

Bulletin of the Mineralogical Society of Southern California

Volume 94 Number 11 - November, 2021

The 995th meeting of the Mineralogical Society of Southern California

With Knowledge Comes Appreciation

A ZOOM Meeting

November 12th, 2021 at 7:30 P.M.

Program: Traces of Extinction: The search for the Rocks and Minerals of Chicxulub Presented by Paolo Sanchez

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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: Traces of Extinction: The search for the Rocks and Minerals of

Chicxulub. Presented by Paolo Sanchez, UC Berkeley, Geology & Geophysics '22

Traces of Extinction: The search for the Rocks and Minerals of Chicxulub. Research summary: In 1980, Luis and Walter Alvarez proposed the theory of a devastating meteor impact event as the cause of a major mass extinction of dinosaurs, ammonites and other paleofauna at the Cretaceous-Paleogene (K-Pg) boundary ~66 million years ago. Since then, the thought of having a meteor killing off the dinosaurs has been largely publicized and further cemented into popular culture with the subsequent discovery of the large, K-Pg-dated Chicxulub impact structure on the coast of Mexico's Yucatan Peninsula. However, despite the widespread knowledge of this geological event, details concerning the nature and influence of the impact to the extinction still remain obscure. In addition, the composition (i.e. lithology) of



the dinosaur-killing meteor is still disputed today. Here, I present my current ongoing research examining tektites derived from Chixculub and what their respective chemistries tell us about the minerals and lithologies associated with the impact event, with the potential of understanding the lithology of the meteor itself.

Bio: Paolo Sanchez, UC Berkeley, Geology & Geophysics '22 – I am currently in my senior year as an undergraduate student at UC Berkeley, double-majoring in geology and geophysics. I have been interested in rocks and minerals early on since kindergarten, and I have been a dedicated member of the Pasadena Lapidary Society since 2011. I authored multiple CFMS and AFMS award-winning articles on mineralogy in high school, and served as a geoscience research assistant at UC Berkeley, the Berkeley Geochronology Center and California State University, Northridge. Last year I was awarded the CFMS Diedrick Memorial Scholarship in the Earth Sciences, and last summer I was a recipient of UC Berkeley's Summer Undergraduate Research Fellowship focusing on my current project with the geochemistry of ancient tektites. My future goals are to work my way through a PhD and become a professor of the geosciences in a university.

How to Join our ZOOM Meetings by Rudy Lopez

MSSC members will automatically be added to the invite list each month.

Non-Members must request to attend MSSC zoom meeting each month.

Please go to the MSSC website, <u>http://www.mineralsocal.org</u> to read our Bulletin for upcoming programs, then send Rudy Lopez an email, no later than the Tuesday before the meeting, to <u>programs@mineralsocal.org</u> and he will make sure you're contacted.

From the Editor: Linda Elsnau

Remember, this is the meeting that includes our election of officers. If you are interested, you can nominate yourself during the meeting, before the actual election. If you don't feel ready to hold a position this year, please think hard about offering to do so in the future. We need to keep our group active and vibrant and we need the participation of more of our members to do so. The current slate of officers has rotated through these positions for many years and we really need more members to come forward and participate. While I cannot, at this time, offer to hold a position, I try to do my part as the Editor of the Bulletin and have been doing so since Jan. 2013. (That's nine years!)

Talk to the current office/chair holders to see what is involved in any position you may think you may be interested in trying. The position may not be as much work as you think

FROM THE PRESIDENT: Interesting Minerals, A to Z. Round 2, Installment 20, the letter "T": : by George Rossman

Topaz Al₂SiO₄F₂

The name topaz goes back in time long before the International Mineralogical Association was formed. The name is believed to be names after Topazios Island, now known as St John's Island in the Red Sea. In 1565 Gesner wrote about it and used the name. Here is the original Gesner text and the translation into 'modern' Latin.

ΛίθΟ τοπάζιου, ερυθρός τῷ ἐἰσιει τωερ	Topazius gemma colore rubet ma
του αὐθρακα. γίνεται ἡ ૬૫ Τοπάζη τοόλει 剂	gis ĝ Carbunculus. Nafcitur in To-
Ινδίας, τοῦ τῶ ἐκῶσε ποτε λίθους λατο-	paza vrbe Indiz, inuenta quondam il
μούντων, φἰκαρδία ενόβου λίθου: δυ οἱ λαδ-	lic à lapicidis in corde alterius lapi-
μήσαντες δεασάμθυοι φαιδρόν, κῶι τοσοδεί	dis: quã cum fplendidam vidiffent, &
ξαυτό ἀλαβαςρόν πισην, ἀπέδιουτ όλίγου	Thebanis quibufdã oftendiffent, par
πμήματω.	uo precio vendidêre.

The first sentence says something like: "Topaz gem is red in color and it is red like a pimple".

Well...not totally elegant, but yes, there are red topaz crystals: we will read more about that below. The next sentence refers to a city in India where topaz was found.

Even earlier, Pliny (as translated by Hardouin in 1685) wrote about what was called topaz and years ago other writers also refered to topaz including Henkel (1737). Most likely, in earlier times, multiple mineral species were called topaz based more upon color than rigorous chemical analyses. So, it is not certain that some of the earlier writings are actually describing the mineral species we call topaz today. Even possibly, none of the early writings refer to what we call topaz today. In fact, the topaz of the Topazios Island in the Red Sea is almost certainly forsterite, a member of the olivine family. Nevertheless, topaz was recognized back far in time.

Gesner, C. (1565) Gemmis, quae erant in veste Aaronis, Liber Graecus, & e regione Latinus, Iola Hierotarantino interprete: cum Corollario Conradi Gesneri. in Sancti Patris Epiphanii Episcopi Cypri ad Diodorum Tyri episcopum, De XII: 1-29.
Henkel, J.F. (1737) De topasio vera Saxonum, orientali non inferiore. Acta Physico-medica Academiae Caesareae Leopoldino-Carolinae Naturae Curiosorum: 4, 316-320.
Pliny [translated by Hardouin, 1685] (77) Topazion. in Caii Plinii secundi Naturalis historiae libri XXXVII interpretatione et notis illustravit Joannes Harduinus in usum Delphini, Franciscum Muguet (Paris): 364-364.

Topaz has some properties that make it part of almost all college mineralogy laboratories. First of all, topaz has a remarkably perfect basal cleavage - the (001) cleavage (Figures 1,2). That is, it has perfect cleavage perpendicular to its c-axis. This means that you will find it in the boxes of minerals that demonstrate various properties such as cleavage and luster.



Topaz is also the standard for hardness 8 in the Mohs hardness scale. Of the more common minerals, only corundum and diamond have a greater hardness. OK, if you know about stishovite (SiO₂), a polymorph of silica that forms under high pressures, and moissanite (SiC), currently made synthetically as a gem diamond substitute, you can include them in the list as well.

Topaz is a mineral of granites and pegmatites. Much of it comes from the pegmatites of Brazil where very large crystals can occur. Topaz also is found in rhyolites such as those in the Thomas Range in Juab County, Utah.

Topaz is found in a variety of colors, some of which are prized as specimens and gems. Ideally, topaz would normally be colorless based on its chemical composition (Figures 3-5). Upon exposure to naturally occurring ionizing radiation (mostly gamma rays) it develops a brown color (Figures 6,7). This color is unstable and fades when exposed to light.

One of the most famous localities for the reddish-orange colored topaz known as imperial topaz is the Capão do Lana mine, in the Rodrigo Silva district, Ouro Preto, Minas Gerais, Brazil (Figures 8,9). This color is due to a combination of the radiation-induced brown color plus a pink color due to their chromium content. When heated, the more chromium-rich crystals develop an attractive pink color.



Ropp Tin Mine, Ropp District,
NigeriaDistrict, JapanMyanmar.Photo Credit: Mark Garcia.Photo Credit: Mark Garcia.Photo Credit: GRR



The orangish-brown crystals from San Luis Potosi, Mexico, appear to have their color come from minute inclusions in the crystals (Figure 10). Pink crystals also come from Katlang, Khyber Pakhtunkhwa Province, Pakistan.

Topaz can occur naturally in a pale to moderate blue color (Figure 11). Some of the deepest blue topaz of natural color comes from St Anns Mine, Zimbabwe (Figure 12). However, most topaz in nature is essentially colorless.



However, when colorless topaz is irradiated with large doses of electrons or neutrons, or neutrons followed by electrons, much darker shades of blue are formed. (Figure 13). Such irradiated material is the blue gem topaz of commerce. In the early 1970s, the process with electron irradiation was perfected in a facility near San Diego California. The color of irradiated topaz is quite attractive and is quite stable.



For a nice summary of topaz, its history, occurrences and it properties, see the publication "Topaz - Perfect Cleavage" (2011) Extra Lapis English 14: 100p.

Topaz is a fluoro-aluminosilicate with a chemical formula sometimes written as $Al_2SiO_4(F,OH)_2$. Almost all pegmatitic topaz contains a minor amount of hydroxide ions (OH⁻) which is easily detected in its infrared spectrum. We should ask if it ever possible to replace more than half of the F with OH to get a hydroxyl topaz? The answer is "Yes". Zhang et al. reported exactly such a mineral from China, but, to date, it has not been submitted to the International Mineralogical Association with enough of a full characterization to be given a new species name. We can simply call it: un-named $Al_2SiO_4(OH,F)_2$. Its crystal structure has been determined from small crystals that were made synthetically by Kanzaki (2010).

R. Y. Zhang, J. G. Liou & J. F. Shu (2002): Hydroxyl-rich topaz in high-pressure and ultrahigh-pressure kyanite quartzites, with retrograde woodhouseite, from the Sulu terrane, eastern

China. American Mineralogist, 87, 445–453. [Topaz grains with 35 to 55% substitution of F by OH].

Kanzaki, M. (2010) Crystal structure of a new high-pressure polymorph of topaz-OH. American Mineralogist: 95: 1349-1352.

I bet you don't have that in your collection!

MINUTES of the October 8, 2021 General ZOOM Meeting

Call to Order (Dr. Rossman):

At 7:33 p.m., the 994th Membership Meeting of the Mineralogical Society of Southern California (MSSC) was called to order by President Dr. Rossman, Ph.D. It was MSSC's 17th ZOOM conference meeting. This meeting was well attended. Thank you!

Message from the Chair (Dr. Rossman):

Dr. Rossman welcomed everyone. He reports that the International Mineralogical Association's (IMA) has published 5,744 species of minerals.

Regular Business (Dr. Rossman)

MINUTES: Dr. Rossman announced that the approval of the September Membership Meeting MINUTES, as published in the October 2021 Bulletin, will have to be postponed until the Board meeting of October 24, 2021. Due to technical difficulties, the Bulletin had not yet been received.

INVITE: Speaking of the upcoming Board meeting on October 24, 2021, the meetings are open to all members and guests. If you would like to come to and see how the administration of the society operates, please e-mail Dr. Rossman, Angie Guzman or Rudy Lopez to receive the ZOOM link; e-mail addresses are listed in the Bulletin. Each Board meeting starts at 1 p.m. on the designated Sunday afternoon. Check it out, see how you can contribute and participate in MSSC. Hope we see you on October 24, 2021!

Special Business (Angie Guzman): Nominations Officer and Director Seats

Nominations of Officers and (2) Directors, terms begin January 1, 2022: Angie Guzman, Secretary, explained the procedure for nominations and election of MSSC Officers and Directors as per ByLaws and Operating Rules and Regulations. She then opened the floor for nominations. Each seat received one nomination and each nominee accepted their nomination; Qualification as member in good standing was verified. The nominees are:

President:	Dr. George Rossman*	Vice President:	Cheryl Lopez
Treasurer:	Carolyn Seitz	Secretary: Ange	la Guzman
CFMS Director:	Angela Guzman		
Director #1:	Ahni Dodge	Director #2:	Pat Caplette**

*If elected for this term, Dr. Rossman will serve his term then relinquish his seat as of Dec. 31, 2022, in order to provide the opportunity for another member to participate and serve the society.

**E-mailed Dir #2 nominee notified of nomination. [Secy Note: Dir #2 nominee will attend Nov election meeting.]

Nominations will re-open at the November meeting then close when there are no others. The election of Officers and Directors seats listed above will immediately follow.

Announcements and Reports

1. **Dr. Bob Housley, PMC Co-Chair,** announced that the Pacific Micromineral Conference (PMC) will take place the weekend of January 28-30, 2022 in Fallbrook, CA. It is expected the COVID pandemic will be somewhat decreased by then;

2. Field Trip Chair, Marek Chorazewicz, reported that there are no new field trip dates yet. He is, however, accepting suggestions if there are members who wish to go to a specific area. Please contact Marek by e-mail at marek.chorazewicz@kevsight.com;

3. **Program/Education Chair Rudy Lopez** announced that next month's speaker is Paolo Sanchez, UC Berkeley student who will speak on traces of extinct minerals. December 2021 speaker will be Dr. Greenberg from CalTech.

Program "Exploring Jezero Crater, Mars with Perseverance Rover"

Dr. Rossman turned the meeting over to Programs Chair, Rudy Lopez. Rudy gave a brief introduction of Dr. Sarah Milkovich. He told us that Dr Milkovich is a planetary geologist and systems engineer at NASA's Jet Propulsion Laboratory where she currently works on the Mars Perseverance Rover project. She specializes in the science of operations of robotic spacecraft, bridging science and engineering teams. She has spent over 15 years exploring Mars and Saturn with a variety of spacecraft. Dr. Milkovich has won JPL and NASA team awards for her efforts to return the best possible science within spacecraft engineering constraints, as well as, for excellence in outreach and public engagement. She earned her B.S. in planetary science from Caltech and, from Brown University; she earned her Masters and Ph.D. in planetary geology with studies of ice on Mars and volcanoes on Mercury.

Dr. Sarah Milkovich reminds us that her last presentation to MSSC, 4 or 5 years ago, was to focus on the search for life on Mars. Now NASA is ready to ask if there ever was evidence of life on Mars. Time has allowed that discussion and now, with the help of the successful placement of Perseverance Rover on the surface of Mars, we may get answers. She tells us the team is approximately 500 people strong. They include national and international scientists, engineers, analysts and others who have contributed to this mission.

Mars is smaller than Earth but larger than Earth's moon and, therefore, you experience gravity. The Martian atmosphere is over 100 *less dense* than Earth's; it's a very thin atmosphere and there is *a lot* of carbon dioxide. Scientists have been studying and exploring Mars for many decades. For instance, in 1971, Mariner 9 landed on Mars and in 1975, the Viking orbiters and landers touched down on the surface. In 2012, Curiosity landing site was designated "Bradbury Landing" after author Ray Bradbury. There were other rover landings: Insight, Spirit, and Opportunity, to name a few. Mars 2020 Perseverance rover, launched on July 30, 2020 and landed February 18, 2021 is working on Mars' surface now. And, in the near future, a 2026 spacecraft project to Mars is in the works. But, today, we are *Exploring Jezero Crater, Mars with Perseverance Rover*.

Dr. Milkovich says the team picked a good place for the Perseverance rover to explore, Jezero Crater, a spot that looks like a dry riverbed and delta with an inlet and outlet valley. The rover landed approximately 1 mile away from the front of the delta at the landing site, "Octavia E Butler", named for the Pasadena, CA sci-fi author. Mars is a cold desert. Visually, it looks like the Mojave with no Joshua trees, but it is very cold. About 3.6 billion years ago, Mars looked very different, it had a thicker atmosphere, it supported liquid water on the surface – it was habitable! Likewise, Earth was different around that time, as well. That is interesting because we have Earth 3.6 billion years old fossils, perhaps it could have been the same on Mars. The fossils NASA is looking for on Mars are not typical fossils we automatically think of, dinosaurs or fish (< 650 mya) but microbial, bio-signatures such as have been found on Earth in Australia (bio-fossils). An interesting tidbit, Mars never had plate tectonics, so a majority of the ancient crust of Mars is still there. Rocks on Mars represent a better timeframe than rocks found on the surface of Earth because of the earth's geological tectonic activity. Part of the mission of Perseverance rover (about the size of an SUV) is to see if there was ancient life on Mars.

The video Dr. Milkovich downloaded and shows us is the sequence of landing, the "unpack" process, then checking out the surroundings. Unpacking includes, among other things, checking the **Mastcam-Z**, an advanced camera system with 360° panorama and stereoscopic imaging video that has zoom capabilities and determines mineralogy of the Martian surface; checking to be sure the robotic arm works as planned and, testing the (rock) drill. On board there are tools (see following) to help accomplish the other part of the Mars 2020 mission: to collect rocks and regolith (broken rock and soil) for possible return to Earth. A new piece of equipment, *Ingenuity*, is the camera equipped helicopter, which has tested successfully. Just how we get those

samples back to Earth is a matter of oxygen, which is needed to launch the samples back to Earth. Oh, new technology, MOXIE, is being tested on Mars now that would convert Martian CO₂ to Oxygen. WOW!

Perseverance has been sitting on Mars for approximately 200 sols. A Martian sol is equivalent to 24hrs, 39min and 35sec of Earth time; a Mars year is approximately 668 sols. Two workhorse instruments on Perseverance are **SHERLOC**, Scanning Habitable Environments with Raman & Luminescence for Organics and Chemicals, a spectrometer that will provide fine-scale imaging and uses UV (ultraviolet) laser to map mineralogy and organic compounds. The other one is **PIXL**, Planetary Instrument for X-ray Lithochemistry, an X-ray fluorescence spectrometer and high-resolution imager that maps the fine-scale elemental composition of the Martian surface materials and it permits more detailed detection and analysis of chemical elements than ever before.

Dr. Milkovich mentioned other technology specific to Mars 2020 including SuperCam, MOXIE, MEDA and RIMFAX. [Secy Note: According to "NASA facts", the instruments are described as follows: <u>SuperCam</u>, which provides imaging, chemical composition analysis and mineralogy at a distance; <u>MOXIE</u>, Mars Oxygen In-Situ Resource Utilization Experiment, a new technology that produces oxygen from Martian carbon dioxide. If successful, MOXIE could be used by future astronauts to burn rocket fuel for a return trip to Earth; <u>MEDA</u>, Mars Environmental Dynamics Analyzer which measures temperature, wind speed direction, pressure, relative humidity and dust size and shape and, <u>RIMFAX</u>, Radar Imager for Mars' Subsurface Experiment, a ground penetrating radar that will provide centimeter-scale resolution of the geologic structure of the subsurface. For Mastcam-Z, SHERLOC and PIXL, see above.] Scientists and engineers in the US and other countries developed much of this new technology for Mars 2020.

Operation commands are relayed by the Mars 2020 team members, many remotely, from those working at home (due to COVID-19 social distancing restrictions). Timing is very important considering the time it takes for a command from Earth to reach the rover on Mars. These commands include moving the rover in a particular direction(s), launching the drill then employing the drill on collected specimens, chemical analysis, photography and other tasks being conducted on the Martian surface. AutoNav (enables the rover to re-plan its route) was employed on September 12, 2021, sol 200, which allowed the rover to drive 175 meters.

Testing, mineral and chemical analysis, photographs, mapping and most experiments thus far have been successful. But the first attempt to collect a sampling was made August 8, 2021 and was captured by SuperCam. 8 laser holes were zapped into the so-called paver stone's interior where a core hole was drilled. The drilled hole was nicknamed Roubion. The drilled material created a mound of tailings. Dr. Milkovich said this Roubion drill failed.

Photos are amazing: On sol 200, *Ingenuity*, the NASA's helicopter for Mars 2020, took photos of the South Seitah region of Jezero Crater revealing dunes as big as the rover. Other photos reveal boulders in unlikely places, probably evidence of (ancient) fast moving water. In the southern edge of the crater is a structure called Kodiak which scientists believe is a delta remnant and earlier, on April 29, 2021, Mastcam-Z photographed a hill (called Santa Cruz) about 1-1/2 miles away from Perseverance. Many of the photographs are on-line on the NASA website(s).

Dr. Milkovich spoke of Martian rocks being igneous and sedimentary, she mentioned the abrasion patch on a target known as Bellegarde, the high radiation on Mars due to the red planet having been sitting for billions of years and she talked about the drill success at Montdenier whose rock samples provide insight into the history of Mars.

Our thanks go to Dr. Sarah Milkovich for a fascinating up-to-date presentation on the Mars 2020 project. Thanks for taking us on this fabulous journey! The photos, graphs and descriptions were amazing. Lively Q&A followed Dr. Milkovich's talk including: outcropped blue colored rocks at Citadelle, amount of time it takes to monitor the rover, have any other minerals been identified?, sample tube collection, how Jezero Crater was named, polar caps, rover power supply (14 yrs) and other mission topics. Dr. Milkovich consented to additional Q&A continued after adjournment. She also encourages those interested, to check on Perseverance's location through the NASA website. Please join us at the next ZOOM Membership meeting, November 12, 2021. MSSC will host another interesting presentation. Election of Officers and Directors will take place at the November 12, 2021 Membership meeting.

As there was no other society business, the meeting was adjourned by Dr. Rossman at 8:53 p.m.

Respectfully submitted, Angie Guzman, MSSC Secretary

List of Upcoming MSSC Events : Mark your Calender!

Event	Date	Comments / Scheduled Program (if known)	
ZOOM December 10, 2021ZOOM January 14. 2022		Dr. Rebecca Greenberger CALTEC TBA	
		Denise Nelson: "Forbidden Zone"	
Z	ZOOM February 11, 2022	MIKO: A brief Introduction to Indonesian Gemstones	
	ZOOM March 11,2022	Eric Scerri: the Periodic Table: It's Story & It's Significance	
Board Meeting	ZOOM January 16, 2022	ZOOM	
Field Trip	November 12, 2021	Black Mountain near Barstow, CA	

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

* * * ELECTION NOTICE * * *

• Additional Nominations will be accepted at the November 12, 2021 Membership Meeting before the Election of Officers and 2 Director seats are held.

If you would like to run for a corporate office or a Director seat, please check your Bylaws and Operating Rules and Regulations for information. Kindly contact any Board member via e-mail if you have questions or comments about the upcoming elections.

Thank you, Angie Guzman, MSSC Secretary secretary@mineralsocal.org

MSSC Board Meeting Minutes October 24, 2021 via ZOOM

Call to Order and Roll Call

The MSSC Board meeting was called to order at 1:02 p.m. by President Dr. George Rossman. The following Officers, Directors and Committee Chairs were present: George Rossman, Ahni Dodge, Carolyn Seitz, Angela Guzman, Ann Meister, Pat Caplette, Leslie Ogg, Rudy Lopez, Cheryl Lopez, Patrick Stevens, Bob Housley and Marek Chorazewicz. Excused were Al Wilkins, Linda Elsnau and Laura Davis.

Action Item (s)

Approval of the July 2021 MSSC Board Meeting Minutes as posted in the August 2021 Bulletin: Dr. Rossman asked for any corrections or additions and seeing none, asked for a motion to approve the minutes as published. Dr. Rossman called for a show of hands to approve the minutes. Majority voted to approve. Board Minutes were approved.

Approval of Membership Minutes published in September Bulletin – will be presented to the Membership at the November 2021 meeting.

Reports, Items and Discussions

1) Comments and questions from the President (Dr. Rossman) – None at this time.

2) Treasurer's Report (Carolyn Seitz)

- a) *Status of MSSC accounts*: Treasurer sent an accounting prior to this meeting. There were no comments regarding these reports;
- b) Request to shred bank/financial records prior to 7 years ago. Pat Stevens offered his company's

shredding service to securely destroy the old financial documents. Discussion followed and no one opposed to this request. These are financial documents only. Note: MSSC legal documents (Articles of Incorporation, IRS documents, etc.), are NOT included in this request. **Request was approved**;

c) Status on using PayPal for membership renewal – No report at this time.

3) Membership Chair Report (Cheryl Lopez)

- a) Report on current membership numbers: Total members = 107, Honorary = 4, Life = 6, Individual = 53 and Family = 44 (22 families). This includes 5 new members since April 2021. Field trips help a lot because the criteria to participate in the field trip is MSSC membership;
- b) Membership Form (Application) to be submitted with payment remittance because,
 (1) new dues structure and (2) Roster information. Discussion followed including California privacy laws, disclaimers, PayPal payment e-mailings and other concerns;
- c) Roster: Deadline to pay 2022 dues is February 12, 2022 in order to be listed in the Roster;
- d) Notice in Bulletin Membership Chair will notify Bulletin Editor to include a Membership Form application in the December 2021 Bulletin in time for January, 2022 and,
- e) E-mail not paid and already paid up: Discussion about how to best convey information included: using privacy issues of CalTech as an example. Wording should include the term "Disclaimer". Don't do anything, rely on the receiver to delete unwanted e-mail.

Additionally, there was discussion regarding ways to recruit more people, including MSSC members, to attend the membership meetings. *[Secy: Any and all ideas are welcome. Please contact secretary@mineralsocal.org* with your suggestions.]

4) ZOOM meeting considerations (Rudy and Cheryl Lopez)

- a) Should we continue with ZOOM? <u>Yes.</u> Due to the pandemic, we are still locked out at PCC, even though we agreed to their requests for us to clean up. There are still government restrictions, vaccinations, mask, social distancing, etc.;
- b) MSSC purchase ZOOM? <u>Yes.</u> Providing Cheryl wins her election as Vice President, the VP position will assume ZOOM conferencing responsibilities: set-up, e-mailing those on the invitation list(s), and all ZOOM meetings going forward;
- c) Cheryl gave a brief presentation regarding ZOOM plans including the PRO plan. Pro plan is \$14.99/mo. Features are: live Microsoft Word document transcripts, 9 licenses, 30 hours/day conferencing for up to 100 people. Purchase date slated for November 1, 2021which allows time for set-up, training and practice. First MSSC licensed ZOOM meeting will be January 2022.

<u>ACTION:</u> A motion was made by Pat Stevens and seconded by Carolyn Seitz, to purchase the **ZOOM PRO licenses based on the information presented by Cheryl.** Discussion included being certain the 9 licenses were <u>included</u> in the low price of \$14.99 per month, to which Rudy assured the Board that they are! Dr. Rossman called for the vote by show of hands. The motion passed unanimously.

5. Secretary Remarks (Angie Guzman)

- a) Status of the review of Bylaws and Operating Rules: Angie thanked everyone who helped with the revision. The revision is complete having gone through *review* and membership *vote to approve* the revision. All members received review and approved copies of the document either through e-mail or snail mail;
- b) Old business CFMS Youth program is Future Rockhounds of America, FRA, is chaired by CFMS' by Jim Brace-Thompson. Angie will speak with him at the convention next month (to get more information).
 - i) <u>Diamond Dan</u> offers a great deal of mineral information for kids including coloring books, crystal diagrams, rock collecting note books, fossils, "Mini Miners Monthly" (chock-full of mineral related activities, articles, and other goodies. Take a look, visit the website <u>www.diamonddanpublications.net</u>.

ii) Discussion regarding outreach to young people who are or may become interested in minerals. Home schooling associations came up as a resource we could use. Further discussion included local field trips, MSSC hosting park events locally, a possible YouTube video for the next Board meeting and other items. **ACTION:** Out of the discussion, an Ad Hoc committee was formed and with Chair Rudy Lopez and volunteers Pat Stevens, Leslie Ogg, Carolyn Seitz and Angie Guzman. The committee ii)will focus on youth outreach, local events and other topics.

6. Additional nominations for Officers and Directors term starting 2022 (Angie Guzman)

Status: Angie reports that there have not been any additional nominations aside from those made at the last Membership Meeting in October. Nominations will again be open at the November meeting. They will be closed when there are no others; if there are no other nominations, and no one has withdrawn their nomination, the election shall be by acclamation of those nominated. Otherwise, the election of the seats will take place for each position having more than one nominee and all others by "slate".

The nominations thus far are:

President	Dr. George Rossman	CFMS Director	Angela Guzman
Vice President	Cheryl Lopez	Director #1	Ahni Dodge
Treasurer	Carolyn Seitz	Director #2	Pat Caplette
Secretary	Angela Guzman		

7. Should there be further discussion of the MSSC support programs? (Dr. Rossman)

The Bulletin and website shows: "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 of Pasadena City College. Support is also given to the Los Angeles and San Bernardino County Museums of Natural History."

There were two suggested changes submitted for discussion and vote. There was Board discussion regarding each suggestion with comments by their author. The change with the majority of votes (P Stevens abstained) is: "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. We are a scientific non-profit organization that actively supports those endeavors through public outreach, field study and related programs." Discussion result: submit to Bulletin and website to implement the changes. [Done]

8. Status of Field Trip Planning (Marek Chorazewicz)

Marek reports the next field trip will be to Black Mountain Wilderness Area in northwest Mojave Desert at Scouts Cove. There is semi-precious opal, orange and deep red, and rhyolite. A post trip to Inscription Canyon is available, as well. Roads are rough so SUV should be ok but no sedans. Scheduled to take place 2 to 3 weeks from now, weather permitting. COVID restrictions apply. Please check the website for updates. See you in 2-3 weeks at Scouts Cove!

9. Federation Director Report (Angie Guzman)

The CFMS convention starts mid-November in Visalia. I will attend and report back to the Board at the next meeting.

10. Program Chair Report (Rudy Lopez)

- a) Status of programs in the future: Speakers are good through August 2022;
- b) Planning for MSSC's 1,000th meeting (April 2022): Interest has been little to none. Rudy has photos and some items but needs others to participate. Historic photos, old Bulletins (stories), drawings (Bob Brewer): the plea is out for contributions for this historic meeting to celebrate our unique longevity among mineral societies. Contact Rudy Lopez if you have photos, an article or story to share.
- c) Continue to invite multiple clubs to our ZOOM meetings? Long story short, yes! It's

good exposure for us and we offer interesting information/education to attendees. Dr. George mentions PLS, Searchers, other areas' clubs. Carolyn mentioned Peter Megaw as a possible speaker and she will talk to him and others when she's in New Mexico for the mineral symposium. Are there CalTech grad students interested in MSSC? Dr. George says he's got one but most are focused on Mars at this time.

11. Web Master (Leslie Ogg)

PayPal problems so not up and running correctly, yet. MSSC has an Instagram Account: MSSC1931 is our "location".

12. Pacific Micromineral Conference (PMC) (Dr. Bob Housley)

PMC is scheduled to go forward the last weekend in January 2022. The official announcement will go out in November, as is customary. The location of the event is the Fallbrook Gem and Mineral Museum. But stay tuned. The conference is contingent upon the lifting of current COVID restrictions (6-feet apart, masking and vaccinations).

13. Annual Picnic (Rudy Lopez)

Rudy reports there is a possible site IF we have an annual picnic, Hamilton Park in NE Pasadena. There is plenty of parking, picnic tables, other grassy areas for pop-up canopy set up, restrooms, water, play areas (3 baseball fields). There is a minimal per hour fee. The MSSC picnic would be held in August and is contingent on COVID status. Discussion regarding donations of minerals vs. rocks. It comes down to donations of collection vs. collected. The other item, contact Himalaya Mine to see if they will give a discount if MSSC brings kids to comb through their tailings.

14. Banquet in January? (Rudy Lopez)

There will no Installation Banquet in January. Our preferred venue, Coco's, was sold. There are other places but, because of COVID restrictions in place, including social distancing, masking and (mandatory) vaccinations it's unclear if we will have a picnic. Currently, "fully vaccinated" means vaccines (2 ea Pfizer and Moderna, 1 Johnson Johnson). At this time, a <u>booster</u> has not been mandated in the term "fully vaccinated".

15. Next Meeting Date: January 16, 2022.

Adjournment at 2:45 p.m.

Respectfully submitted by Angela Guzman, MSSC Secretary

Field Trip Information: Marek Chorazewicz

The next fieldtrip of the fall season is happening in 2 weeks on Sat, Nov 13th. Let's go and hunt for some lovely opal north of Black Mountain near Barstow. We will go north on the Black Canyon Rd, past the Black Mtn lava fields, and continue to Scouts Cove, a site of an active precious opal mine more than 100 years ago. Today, the deep shaft is collapsed and filled in, but there are still veins of light orange opal in white rhyolite on the surface, not exhibiting a play of colors, but the color is quite good. We will also go to another prospect for dark orange and deep red opal afterward. As a post-trip, we can go to the nearby Inscription Canyon to see the rock graffiti, both recent and hundreds of years old, for people who will be interested and not be too tired at that point.

Let's meet at 9:30 AM, Saturday, Nov 13th, at the end of the paved Hinkley Rd: 35°00'35.2"N 117°11'20.6"W (35.009780, -117.189065)

It is 116 miles, a below-two-hour ride northeast from Pasadena: <u>https://goo.gl/maps/cASQMP3Cp2xBsodw7</u>

The weather forecast so far is not showing any rain. In dry weather, the roads are suitable for a regular SUV, sandy first, then get rougher and require carefully driving around some rocks in the wash bed. A driver with some desert driving experience will not have a problem with reaching the destination.

If you are interested, contact Marek at marek.chorazewicz@keysight.com

Hope to see you all there!

<u>Ride Share Listing</u>

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 <u>msscbulletin@earthlink.net</u> 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	<i>Meetings cancelled due to COVID</i>	

OTHER FREE THINGS TO DO ... by Ann Meister

The **Watson Lecture** is on Wednesday, **November 10**. Each Watson Lecture will begin at 5:00 p.m. Pacific Time. Each lecture runs approximately 40 minutes, followed by live audience Q&A. Advance registration is required: <u>Watson Lecture - Quantum Matter: Why it Matters | CaltechLive!</u>. The speaker is Xie Chen, Professor of Theoretical Physics at Caltech. The title of the presentation is, "**Quantum Matter: Why it Matters.**" Recent physics breakthroughs have revealed that, in carefully engineered materials, quantum effects not only show up in the macroscope world but also fundamentally change in the way these materials behave. Xie Chen will cover superconductivity, topological order, and a range of phenomena in quantum matters that may hold unprecedented power for quantum computers and even for our fundamental understanding of the universe. *Find more past Watson Lectures on Caltech's YouTube channel.*

The Von Kármán Lecture is on Thursday, November 11 at 7:00 PM. Available live on YouTube at <u>Rising</u> <u>Tides: First Year in Space for NASA's Earth Flagship (Live Public Talk) - YouTube</u>. The speaker is Josh Willis, Lead NASA Scientist for Sentinel-6, NASA/JPL. The title of the presentation is "**Rising Tides: First Year in Space for NASA's Earth Flagship.**" Sentinel-6 Michael Freilich will continue a decades-long effort to measure global ocean height from space, which started in the early 1991s. Tune in to hear what we've learned from the newest sea-level monitoring satellite.

The UCLA Meteorite Gallery has reopened. Check the website for hours. The monthly lecture will be presented on Zoom on Sunday, November 21 at 2:30 PM. Speaker and topic are not yet available. Zoom Registration: https://ucla.zoom.us/meeting/register/tJEqduyupj0vGd3S0_52FsbHTbPjYr0sZQUj If you need detailed instructions on https://ucla.zoom.us/meeting/register/tJEqduyupj0vGd3S0_52FsbHTbPjYr0sZQUj If you need detailed instructions on how to join a meeting via Zoom please contact our Curatorial Assistant, Juliet Hook, at jahook@ucla.edu. Note: Registration is only needed once as this is a recurring meeting in Zoom. The speaker and topic will be announced on the website. Visit the website and check on events and videos and other neat things about meteorites, go to https://meteorites.ucla.edu

	MSSC Adv Mineral-related ads are allowable in the	ertisement Policy: e 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 a price of 10 month	advertiser who purchases 12 months of is. The copy for the ads should be mail should	f space in advance will receive a ed to the editor at <u>bulletin@mine</u> be sent to the	discount of 12 months for the eralsocal.org and the payment

Calendar of Events:

West Coast Gem, Mineral & Fossil Show

Hilton Orange County / Costa Mesa 3050 Bristol Street Costa Mesa, CA 92626 November 12, 13 & 14, 2021 Fri & Sat 10am to 6pm • Sun 10am to 5pm



2022 Shows

January 15-16, 2022 – Exeter, CA Tule Gem & Mineral Society Exeter Memorial Building, 324 N. Kaweah Ave., Exeter, CA Contact: (559) 802-6029

March 5-5, 2022 – Ventura, CA Ventura Gem and Mineral Society Ventura County Fairgrounds, 10 W. Harbor Blvd., Ventura Hours: Saturday 10 AM – 5 PM, Sunday 10 AM – 4 PM Website: <u>http://www.vgms.org</u>

March 12-13, 2022 – Arcadia, CA Pasadena Lapidary Society "Inspiration Unearthed", 62nd Annual Tournament of Gems Arcadia Masonic Center, 50 W. Duarte Rd., Arcadia Hours: 10-5 Daily Website: https://www.pasadenalapidary.org

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

Due to COVID-19 many clubs have cancelled or changed their show dates. CFMS updates this list if clubs notify them. If you have any questions, please reach out to the contact listed to make sure the show is still taking place.

November 6-7, 2021 – Ridgecrest, CA

Indian Wells Gem & Mineral Society, Inc. Desert Empire Fairgrounds, 520 S. Richmond Rd., Ridgecrest CA 93555 Time: Saturday & Sunday 9 AM – 5 PM Fieldtrip November 7th at 9 AM

November 20-21, 2021 – Lake Side, CA

El Cajon Valley Gem and Mineral Society Lakeside Rodeo Grounds, 12584 Mapleview St., Lakeside, CA 92040 Time: Saturday 9 AM – 5 PM, Sunday 9 AM – 4 PM Free admission and parking. Website: <u>http://ecvgms.org</u>

December 5, 2021 – Lake Elsinore, CA

Lake Elsinore Gem & Mineral Society Rock 'n Craft Winter Festival, 32097 Corydon Rd., Lake Elsinore, CA 92530 Hours: Sunday, December 5 – 10 AM – 4 PM Website: Facebook: Lake Elsinore Gem & Mineral Society



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Vice President	Ahni Dodge	vicepresident@mineralsocal.org
Secretary	Angie Guzman	secretary@mineralsocal.org
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CFMS Director	Angie Guzman	
Past President	Ann Meister	
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2020-2021	Cheryl Lopez	
20212022	Rudy Lopez	
20212022	Pat Stevens	
20212022	Leslie Ogg	
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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. We are a scientific non-profit organization that actively supports those endeavors through public outreach, field study and related programs. 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. However, due to current health considerations, MSSC meetings are held via ZOOM conferencing until further notice. 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 Fallbrook Mineral 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 fee if you prefer paper bulletins mailed to your address. The Society's contact information:

Mineralogical Society of Southern California 13781 Alderwood Lane, #22-J, Seal Beach, CA 90740 E-mail: <u>treasurer@mineralsocal.org</u> Website: <u>www.mineralsocal.org</u> 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

