



# **Bulletin of the Mineralogical Society of Southern California**

Volume 93 Number 1 - January, 2020

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*The 976<sup>th</sup> meeting of the Mineralogical Society of Southern California*

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***With Knowledge Comes Appreciation***

**Saturday, January 4<sup>th</sup>, 2020 Annual Banquet**

**5:00 p.m. -11:00 p.m.**

**Pinocchio's Pizza, Pasadena,**

**1449 N Lake (North of Lake Ave & Mountain)**

**Pasadena**

**Program : Mineralogy of the Copper World and Mohawk Mines, San Bernardino  
County, California: Presented by Paul M. Adams**

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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: MSSC Annual Banquet and Silent Auction

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

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

**Speaker:** Paul M. Adams presenting **Mineralogy of the Copper World and Mohawk Mines, San Bernardino County, California**

The mines are located just north of Interstate 15 near the California-Nevada border. The Copper World mine was located in 1868 by Johnny Moss who was told about the location by the Piute Indians. An expedition by the Piute Company from San Francisco in 1869, located more claims, including the rich silver deposits on the north side of Clark Mountain. The Copper World mine was not worked significantly until 1899 and saw three brief periods of activity, between then and 1918, by the Ivanpah Smelting Company, Cocopah Copper Company and Ivanpah Copper Company. A smelter was constructed at Valley Wells (Rosalie) about 7 miles south of the mine by the Ivanpah Smelting Company and it produced \$750,000 worth of copper between 1899 and 1902. However, it cost them more than that amount to produce the copper, resulting in bankruptcy. The Mohawk mine was also worked for lead on a limited basis during this period. Dan Murphy, who was the richest man in Los Angeles in the early 1900s, was the president of the Cocopah and Ivanpah Copper Companies. In the late 1970s, the Copper World mine was worked for gem azurite and malachite (marketed as Royal gem azurite, azurmalachite) by Par Gem Spectrum. In 2005, the mine was sold to the National Park Service for incorporation into the Mojave National Preserve. The area is noted for diverse cacti and succulent communities and big horn sheep.

The Mohawk mine is located on Mohawk Hill and is visible from Interstate 15. It was leased (and later purchased) from the Ivanpah Copper Company by Mohawk Mines Inc., during the 1940s, and worked for lead and zinc. During the 1970-1990s the Mohawk mine was a popular collecting locality for micro mounters and produced a diverse assemblage of well crystallized secondary lead and zinc minerals (primarily carbonates and arsenates), including: adamite, aurichalcite, austinite, azurite, beudantite, cerussite, conichalcite, cuprite, duftite, hemimorphite, jarosite, malachite, mawbyite, mimetite, segnitite, smithsonite and wulfenite. A detailed description of the minerals was given by Dr. Bill Wise in 1990 ([http://www.desertsymposium.org/DS\\_1990-1\\_Mohawk\\_Mine.pdf](http://www.desertsymposium.org/DS_1990-1_Mohawk_Mine.pdf)). A much-expanded article on the history and mineralogy of the Copper World and Mohawk mines has just been submitted to the Mineralogical Record. This talk presents the material in that article.

Paul Adams has a Master's Degree in Geology from the University of Southern California where he studied monticellite-vesuvianite-clintonite skarns on Clark Mountain, near the Copper World mine. He has worked as a microscopist and spectroscopist in the aerospace industry for 40 years. Pauladamsite is a copper-selenite-sulfate-hydroxide-hydrate, which he discovered at the Santa Rosa mine in Inyo County, that was described by Dr. Tony Kampf in 2015.

***Don't forget to bring your donations for the Silent Auction!***

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### From the Editor:

Wow, Happy New Year everyone! This past year has been amazing on many fronts. Here's hoping 2020 is a good year for all.

I enjoy doing the MSSC Bulletin, even if I am an "absentee" editor these days. I had my third eye surgery in mid-December and it will be weeks before my vision settles down (hopefully!) at which point I can finally get my second cataract taken care of. An interesting result is that I'm finding all of the vision aids available on my laptop! See you next year! Linda Elsnau

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**FROM THE PRESIDENT: Interesting Minerals, A to Z. Installment 24 the letter “X”:** by George Rossman

Xenotime-(Y)

Yttrium phosphate,  $\text{YPO}_4$

The origin of the name is rather interesting. The name was originally proposed was ‘kenotime’, which, using the Greek root words, means “vain glory”. This was a rebuke to a Swedish chemist who prematurely claimed that he found a new chemical element in the mineral. In fact, the chemist rediscovered a previously known element, yttrium. Over time the initial letter ‘k’ in the name was misprinted as the letter ‘x’ and the name, over time, became xenotime. That is fine, because, according to the entry in R.S. Mitchell’s book, *Mineral Names – What do they mean*, the word ‘xenotime’ can be derived from two Greek words that mean ‘stranger’ and ‘to honor, or glory’. The reason is that, originally, crystals were small and rare and easily overlooked, so finding one of these rare minerals was an honor. Incidentally, xenotime has the same atomic structure as zircon,  $\text{ZrSiO}_4$ , namely, it is an orthosilicate. In orthosilicates, no two silica tetrahedral share a common oxygen ion.

Xenotime was originally described from an occurrence in Hidra, Norway, where it was discovered in 1824 by a Norwegian mineralogist, Nils Tank. **(Figure 1).**

An early analysis of the mineral in which the name xenotime is proposed appears in:

Beudant F S (1832) Xenotime, yttria phosphatée. In *Traité Élémentaire de Minéralogie*, 2nd Edition, (Paris) 552-553

Xenotime would be a colorless mineral is it had the ideal formula **(Figure 2)**, but it usually contains rare-earth elements in addition to yttrium. The more common rare-earth components are dysprosium, erbium, terbium and ytterbium. Also, thorium and uranium can replace some of the yttrium rendering many samples of xenotime mildly to strongly radioactive. Most of these other components will add color to xenotime.



**Figure 1.** Xenotime from Hidra, Vest-Agder, Norway. Photo credit GRR



**Figure 2.** Near-colorless xenotime from Pamba, Minas Gerais, Brazil. Photo credit GRR

The name of this mineral is no longer xenotime. In 1987, it was recognized that xenotime specimens had variable amounts of the other rare-earth elements. So a commission of the International Mineralogical Association revised the names to allow for the possibility that other rare-earth elements could be dominant.

Nickel E H, Mandarino J A (1987) Procedures involving the IMA Commission on New Minerals and Mineral Names and guidelines on mineral nomenclature, *American Mineralogist* 72, 1031-1042

There are now two species formerly known for what used to be xenotime. One is xenotime-(Y), the more common phase discussed above where yttrium is the dominant rare earth element. The other is xenotime-(Yb), characterized in 1998 as International Mineralogical Association mineral IMA1998-049. Ideally, it would have



the chemical formula  $\text{YbPO}_4$ , where the rare earth element *Buck H M, Cooper M A, Cerný P, Grice J D, Hawthorne F C (1999) Xenotime-(Yb),  $\text{YbPO}_4$ , a new mineral species from the Shatford lake pegmatite group, Southeastern Manitoba, Canada, The Canadian Mineralogist 37, 1303-1306*

Xenotime-(Y) is found in pegmatites as well as in other igneous rocks and can persist in alluvial deposits of sand. Locally, it is moderately common at the Southern Pacific Silica quarry, near Nuevo, Riverside County, California (Figure 3). It isn't much to look at, I must admit, but the chemistry is quite interesting. I ran an X-ray fluorescence analysis on a crystal from the Nuevo quarry. In this method, we expose a crystal to a beam of X-rays which knock out low-energy electrons (inner orbital electrons) from the atoms of the crystal. Higher energy electrons then drop in to replace the missing electron, and in the process, emit an X-ray of a wavelength characteristic of the element undergoing this process. Over time (a minute or two) the continued exposure to X-rays causes all the elements in the crystal to emit their characteristic X-rays. We detect these and, with suitable calibration, we obtain an analysis of the crystal.



**Figure 3.** Xenotime-(Y) from the Nuevo quarry. The crystal in the upper left has been sliced in half to show the interior. *Photo credit GRR.*

So, what does the xenotime-(Y) crystal from the Nuevo quarry in the upper left of **Figure 3** contain? In addition to the yttrium and phosphate ions, it has a bit of aluminum, minor sulphur, some potassium, a dab of both calcium and iron, some arsenic, quite a bit of zirconium, significant amounts of neodymium, gadolinium, dysprosium, erbium, ytterbium, lutetium, hafnium, and lead, a good trace of bismuth, some thorium, and quite a bit of uranium. This is why xenotime is a good ore for the rare-earth elements, and thanks to the uranium and thorium, why xenotime is usually radioactive.

Xenotime forms a solid solution series with chernovite-(Y) which is  $\text{YAsO}_4$ . So, finding arsenic in xenotime, like we did with the xenotime from the Neuvo quarry, is nothing unusual. Xenotime's rare earth content makes it an important ore for the heavier rare earth elements. The rare earth elements, of course, are very important in current technological applications. For example, dysprosium finds use in computer hard disk drives, and as an important minor component in neodymium magnets. Lutetium is used as the detector in PET scanners for medical applications and for LED light bulbs. The major component, yttrium, finds use in microwave transmission for cell phones, in fluorescent lighting tubes, and in cubic zirconia gems.

Xenotime is found at many localities around the world. There are many in Scandinavia, particularly Norway (**Figures 4 and 5**).



**Figure 4.** Xenotime-(Y) from the Granite Pegmatites of Iveland, Setesdal, Southern Norway. *Photo credit GRR.*



**Figure 5.** A dipyramidal crystal of xenotime from Tvedestrand, Aust-Agder, Norway. *Photo credit GRR.*



**Figure 6, Xenotime-(Y) from the Zagi Mountain, Pakistan.**

*Photo credit Mark Garcia.*

Rather attractive crystals of xenotime-(Y) exist. More recently, nice crystals of xenotime have come from the Zagi Mountain, in the Federally Administered Tribal Areas (FATA) of northwestern Pakistan (**Figure 6**).

Xenotime-(Y) even is rarely found in gem quality crystals. I don't have any to show you, but you can see examples at [gemdat.org](http://gemdat.org). An overview of the minerals and particularly the gemstones of Pakistan appears on the [palagems.com](http://www.palagems.com) website at

<http://www.palagems.com/pakistanoverview>.

Hmm; let's think about for a moment: would you like to wear a radioactive gem in a necklace around your neck?

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## MINUTES of the December 13, 2019 MSSC Meeting

**Call to Order:** The 975<sup>th</sup> Membership Meeting was called to order by President Dr. George Rossman, Ph.D. at 7:31 p.m. 18 people attended.

**President's Remarks:** Dr. Rossman announced that there are now 5,534 IMA approved mineral species. Three of the newest are *Kingsgateite* (locality name, New South Wales, Australia), *Lauraniite* (Laurani Mine, Bolivia) and *A'danite* (C. Adan, Utah). *A'danite* was approved 12/10/2019, three days prior to this meeting! 3 MSSC members are associated with naming the mineral as well as Tony Kampf of the L A County Museum.

### Regular Business:

**MINUTES:** Dr. Rossman requested approval of the November 8, 2019 Membership Minutes as published in the December 2019 *Bulletin*. A motion was made by Geoff Caplette and seconded by Pat Caplette. There were no additions or corrections and the voice vote was called. The motion to approve the Minutes passed unanimously.

**Field Trip participation by non-members:** Included on our website and in an attempt to encourage participation, the possibility of asking non-members to pay a nominal fee to participate on MSSC's Field Trips was suggested. However, Bureau of Land Management (BLM) approval for such field trips are considered as commercial events and approval would take at least 180 days! That concept is completely gone away. Treasurer Kusely checked with our insurance carrier who reported the participants are covered (general liability and property damage). Discussion regarding lowering dues for students is unresolved at this time.

**Field Trip Report:** Dr. Rossman reports that Marek Chorazewicz, Field Trip Chair, visited the Rosamond area to scout out the upcoming field trip locations for the uranium mine and Gem Hill. Marek brought back luminescent specimens, as well as, chalcedony and other goodies; some of the specimen minerals in those areas are micromount, millimeter size. Marek hopes there is a good showing for the field trip (Saturday, Dec 14<sup>th</sup>). Meet up is 7:00 a.m. (uranium mine) for part I and 10:00 a.m. (Gem Hill) for part II. *Bulletin* or website have details including GPS coordinates. Marek reminds us to dress in layers! He displayed some of the specimens under UV light. A closer look is available after meeting adjournment.

**Visitors:** Dr. Rossman asked if there were any visitors or people who had not been to a meeting in some time. There were: Ciro and Simona, Bob Kanne (former member), Dylan (new member) and Isabel, recent grad of Harvey Mudd. Welcome!

### Announcements

Cheryl Lopez, Membership Chair: MSSC's Annual Banquet and Silent Auction is 3 weeks away but only 17 have signed up thus far. We have a minimum requirement for the Banquet so, sign up, invite your friends and

neighbors to come hear a fascinating speaker. There are handouts regarding our speaker Paul Adams. Paul is an active field collector and a research scientist at Aerospace Corporation in Southern California. [Secy. Note: *Pauladamsite*, a copper-selenite-sulfate-hydroxide-hydrate is named for him.] There is also a flyer regarding the location of the banquet. *Bulletin* Editor, Linda Elsnau will be requested to send e-mail blast reminder to the members. **The Installation Banquet and Silent Auction is Saturday, January 4, 2020.** Don't forget your donations for the Silent Auction. Check the *Bulletin* and/or website for details.

Cheryl reports that Rudy is fishin' and, so far, he's caught over 400 lbs. of tuna. Wahoo!!!

## Program

Cheryl introduced our speaker, Dr. Steve Hardinger. Steve recently retired from UCLA as organic chemistry professor. He is a member of MSSC and has owned and operated Dragon Minerals for over fifteen years. While Steve has been collecting for 35+ years, his collecting passions are quite eclectic including gypsum, naturally etched crystals, pegmatite oddities, French Creek (Pennsylvania) and A. E. Foote material. His focus and lecture tonight: "Minerals Containing Carbon."

Dr. Hardinger iterates: "Mineral: A naturally occurring solid that has been formed by geological processes, either on Earth or in extraterrestrial bodies." (Nickel, E.H. Canadian Mineralogist 1995). Carbon (from Latin carbo "coal") forms strong bonds with carbon, hydrogen, oxygen and nitrogen (CHON). It uses chains, rings, double bonds and triple bonds. While silicon's abundance in the Earth's lithosphere is greater (27.7%) than carbon (0.03%) why then is silicon not the basis for life as we know it? Silicon does not readily form rings, chains, double or triple bonds. By the way, carbon in the Universe ranks 4th in abundance and silicon ranks 7<sup>th</sup>.

Minerals are solids but include the "grandfathered" mercury (liquid), slag (dump materials), mineraloid (not crystalline and lacks fixed composition, i.e., copal and amber) and rock (solid mass or aggregate of minerals or mineraloid matter). Additionally, there are definitions and classifications for carbon, organized by property, chemistry, crystallography, etc.

There was a Carbon Mineral Challenge (Dec 2015 - Sept 2019) whose goal it was to search for new carbon minerals using research-based predications of 548 minerals. 403 of the known carbon minerals existed on Earth at the time of the start of the challenge and of the 145 remaining to be discovered (of the predicted 548), 31 new ones were found on the project! These discoveries are important because they provide clues about the Earth's carbon and water cycles in the lithosphere and they help understand conditions to initiate and sustain life on Earth and on exoplanets!!!

Steve explained the simplified origins of carbon containing minerals: patterns and how they are affected by changes (i.e., rock formation or alterations). It begs the question of how many minerals are without carbon? Steve says probably less than 50!

There are about 72 billion tons of carbon stored in the Earth's crust and oceans including biologic shell formations (think White Cliffs of Dover, for example) which include ~80% carbon bearing rock such as limestone and dolomites. The remainder of ~20% is represented by buried remains of organisms: coal (mostly plant), mineraloid petroleum (zooplankton and algae). Here's a tidbit: petroleum is 83-85% carbon, whereas shungite is 98% carbon.

What is shungite? Shungite (from Shun'ga area in Russia) is a mineraloid. It's uses are water purification (as in Peter the Great's spa) and as an anti-bacterial, shungite contains *fullerenes*, rare molecules and powerful anti-oxidants. Shungite is an electrical conductor.

Steve talked about mineraloids and he discussed copal (immature amber), amber, biological oyster, non-volatile portions of petroleum (i.e., tar) and others. He went on to tell us about *carbon allotropes*: molecules composed of the same atom, but having different structures. Prime examples of allotropes are diamond (hard, colorless, electric insulator) vs graphite (soft, electrical conductor, more stable - graphite has a spare electron). He continues with *carbides* which are carbon and metal composition, strongly resistant to change by heat or chemical attack. He then mentions *PAH*, (polycyclic aromatic hydrocarbons), *Oxalates*, *Carbonates* and *Organic Inclusions* (fragment of mineral, rock, liquid or gas wholly enclosed within another crystal). Some

examples of inclusions are petroleum in quartz = strong fluorescence, bitumen (tar) on fluorite, bugs or plants in amber and others.

Where can we find carbon minerals in California? Carbonates are widespread, as are graphite and crude oil. Oxalate (humboldtine) can be found in Kern County, Carpathite (a PAH) is found in San Benito County and look for Amber in Simi Valley (check internet for more locales). Looking forward, there are new carbon species yet to be discovered! What will you find?

Steve explained structure, sheets, stacks, bonds, electrons and showed us a constructed carbon model (“it’s only a model”) for conclusions. He also brought carbon specimens for visual emphasis. Q&A followed Steve’s presentation.

Thank you, Dr. Hardinger, for an informative, wonderful presentation.

*Secy Note: As with all MSSC Speaker presentations, if you did not hear, see it for yourself, you did not read everything that was said. Come out to a meeting, enjoy these wonderful presentations, experience for yourself, join fellow members and guests for a great evening about minerals! “Come on down!” See you next time?*

Door Prize Drawing: Dr. Hardinger drew the number for the door prize that was won by first time attendee, Isabel King. Congratulations Isabel!

Dr. Rossman adjourned the meeting at 9:00 p.m.

Respectfully submitted by Angie Guzman, MSSC Secretary.

Refreshments were served after the meeting. “Thanks” Hospitality Chair Laura Davis.

REMINDER: MSSC’s Installation Banquet and Silent Auction will be on January 4, 2020. Paul Adams will be our speaker. Make your reservation NOW! Check the *Bulletin* and/or website for details.

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## **MSSC Board Meeting Minutes December 1, 2019**

### Call to Order and Roll Call

The MSSC Board meeting was called to order at 1:01 p.m. by President Dr. George Rossman. The following Officers, Directors and Committee Chairs were present: George Rossman, Jim Kusely, Angela Guzman, Jo Anna Ritchey, Pat Caplette, Leslie Ogg, Rudy Lopez, Cheryl Lopez and (acting VP Ahni Dodge. The following were not present: Ann Meister, Bob Housley, Linda Elsnau, Patrick Stevens, Marek Chorazewicz and Al Wilkins. The meeting was held at Coco’s (Colorado at Michilinda).

1. *Comments from President* [Dr. George Rossman]: Welcomed Ahni Dodge, incoming Vice President (Renee Kraus had to resign VP). Ahni has been a member of MSSC for some years and recently decided to serve on the Board. She was elected in November 2019 unanimously. Her favorite mineral is calcite,  $\text{CaCO}_3$ .

2. *Treasurer’s Report* [Jim Kusely]:

- a) Finance handout, differences from Merrill Lynch to BofA, Board discussion;
- b) Silent Auction at 2018 Banquet yield was much lower than expected. Discussion followed, including start bid amount, quality of Silent Auction donation, etc.;
- c) Other suggestions were discussed about how to increase income (i.e., raise dues) and reduce expenses (i.e., CFMS related expenses, reduce number of speakers per year due to cost per speaker meetings and at PMC, etc.);
- d) PayPal considered for payments (i.e., membership dues, etc.). Kusely will investigate associated expenses for this service and report at the next Board meeting. [See #8 d) below.]
- e) Discussions regarding government grants, JTI, no registration form for PMC in *Bulletin* and other related matters.

3. *Membership Chair Report* [Cheryl Lopez]:

- a) Paperless Roster: Thus far, no notifications from any member saying they did not want paperless Roster. Roster will be paperless with 5 to be mailed Cheryl asked the Board how to handle the 4 “name only” members who do not have their electronic information filed with MSSC. It was decided that Cheryl will contact each individually to see how they wish to receive the Roster. The concern is a privacy issue;
- b) Membership: 7 Life Members, 5 Honorary Members and so far, 8 paid (renewal) members. [Note: some Board members paid their dues at this time.];
- c) Discussion/suggestions: how to increase membership including youth.

4. *Pacific Micromineral Conference Report* [Rudy Lopez]:

- a) Discussion regarding **Non-Member vending at PMC – consensus =NO**;
- b) PMC not well “advertised”, need more outreach,
- c) Discussion regarding enrollment fees, speaker fees, need for more quality micromount mineral specimens, etc.;
- d) Rudy has electrical extension cords, micromounts inventory.

5. *Field Trips Report* [Dr. Rossman]:

- a) Kudos to Marek Chorazewicz for his field trip articles appearing on the website;
- b) The next field trip will be on December 15 2019 to the Rosamond area near Lancaster, destinations are Gem Hill and uranium mine;
- c) Discussion and consensus that non-members pay a fee to participate in this and any future MSSC field trips. Check *Bulletin* or website for details.

Field trips are led by Marek Chorazewicz and/or Dr. Bob Housley.

6. *Federation Director’s Report* [JoAnna Ritchey]:

- a) JoAnna reports the next CFMS convention and meeting will be in Lodi, June 25-28, 2020. Angie Guzman will attend, as she is Alternate for out-of-town CFMS meetings.

7. *Program Chair Report* [Rudy Lopez]

- a) Speakers are lined up through March 2021. We have a UCLA connection including 3 new speakers, Ahni referred a PCC speaker, Caltech grad students in the wings.
- c) Discussion regarding if MSSC wants to cut back on speakers (see 2. c) above);
- d) Discussion regarding phone tree for notification purposes.

8. *Web Master Report* [Leslie Ogg]

- a) Leslie handed out analytical reports regarding MSSC’s web page usage. Searches over the past three years shows in an increase in views. Currently, our general web page shows Google Search leads the way of how people get to our site and, over the past 3 months, the main web page has the most views followed by Field Trip Info and Reports, Bulletin, Links and the Yerington, NV 9-28-19 field trip (specific). Facebook page had 250 followers during the 3-month period with 231 “Likes”;
- b) Discussions included Skype meetings, join MSSC using credit card through the web, PayPal account [See #2 d) above] and definitions (family, adult, etc.) in the By-Laws.

9. *Bulletin Report* [Linda Elsnau]

Linda, unable to attend passed along the following:



- a) She needs to be sure courtesy *Bulletin* is going to everyone that they should be sent to. Also, she needs new current e-mails, names, etc., for individuals at PCC that should be getting copies, as well as, anyone else the Board specifically feels should be included. Should Celestain at NHM continue to be getting the *Bulletin*? [Yes] **Tabled until #11 on Agenda.**
- b) Need to know when payment from Zinn for advertising comes in so their ad can be included in January *Bulletin*. Should I (Linda) send reminder or does Jim (Treasurer) do that? Jim will contact Zinn representative to discuss/resolve this outstanding (since 2015) issue.

Dr. Rossman asked for other comments regarding the *Bulletin*. Discussion included:

- Memorial message in *Bulletin* regarding Dr. Bruce Carter, PhD;
- Ahni will check with Kathy Carter regarding her wishes to be a Life Member, all agreed;
- Ahni will ask Kathy if she would like to be listed on the Roster and how;
- Donation to PCC;
- Keys to PCC will hand over to Ahni Dodge, Vice President.

#### 10. *Status of January Banquet Preparations* [Rudy Lopez]

- a) Silent Auction items – Rudy has lots but need other people to donate/participate;
- b) Need projector screen or will use wall for Speaker Paul Adams presentation;
- c) Cost for Banquet is \$41/person, but few signed up to date;
- d) Rudy will send out e-mail blast and post on website/*Bulletin*;
- e) Event scheduled for Saturday, Jan 4<sup>th</sup> 2020 at Pinocchio's Restaurant on N. Lake.

Discussion held regarding membership dues of other societies and clubs.

#### 11. *PCC Meeting Room and Parking* [Rudy Lopez]:

- a) PCC's Dr. M. House is replaced by Ahni Dodge as PCC Liaison, paperwork should be completed – Ahni will take care of this item;
- b) Master key set will be turned over to Ahni;
- c) MSSC Parking placard is honored, so no parking citations;
- d) PCC needs dates for MSSC meetings, PCC graduation is 6/12 so June 2020 meeting is postponed to 6/19/20.  
[Dates for 2020 Membership Meetings: Banquet Jan 4<sup>th</sup>, 2/21, 3/13, 4/10, 5/8, 6/19, 7/10, August Picnic-to be determined, 9/11, 10/9, 11/13 and 12/11. Dates are subject to change.]

#### 12. *Board of Directors* [Dr. Rossman] – *Tabled until after Item #13.*

#### 13. *Future Board meeting site* [Dr. Rossman]

- a) Do we continue to do what we do today? - Per Ahni, Board meetings can be conducted at PCC – Geology Bldg, quarterly on Sunday. PCC needs dates of the meetings through June 2020: March 8, June 14;
- b) Alternative private sites? – N/A.

Discussion regarding MSSC property held at PCC – reimburse Guzman for missing coffee pot, possible lock on cabinet, label all items, etc.

#### 12. *Board of Directors* [Rossman] *tabled from above.*

- a) Need 2 members for 2020-2021:  
Terms of service for Pat Caplette and Pat Stevens are ending 12-31-2019:  
Pat Caplette agrees. Pat Stevens was absent, so Dr Rossman will contact him to see if he is willing to continue.
- b) 2019-2020 Directors = Bruce Carter –[Housley and Ogg continue]. Rudy

Lopez volunteered to be Director in the place of Dr Carter. Board agrees.

In succeeding minutes, JoAnna Ritchey verbally resigns as CFMS Director due to personal reasons. She mentioned that she still wanted to serve but not as CFMS Director. Angie Guzman volunteers to be CFMS Director. [According to MSSC's current Operating Rules, the CFMS Director shall: "...Serve as liaison the Society and the CFMS..."]

Jim Kusely, for insurance purposes, needs a listing of changes noted during this meeting. Guzman will e-mail him the changes.

**Tabled Item 9 a):** Rudy sends the *Bulletin* to each speaker, once with their write up before their presentation and once with the write up of their presentation. Discussion followed.

Adjourn at 2:48 p.m.

Submitted by Angie Guzman, MSSC Secretary

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### List of Upcoming MSSC Events : Mark your Calender!

Event	Date	Comments / Scheduled Program (if known)
<b>Meeting Dates:</b>	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
	June 12, 2020	Eric Scerri: The Periodic Table: It's Story & In Significance
<b>Board Meeting</b>	March ?, 2020	Board Meeting , <i>Date &amp; Location to be announced</i>
<b>Micromineral Conferece</b>	January 31 – Feb 2, 2020	Fallbrook Mineral Museum, Fallbrook, CA

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

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### 55<sup>th</sup> annual Pacific Micro Mineral Conference

Attached with this bulletin is the full information and registration document for the upcoming Pacific Micro Mineral Conference. Please check the attached document for more information.

January 31 and February 1, 2020 at  
The Fallbrook Mineral Museum  
123 W. Alvarado St., Fallbrook, CA

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**Reminder:** Your Membership Dues need to be paid before February 20, 2020 to maintain your MSSC Membership, to have your information listed in the Roster and to continue receiving your MSSC Bulletin.

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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](mailto: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	<i>See emailed bulletin</i>
A Ride home after meetings	Isabel King	900 N. Broadway, Los Angeles, CA	<i>See emailed bulletin</i>
A ride	Richard Stamberg	North Orange County, near Cal State Fullerton	<i>See emailed bulletin</i>

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

The **Von Kármán Lecture** on \*Thursday/Friday\* **January 23 and 24** at 7 PM. There is a panel of four speakers. The title of the presentation is “**Spitzer: Final Voyage.**” The Spitzer Space Telescope has been observing the universe in infrared light for over 16 years. As the mission comes to a close, we’ll take a look at some of the amazing highlights and the lasting legacy of this incredible observatory. \*\* Thursday is at the Von Kármán Auditorium at JPL and Friday is at Ramo Auditorium at Caltech.

The **Watson Lecture** at Caltech’s Beckman Auditorium is on Wednesday, **January 30** at 8 PM. The speaker is Thomas Soifer, Harold Brown Professor of Physics, Emeritus in the Division of Physics, Mathematics and Astronomy, and Director of the Spitzer Science Center. The title of his talk is, “**The Legacy of the Spitzer Space Telescope.**” On January 30, 2020, NASA's Spitzer Space Telescope mission will end, more than 16 years after launch and four decades after conception. In his talk, Soifer will describe the innovations that led to Spitzer's long lifespan and illustrate the mission's main findings, which include revealing a stellar system with seven earth-size planets and massive galaxies in an infant universe.

The **UCLA Meteorite Gallery** lecture is on Sunday, **January 26** at 2:30 pm\*. The speakers are Dr. Peter Utas, a physician meteorite collector, and Dr. Alan Rubin of UCLA. The title of his talk is “**A Coming Out Party for a Large Stony Meteorite.**” Large iron meteorites are common, big stones are rare. Our atmosphere presents a formidable barrier to large rocks, efficiently transforming boulders into pebbles. But a few survive the fiery plunge. Peter reviews the roster of these great intruders, with a short description of several, and introduces a rare survivor, NWA XXXX, the 15th largest surviving stone. Discovered five years ago, in Mali or Mauritania, this flight-marked 205-kilogram specimen was largely buried, the soil-line still clearly visible. Rubin describes the analysis and classification of chondritic stones; naked eye examination of hand specimens gives important clues, but quantitative techniques are needed to avoid being misled. Hand samples of chondrites will be available for examination by attendees. \*\*The UCLA 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.

\*\*\*\*\*

## Calendar of Events:

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

### **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](http://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](http://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](http://vvgmc.org)     [Show Page](#)

**APRIL 2020**

**April 25 – 26: LANCASTER, CA**

Antelope Valley Gem & Mineral Club  
Antelope Valley Fairgrounds  
2551 West Avenue H  
Hours: Sat 9 – 5; Sun 9 – 4  
Website: [www.avgem.weebly.com](http://www.avgem.weebly.com)

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**WEST COAST GEM, MINERAL  
& FOSSIL SHOW**

**May 8-9-10, 2020**

*Himalaya Mine,  
San Diego County, CA*



**TOURMALINE with ALBITE  
and QUARTZ**

*Watercolor by Frederick C. Wilda©*

**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](mailto:bulletin@mineralsocal.org) and the payment

should be sent to the  
**MSSC Treasurer**  
**1855 Idlewood Road,**  
**Glendale, CA 91202**

*With Knowledge Comes Appreciation !*



## 2020 MSSC Officers:

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President	George Rossman	<a href="mailto:president@mineralsocal.org">president@mineralsocal.org</a>
Vice President	Ahni Dodge	<a href="mailto:vicepresident@mineralsocal.org">vicepresident@mineralsocal.org</a>
Secretary	Angie Guzman	<a href="mailto:secretary@mineralsocal.org">secretary@mineralsocal.org</a>
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CFMS Director	Angie Guzman	
Past President	Ann Meister	
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2019--2020	Rudy Lopez	
2019--2020	Bob Housley	
2019--2020	Leslie Ogg	
2020-2021	Pat Caplette	
2020-2021	<i>vacant</i>	
<b>COMMITTEE CHAIRS</b>		
Bulletin Editor	Linda Elsnaue	<a href="mailto:bulletin@mineralsocal.org">bulletin@mineralsocal.org</a>
Hospitality	Laura Davis	
Membership	Cheryl Lopez	<a href="mailto:membership@mineralsocal.org">membership@mineralsocal.org</a>
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Publicity	Linda Elsnaue	<a href="mailto:bulletin@mineralsocal.org">bulletin@mineralsocal.org</a>
Webmaster	Leslie Ogg	<a href="mailto:webmaster@mineralsocal.org">webmaster@mineralsocal.org</a>

### 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](mailto:treasurer@mineralsocal.org)

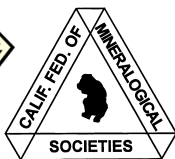
**Website:** [www.mineralsocal.org](http://www.mineralsocal.org) **The Mineralogical Society of California, Inc.**

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

*To:*



**With Knowledge Comes  
Appreciation**

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

*Happy New Year*