 8.52 carat diamond. It was cut to the flawless 4.605 carat diamond, *Esperanza* (named for her niece, which is Spanish for "hope). Before those discoveries, however, the *Uncle Sam* diamond was found in 1924 at Murfreesboro, Arkansas's Prairie Creek pipe mine, later to become Crater of Diamonds State Park. The *Uncle Sam* was the largest diamond found in the United States,

so far. The rough diamond was 40.23 carats. As for North America, the 552-carat fancy yellow gem was found at the Diavik Mine in Canada's frozen north, Yellowknife, in the Northwest Territories. The chicken egg size diamond was found in 2018.

Diamonds are mined in many nations but primarily in the African countries of Botswana (16.4%), the Congo, South Africa, Namibia, Tanzania, Zimbabwe, Angola, Brazil in South America, Russia (Siberia) (29%), India, Australia, Canada (15.6%) and the United States. Canada is very conscious of the environment and strict about mining procedures.

Why are diamonds worth so much? Publicity? Some of the properties of diamonds include that they are the hardest natural substance (a 10 on the Mohs scale). In older times, it was thought because of their superior hardness, diamonds held special powers. Diamonds can break up light, that's called "fire", think rainbow colors. Diamonds are not damaged by chemicals; they conduct heat, are good electrical conductors, are non-toxic and make excellent medical cutting tools.

Natural diamonds are found in rivers and in the ground. There are lab grown diamonds that come out of factories (i.e., factory in Michigan, De Beers in Oregon). **Lab grown** (synthetic, created, lab-created) are not fake, they have the same chemical structure as real diamonds. **Fake diamonds** have different structure and composition. They are called imitation or look-alikes.

How do you know you have a diamond, or a lab grown synthetic? Renee distinguishes diamond properties using long-wave UV. If strong blue florescence under long-wave UV, it is a diamond. When using short-wave UV, if the florescence is not strong, it is not a real diamond. Short-wave UV will show a "lab glow" blue. Another test is checking under a microscope for patterns, such as mosaic. And still another method is to see if the diamond is magnetic. In fact, there are lab grown detectors that professionals use. They retail as low as $300 but they do not confirm if the diamond is natural.

Some of the benefits of *lab grown* vs. *natural* diamonds include the following:

Lab grown	Natural diamond
Cost is 30% less	Resale cash value – can be used as collateral
Higher profit margin	Lower profit margin
Same durability as natural	Most durable
Available	Rare
Eco friendly- no open pits	Eco friendly now – environmental laws
Fair wages, treat workers well	Botswana now middle-income country, ethical
Lab diamonds: India and China	- - -
Techno, medical applications	Romantic aspect – high emotional value

Ms. Newman talks about color grading (and coating), carat (weight), clarity (free from cracks and blemishes), cut quality, cut style and shape, creator (nature or man), transparent (clear, hazy or translucent?) and treatment status (irradiated?): the 6 C's and 2 T's. *[Secy Note: Here's a small taste of the **clarity** aspect of diamonds: Fl = Flawless; IF = Internally Flawless; VVS_1 and VVS_2 = very, very slightly included; these continue through very slightly included to slightly included to imperfect…don't get me started on color. Whew!]*

Are you now able to tell if the diamond you're looking at is real or imitation? Can you see through it? Does it pass the tilt test? Are there bubbles? What is moissante? Is it real or artificial? Is there such a thing as a natural black diamond? Do they have inclusions? Are they irradiated? Why is the Argyle Mine in Australia important? Renee says that though it is the largest diamond producer in the world, the gems are poor quality and the mine will close in 2020! The first diamond ring – all diamond, no metals, at 150 carats, has been crafted by Shawish Jewellery of Geneva Switzerland. Its value is $70 million. *[Secy Note: Sorry, ladies, I did not find the ring size in my research.]*

Renee warns that some sellers over grade their stones and neglect to provide information on the quality of the cut. Untreated diamonds should always sell for more than treated ones. She finished her presentation and fielded questions from attendees. Renee brought some of her books for those who wish to purchase any. Also,

her next project is a Diamond Ring Buying Guide that will be available 2020. Thank you, Renee, for this enlightening perspective on diamonds. What a great presentation! *[Secy Note: terms regarding colors, grading, judging, etc. are GIA accepted references.]*

Door Prize: The drawing was won by our guest Rosalinda Gonzalez. Congratulations!

Adjourn: The meeting, attended by 17 members and 1guest, was adjourned at 8:47 p.m.

Refreshments, interesting conversation and a look at Show & Tell followed the meeting. Thanks to Rudy and Cheryl Lopez for bringing and setting up the refreshments.

Reminder:

Submissions for the *Bulletin* are due to Editor Linda Elsnau by the 22nd of each month;

Respectfully submitted, Angie Guzman, Secretary

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MSSC ANNUAL BANQUET & SILENT AUCTION

New location: Pinocchio's Pizza, Pasadena, 1449 N Lake (North of Lake Ave & Mountain).

New Date: Saturday, January 4, 2020 5:00 p.m. -11:00 p.m.

Saturday, January 4, 2020

The cost of the Banquet will be $41.00.per person

Program: Mineralogy of the Copper World and Mohawk Mines San Bernardino County, California: Presented by Paul Adam

Make you reservation with Rudy Lopez (programs@mineralsocal.org).

There is plenty of seating & parking available. All reservations are due by Monday, December 23, 2019. You will be responsible for paying $41.00 for each individual reservation. We need a head count by December 23rd to turn in to the restaurant. It would be a shame to miss this event because you delayed making that reservation.

Call or email Rudy Lopez to make your reservation today!
626 993-7989
programs@mineralsocal.org

Mail Checks to:

MSSC
1301 Leonard Ave
Pasadena CA 91107

Don't forget to bring items for the annual Silent Auction!

If you haven't done so already, plan to pay your dues at the same time.
Dues are officially due 1/1/2020.

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List of Upcoming MSSC Events : Mark your Calender!

Event	Date	Comments / Scheduled Program (if known)
Meeting Dates:	**January 4 , 2020**	Banquet: Paul Adams: : Mineralogy of the Copper World and Mohawk Mines, San Bernardino County, California **NOTE:** new Date & Location
	February 21, 2020	Dr George Rossman: Caltech Grad. Student
	March 13. 2020	Karol McQueary: "A Dinosaur for California
	April 10, 2020	Krista Sawchuk: Discovering the Deep Earth
	May 8, 2020:	Webers- Rainforest Jasper of Queensland Australia

Board Meeting	December 1, 2019	Board Meeting at Bruce Carter's house
Micromineral Conference	January 31 – Feb 2, 2020	Fallbrook Mineral Museum

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

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Pacific Micro Mineral Conference Update

Now is a good time to start making plans to participate in the 55th annual Pacific Micro Mineral Conference. It will be held on the **Friday, January 31st through February 2nd 2020**, at the very interesting Fallbrook Mineral Museum, 123 Alvarado Street in quiet picturesque Fallbrook CA. It will feature talks by Paul Adams, Joe Marty, and Herwig Pelckmans. As usual there will be overflowing give away and one-dollar sales tables with lots of new material. Also as usual there will also be both a silent auction, and a verbal auction of fine micro specimens, as well as a Sunday field trip. As the date approaches additional information will be distributed and will also become available on the MSSC website. Preliminary indications of interest and inquiries can be sent to rhousley@its.caltech.edu.

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L.A, Nature Fest is a two-day festival that celebrates L.A.'s wild side!

Saturday, March 14, 9:30 am - 5 pm &
Sunday, March 15, 9:30am – 5pm

Los Angeles Natural History Museum

900 Exposition Blvd., Los Angeles, CA 90007

213.763.DINO (3466)

There's a surprising amount of nature in Los Angeles, and the more you know how to look for it, the more you'll see. You'll be blown away by the plants, animals, and the people devoted to protecting and studying them.

L.A. Nature Fest unfolds in our very own Nature Gardens, the outdoor space where museum scientists do real research and educators share nature's coolest stories.

Each day will be filled with performances, hands-on activities, and presentations.

PAST FESTIVAL HIGHLIGHTS INCLUDE

- Meet live animals such as falcons, owls, opossums, and reptiles
- Build your own bird houses! Limited availability, first come, first served
- Raptor flight demonstrations
- Over 35 exhibitor booths with local organizations
- Talk face to face with scientists and nature experts who are excited to answer your questions
- Free giveaways from the Tree People and seed packets from Big Green
- Hands on nature crafts and activities

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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 home after meetings	Ed Kiessling	1299 Linda Vista Ave. Pasadena, CA	*See emailed bulletin*
A ride	Richard Stamberg	North Orange County, near Cal State Fullerton	*See emailed bulletin*

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Field Trip Report from Marek Chorazewicz

Hi fieldtrip friends,

I had a sinus surgery in November and will be recovering for some time, so no there were no fieldtrips during November. Hopefully we can go out into the field again in the beginning of December, I'll keep you updated.

I've updated the Yerington page with the trip report: http://www.mineralsocal.org/fieldtrip-information-reports/yerington-area-nv-sept-28-2019/

Two important mineral discoveries happened as a result of our trip. We've confirmed two very rare micro minerals -- chalcosiderite and sampleite -- from Blue Jay mine. No sampleite has ever been reported from the United States before!

Have a nice Thanksgiving everybody!

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OTHER (FREE) THINGS TO DO... by Ann Meister

An (unfortunately) not-free event at **The Huntington: "Viewing Stones Shows."** December 26 through December 30 from 10 AM to 5 PM at the Brody Botanical Center. General admission is required. The California Aiseki Kai presents its 30th annual show featuring outstanding examples of *suiseki* and other viewing stones. Practiced in Asia for centuries and gaining popularity around the world, the art of viewing stones invites contemplation of the subtle, often fanciful forms that have been shaped by nature, the elements, and time. In addition, the American Viewing Stone Resource Center presents a complementary display, *"From Tiger Stripes to Mindless Cloud: Celebrating 50 Years of Stone Appreciation at The Huntington."* For the first time, the shows include hands-on activities to introduce children of all ages to the appreciation and display of natural stones.

There is NO **Von Kármán Lecture** listed for December.

The **Watson Lecture** at Caltech's Beckman Auditorium is on Wednesday, **December 11** at 8 PM. The speaker is Joseph Parker, Assistant Professor Biology and Biological Engineering, Caltech. The title of his talk is **"How to Deceive Society: An Insect Masterclass."** For some organisms in the natural world, mass deception is a way of life, and evolution has transformed them into virtuoso manipulators. In this lecture, Parker will discuss his work on rove beetles—arch tricksters, capable of assimilating into ant colonies to exploit their social hosts undetected.

There is NO **UCLA Meteorite Gallery** lecture in December. Next one is January 26.

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
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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

With Knowledge Comes Appreciation !

Calendar of Events:

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

DECEMBER, 2019

December 7 – 8: BARSTOW, CA
Mojave Desert Gem & Mineral Society
Cora Harper Community Center
841 S. Barstow Road
Hours: 10 – 5 daily
Contact: Danny Watts, (760) 373-1309
Email: vivlea22@ yahoo.com
Website: www.mdgms.net

JANUARY 2020

January 18 – 19: EXETER, CA
Tule Gem & Mineral Society, Visalia
Exeter Veterans' Memorial Building
324 N. Kaweah Avenue
Hours: Sat 10 – 5; Sun 10 – 4
Website: tulegem.com

FEBRUARY 2020

February 14 – 23: INDIO, CA
San Gorgonio Mineral & Gem Society
Riverside County Fair & National Date Festival
82-503 Highway 111
Hours: 10 – 10 daily

MARCH 2020

March 7 – 8: VENTURA, CA
Ventura Gem & Mineral Society
Ventura County Fairgrounds
10 West Harbor Blvd.
Hours: Sat 10 – 5; Sun 10 – 4
Website: vgms.org

March 13, 14 & 15: VICTORVILLE, CA
Victorville Valley Gem & Mineral Club
44th Annual Rockhound Tailgate
Stoddard Wells Road/Dale Evans Pkwy
Hours: 9 – 5 daily
Website: vvgmc.org Show Page

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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
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E-mail: *treasurer@mineralsocal.org*

Website: ***www.mineralsocal.org*** **The Mineralogical Society of California, Inc.**

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To:

With Knowledge Comes Appreciation

Your MSSC Bulletin Is Here!