

# Bulletin of the Mineralogical Society of Southern California

Volume 92 Number 10 - October, 2019

*The 973<sup>rd</sup> meeting of the Mineralogical Society of Southern California*

*With Knowledge Comes Appreciation*

**October 11<sup>th</sup>, 2019 at 7:30 P.M.**

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

**Program : Geology of Rancho La Brea/ LA Brea Tar Pits, Presented By Karin Rice**

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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: Geology of Rancho La Brea/ LA Brea Tar Pits, Presented By Karin Rice

I'm a geologist by training with industry experience in environmental and engineering geology, and paleontological resource mitigation. I'm also a graduate student working on fault mapping in central Mongolia. I've always been drawn to natural history and fossils and have been lucky to have worked in paleontology since 2005: as a paleontological monitor on construction sites; as a fossil preparator in the Dino Lab at the Natural History Museum; and currently as an excavator for Project 23. Working on Project 23 is all about daily discovery. [krice@tarpits.org](mailto:krice@tarpits.org)

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### From the Editor:

Happy October everyone. We are at that time of year where our annual business activities are happening. Since the nominations for the 2020 officers are due for the November elections, now is the time if you are interested in participating at this level you should let our president, George Rossman, know you are available.

As you will see later, MSSC will be sending our Membership Roster to you via email in the future. The new Membership Form reflects this change of procedure. I will be sending the new form with your November Bulletin. Linda Elsnau

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### FROM THE PRESIDENT: Interesting Minerals, A to Z. Installment 21, the letter "U": by George Rossman

#### Ussingite

Let's discuss an uncommon mineral. Ussingite is not a household name or something found in most mineral collections. First of all, let's look at its chemical formula. Ideally, it is  $\text{Na}_2\text{AlSi}_3\text{O}_8(\text{OH})$ . That is sort of interesting because of its close resemblance to the formula of the common feldspar, albite, which is  $\text{NaAlSi}_3\text{O}_8$ . Ussingite adds one more sodium atom to albite's formula, and to compensate sodium's positive charge, a negatively charged  $\text{OH}^-$  group is also added. Some people even write the formula as  $\text{NaAlSi}_3\text{O}_8 \cdot \text{NaOH}$  (Please don't do this).

Ussingite was first found at the Kangerluarsuk Fjord, Ilímaussaq complex, Narsaq, Kujalleq, Greenland, Denmark, where, in 1888, K.J.V. Steenstrup found a bright violet-red mineral that he could not identify. [University of Copenhagen's](#) Professor N.V. Ussing began an investigation of the mineral but was not able to complete the identification.

Ussing, N.V. (1888) Om et forméntlig nyt mineral fra Kangerdluarsuk. Geologiska Föreningen i Stockholm Förhandlingar, 10, 190-192.

Later, in 1908, Ussing found another piece of the mineral at Kangerluarsuk Fjord during an expedition to Greenland. This and an additional much darker piece found by Ussing's engineer were used by the Danish geologist and crystallographer, Ove B. Bøggild, to describe the new mineral in a 1915 edition of *ZEITSCHRIFT FÜR KRYSTALLOGRAPHIE UND MINERALOGIE*.

Ussingite was named for Niels Viggo Ussing (1864–1911), who was the Professor of Mineralogy at [Copenhagen, Denmark](#). He wrote a book entitled: *Mineralogisk-petrografiske undersøgelser af grønlandske nefelinsyeniter og beslægtede bjærgarter*, a book about mineralogical and petrographic studies of Greenlandic nepheline syenite.

How well was Bøggild able to analyze ussingite in the early 1900's? Let's compare Bøggild's analysis to the ideal chemical formula:

	SiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	Na <sub>2</sub> O	H <sub>2</sub> O	Total:
Bøggild 1915:	58.74	17.73	19.94	4.19	100.57
Ideal Values:	59.64	16.87	20.51	2.98	100.00

Not bad, but I must admit that when I took analytical chemistry as an undergraduate in college, if my results were that far off from the actual value, I would have to repeat the analysis and get it better to get credit for the lab exercise.

What color would this mineral be if it had the ideal composition? Answer: The same color as albite feldspar; namely colorless (**Figure 1**).



**Figure 1.** Colorless ussingite from the Ilímaussaq complex GRR photo



**Figure 2.** Pale purple ussingite from the Ilímaussaq complex. GRR photo

But the descriptions of the original samples are purple, and I must admit that all the ussingite from the Ilímaussaq complex I have seen is pale purple (**Figure 2**).

Why is it purple? We might think that it is due to a small amount of manganese in the 3+ oxidation state. We have already seen that manganese commonly colors minerals violet to purple in minerals as varied as micas, tourmalines, spodumene, and amphiboles. But X-ray fluorescence analysis of ussingite from Greenland (and Russia – see below) shows no hint of manganese. There is typically about 100 ppm of iron in these samples, but iron at these concentrations typically does not cause color, particularly purple (notable exception – amethyst has its color from iron that was oxidized by external radiation – maybe ussingite is the same, but we do not know for certain at this time). We can only say that at this time, the origin of the purple color in ussingite is unknown.

The atomic structure of ussingite was first determined in 1974 by Italian crystallographers in Pavia.

G Rossi, V. Tazzoli, and L Ungaretti (1974) The Crystal Structure of Ussingite. *American Mineralogist* 59, 335-340.

The structure is interesting. It has a unique type of alumino-silicate framework structure. It consists of 4-, 6- and 8-fold rings of tetrahedral that join with a zig-zag chain of tetrahedral that run down the c-axis of the crystal. In most framework silicates, the oxygen ions in the silicate tetrahedral are shared between two silicon atoms. We call them bridging oxygens. These SiO<sub>4</sub> tetrahedra that share oxygens make the backbone of the framework. In ussingite, two out 9 oxygen ions do not bridge silicon directly, but rather put a hydrogen ion (H<sup>+</sup>) between the pair of oxide ions: Si-O-H-O-Si. We call this a hydrogen bond. It is common in many minerals with hydroxide (OH<sup>-</sup>) groups. The thing that is unusual about the hydrogen bond in ussingite is that it is exceptionally short. The distance between the two oxide ions is shorter than we usually find in minerals.

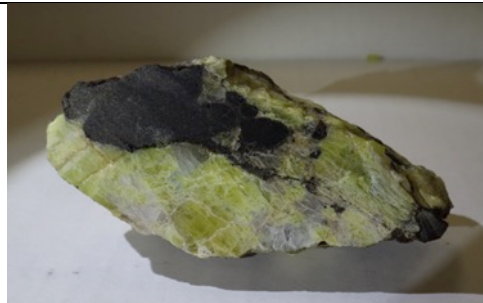
Williams E R, Weller M T (2012) A variable-temperature neutron diffraction study of ussingite; a strong asymmetric hydrogen bond in an aluminosilicate framework. *Physics and Chemistry of Minerals* 39, 471-478.

Johnson EA, Rossman GR (2004) An infrared and <sup>1</sup>H MAS NMR investigation of strong hydrogen bonding in ussingite, Na<sub>2</sub>AlSi<sub>3</sub>O<sub>8</sub>(OH). *Physics and Chemistry of Minerals* 31, 115-121.

A series of pegmatites in the Kangerluarsuk Fjord are the major reported localities for the mineral. It has also been found as small crystals from the Poudrette quarry, Mont Saint-Hilaire, Québec, Canada. Ussingite is also found on the Kola Peninsula, Russia (**Figure 3**) in several pegmatites, in the Lovozero and Khibiny Massifs, Murmansk Oblast, Russia. Particularly dark purple samples come from the Shkatulka pegmatite in Russia – but I do not know of any published chemical analyses of them.



**Figure 3.** Ussingite from the Lovozersky Tundra, Kola Peninsula, Russia. Photo: Mark Garcia



**Figure 4.** Greenish-yellow sodalite from the Ilímaussaq complex in Greenland GRR photo



**Figure 5.** Sodalite from the Ilímaussaq complex in Greenland under longwave ultraviolet light. GRR photo

The original ussingite locality at Kangerluarsuk Fjord is also the type locality for aenigmatite, arfvedsonite, bohseite, eudialyte, karupmøllerite-(Ca), polyolithionite, potassic-arfvedsonite, rinkite-(Ce), skinnerite, and steenstrupine-(Ce).

Particularly interesting specimens of sodalite also come from the ussingite locality in Greenland (Figure 4). This column discussed sodalite in August. It has the chemical formula  $\text{Na}_8(\text{Al}_6\text{Si}_6\text{O}_{24})\text{Cl}$ , but can have small polymerized groups of sulfur atoms in the sites where the chloride ions reside which cause color. Under ultraviolet light the sodalite from the ussingite locality is particularly spectacular (**Figure 4**).

Under longwave ultraviolet light this sodalite is particularly spectacular. It has a particularly strong yellow-orange luminescence (Figure 5). The sodalite from there is reported to be a tenebrescent mineral. That means it can change its color upon exposure to light.

In the figures above, you have seen the black mineral that occurs with both the ussingite and the sodalite. That mineral is another mineral whose type locality is the ussingite locality, namely steenstrupine-(Ce). It comes with a particularly long chemical formula:  $\text{Na}_{14}\text{Mn}^{2+}_2(\text{Fe}^{3+}, \text{Mn}^{3+})_2\text{Ce}_6(\text{Zr}, \text{Th})(\text{Si}_6\text{O}_{18})_2(\text{PO}_4)_6(\text{HPO}_4)(\text{OH})_2 \cdot 2\text{H}_2\text{O}$

It is named in honor of Knud Johannes Vogelius Steenstrup, a geologist and explorer of Greenland, who discovered the mineral and also ussingite. He worked at the University of Copenhagen's Geological Museum. Occasionally, nice crystals of steenstrupine-(Ce) are found (**Figures 6,7**).

As global warming melts the ice caps on Greenland, we can expect additional interesting mineral deposits to be found and likely more interesting mineral specimens will see the light of day.



**Figures 6 and 7.** Steenstrupine-(Ce) from the Ilímaussaq complex, Greenland. Photo Credits: Rob Lavinsky & irocks.com

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**IMPORTANT ELECTION NOTICE:** Our Officer elections take place at the November meeting. Therefore, October is the time for officer nominations to be announced. We have two positions that need someone to fill for 2020: Please volunteer.

**Vice President:** Duties are; Aid the President, and act as President in the absence of the President. Ensure that all Operating Rules are current and meet the needs of the Society. Perform other duties as requested by the President or the Board of Directors.

**Federation Director:** Duties are; Serve as liaison between the Society and the CFMS. Take an active interest in all Federation activities; carefully study all reports received and present to the Society membership, information regarding programs, projects, seminars, workshops and the progress of the Federation.

Attend all applicable meetings of the California Federation of Mineralogical Societies to represent the interests of our Society.

Submit a written report to the President immediately after said meetings and an oral report to the Society at the next regular meeting.

Please let our President, George Rossman know if you are interested in filling either of these positions.

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## MINUTES of the September 13, 2019 Meeting

At 7:30 p.m., the 972<sup>nd</sup> Membership Meeting of the Mineralogical Society of Southern California (MSSC) was called to order by President George Rossman. Rossman informs us that there are now 5,494 mineral species recognized by the IMA. The last mineral is johnkoivulaite, Cs[Be<sub>2</sub>B]Mg<sub>2</sub>Si<sub>6</sub>O<sub>18</sub>, named for John Koivula, a renowned gemologist. There were 22 members and guests signed in and present.

### Regular Business

**Minutes:** Dr. Rossman asked for approval of the Membership meeting minutes as written and published in the September 2019 *Bulletin* for Picnic meeting, August 12, 2019. **Motion to approve the Membership Meeting Minutes**, as above, was made by Leslie Ogg and the motion was seconded. Dr. Rossman 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 passed unanimously**.

### Announcements:

Marek Chorazewicz will lead a Field Trip September 28, 2019 to Yerington, Nevada. The group will visit the Blue Jay Mine and the Boulder Hill Mine. For full details, check the MSSC website, Field Trips. Also, Bob Housley announced the upcoming Zzyzx Road symposium October 25-27, 2019. On Sunday, Bob will lead a field trip to the Blue Bell. Check the *Bulletin* and MSSC's website for further information.

The MSSC Board meeting is Sunday, September 15, 2019 at 1pm at the Carter residence. All are welcome to attend.

Dr. Rossman asked if there were any visitors. Jeff Dengrove introduced himself and said he was interested in the society; he has actually been on a field trip or two with Marek and plans to go to Yerington with the group. Jeff indicated he's looking to become a member.

George turned the meeting over to Program Chair Rudy Lopez for his announcements and reports. Rudy reports: (1) MSSC has again been asked to participate at the Orange County Park Festival. The event will be Saturday, October 12<sup>th</sup> from 10 am - 3 pm. Volunteers are always welcome. Rudy will put out a flyer and put information in the *Bulletin*; (2) The annual Picnic was well attended, the food was great and the set-up (Rudy, Cheryl, Bruce and Angie) and tear-down (just about everyone) was quick and efficient. Thanks to all! (3) The great give-away WILL happen before the end of the year. Bring your own totes. The rocks and minerals are free! Watch the *Bulletin* and website for more information.

### Program

Rudy Lopez introduced tonight's presenter, Dr. Eric Scerri. Dr. Scerri was educated in England (London, Cambridge and Southampton). Currently at UCLA, he has taught over 20,000 chemistry undergrads and teaches history and philosophy of science. Dr. Scerri is an author of several award-winning books. This presentation summarizes his "Tale of Seven Elements".

Dr. Scerri first tells us that the 150<sup>th</sup> anniversary of the periodic table is upon us. Dmitri Mendeleev (1834-1907), a Russian chemist, formulated Periodic Law and created the periodic table of elements, corrected properties of previously discovered elements and predicted properties of elements not yet discovered. [*Secy Note: The United Nations has proclaimed 2019 the International Year of the Periodic Table of the Chemical Elements and celebrates Mendeleev for his creation!*]

Why 7 elements? Which elements? The elements are:

Year	Atomic #	Symbol	Name	Discovered by
1917	91	Pa	Protactinium	Lise Meitner, performed a majority of the research and work; co-discoverer Otto Hahn is credited for his research and contributions. [ <i>Secy Note: Work was done during WWI.</i> ]
1923	72	Hf	Hafnium	Dirk Costner and George Hevesey; challenges came from Alexander Scott, Georges Urbain, Alexander Dauvillier and others, however, Costner and Hevesey prevailed.
1925	75	Re	Rhenium	Ida Noddack (nee Tacke), Walter Noddack and Otto Berg; after processing 660kg of molybdenite ore, the trip extracted 1 gram of rhenium. [ <i>Secy Note: Rhenium is named after Rhenus, Latin for Rhine River, near their laboratory.</i> ]
1937	43	Tc	Technetium	Emilio Segre (physicist) and Carlo Perrier (chemist); first synthetically produced element subsequently found to occur naturally
1939	87	Fr	Francium	Marguerite Perey (a lab assistant to Marie Curie); Francium has a half-life of 21min; Perey was first to observe the $\alpha$ and $\beta$ Radiation produced by actinium.
1940	85	At	Astatine	Emilio Segre, Berkeley scientists Dale Corson and Alexander MacKenzie. These scientists bombarded bismuth target which displayed forms of radiation having a life-time of 7½ hours. Astatine is another synthesized element also found naturally
1945	61	Pm	Promethium	J.A.Marinsky, L.E. Glendenin and C.D. Coryell; MIT scientists; this is the only rare earth element of the 7 elements.

Dr. Scerri emphasizes that much of his presentation may be over simplified. Indeed, his presentation was somewhat technical. However, the scientists listed above, he continued, the discoverers, had many other people before them who also researched, studied and experimented to reach the discovery of an element. Many did not succeed. An example is James Cork. His interest was element 61, promethium. He made several mistakes along the way. Much research and many years passed before the element was discovered, tested and proven into its unequivocal acceptance.

Other discoveries were solidified: Bohr's Theory was refined by Ruthford and van den Broek's model, which "states" an atom contains a number of positive nuclear charges in its nucleus equal to its atomic number in the periodic table. Another contributor during this time was Henry Moseley (1887-1915). His development of *Moseley's Law in x-ray method (spectra)* had a major effect in the sciences of atomic, nuclear and quantum physics. Although he was criticized by Urbain and Popper, who disapproved, Moseley was brilliant and respected.

Thomas Khun was another scientist during this period. Khun had 2 classes of discovery: (1) not predicted (i.e., oxygen) and (2) predicted (i.e., neutrino and the 7 elements.). So, competition was great, scientists researched to get it right, even regions and districts were vying to identify elements. Nationalism of French, British and the Teutonic's (Austria, Germany, Denmark and even Hungary) competed against each other.

Dr. Scerri spoke of Crookes, Fajans and other scientists involved with Pa, element 91. He told us about *Priorities of Scientific Discovery (1957)*, by Robert Merton and other fantastical tidbits. It is impossible to give full details of his presentation in the limited space here. You must come to hear for yourself! You won't be disappointed!

There was a short Q & A following Dr. Scerri's presentation. It included questions about #72, Hf and zircon, where did Hf name come from? (Latin for Copenhagen), name conventions, trans-uranium elements – no spectrum but a decay chain, and other topics. Dr. Scerri sold some of his books. Thank you for a great presentation, Dr Scerri!

**Show & Tell:** Marek brought a box of minerals and rocks – Thank, Marek!

**Other Announcements:** Ann Meister reported the Rock Currier Auction in Texas was a huge success! The big blue topaz went for \$200,000; The large skunk went for \$187,000! The auction was well “attended” (in-person, phone and on-line) and it was amazing!

**Door Prize:** The drawing was won by Janet Gordon. Congratulations, Dr. Gordon!

**Adjourn:** The meeting was adjourned at 8:55 p.m.

Respectfully submitted, Angie Guzman, Secretary

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

Event	Date	Comments / Scheduled Program (if known)
<b>Meeting Dates:</b>	November 8, 2019	Renee Newman: "The Allure of Diamonds"
	December 13, 2019	Steve Hardinger: ‘Minerals Containing Carbon’
	January 11 , 2020	Banquet: Paul Adams: <i>To Be Announced</i>
	February 21, 2020	Justin Seastrand: Forest Service – Land Rights
	March 13. 2020	Karol McQueary: "A Dinosaur for California
<b>Board Meeting</b>	December 1, 2019	Board Meeting at Bruce Carter’s house

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

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**Board Meeting Minutes September 15, 2019**

*Call to Order and Roll Call*

The MSSC Board meeting was called to order at 1:06 p.m. by President Dr. George Rossman. The following Officers, Directors and Committee Chairs were present: George Rossman, Jim Kusely, Angela Guzman, Bruce Carter, Jo Anna Ritchey, Ann Meister, Pat Caplette, Leslie Ogg, Rudy Lopez, Cheryl Lopez, and Bob Housley. The following were excused: Renee Kraus, Linda Elsna, Patrick Stevens and Al Wilkins.

1. *Comments from President* [Dr. George Rossman]: There are more people at meetings.
2. *Treasurer’s Report* [Jim Kusely]:
  - a) Finance handout and discussion;
  - b) Insurance renewal needs president signature;
  - c) Donation to B Carter fund at PCC, same as last year;
  - d) Discussions included Picnic (silent auction items, notice in Bulletin, web info Ann needs some supplies for 2020 Picnic), and Roster (Cheryl will check with Editor Linda Elsna, LA County Museum people).

3. *Membership Chair Report* [Cheryl Lopez]  
 Cheryl states she needs supplies, passes handout for expenses followed by discussion of mailing *Bulletins*. *Bulletin* to include cut out parking “sticker” for the next membership meeting – each time. Cheryl will draft and send to George for approval to post in *Bulletin*, Further discussion regarding e-mailing the Roster and membership cards (possibly no longer needed). Cheryl reports there are 39 Single, 26 Family, 8 Lifetime and 5 Honorary memberships for a total of 78 members;

4. *Pacific Micromineral Conference Report* [Dr. Bob Housley]  
 Dr. Housley indicates the venue is set (Fallbrook), speakers are already booked, and advertising will begin in November. The conference is slated for the end of January 2020. More information coming as the event gets nears.

5. *Field Trips Report* [Dr. Bob Housley]  
 The next field trip will be late September 2019 in Nevada and will be led by Marek Chorazewicz. Check the *Bulletin* and/or website for info.

6. *Federation Director’s Report* [JoAnna Ritchey]  
 The next CFMS meeting will be in November in Visalia, CA. JoAnna will not be attending. Other local club (PLS) will attend and will share information discussed at that meeting. Board discussion regarding By-Laws and rules about other Officer serving as alternate for Director Meetings (Angie Guzman is considering being alternate). Guzman will check By-Laws and advise Board of findings via e-mail blast.

7. *Program Chair Report* [Rudy Lopez]

- a) Speakers are lined up through 2020 with exception of June, September, October and November. Invite Aaron Celestine, curator at Natural History Museum of Los Angeles County for January 2021;
- b) MSSC will be at O.C. Parks for October 2019 annual event handing out rock specimens to kids in attendance. Volunteers are welcome. Contact Rudy;
- c) MSSC will participate in the Natural History Museum's 6<sup>th</sup> Annual Nature Fest 2020;
- d) Rudy will print updated brochures. Cost at Staples is 69¢ ea, at double sided 300 = \$206. Proposal by Rudy to purchase economical printer, ink and paper Staples/Office Depot have back to school specials. Board discussion followed by **MOTION to purchase an HP printer, ink and paper not to exceed \$325 was made by Meister and seconded by Ritchey. The voice vote was taken, and the motion passed unanimously.**

8. *Web Master Report* [Leslie Ogg]

Leslie handed out analytical reports regarding MSSC's web page usage. Many searches were of a general nature (27%), field trip searches (12%), *Bulletin* reviews (7.8%), MSSC links to other sites (7%) and meeting information (4.5%) comprised most of the searches. Other information showed country of origin were USA (75%), France and Canada (4% each) and South Korea, Bangladesh, Germany, India, Japan and Other completing the country of origin searches. Leslie also included Facebook stats: 210 Likes, 227 followers and 54 posts about September 2019 Membership Meeting.

9. *Bulletin Report* [Linda Elsnau]

Linda, unable to attend, is doing well and puts out a great *Bulletin*. The *Bulletin* deadline to submit articles, etc., is the 22<sup>nd</sup> of each month. See Item 3 (above) for other *Bulletin* items discussed by the Board.

10. *Officer Nominations* [George Rossman]

The Vice President position will be vacated as R Kraus will not be running for reelection. Rossman indicates there may be a person willing to run as Vice President. Board discussion followed, regarding that position being taken by Program Chair, Rudy Lopez. And, there was further discussion regarding the Secretary acting as an alternate for CFMS Director. As stated in Item #6 above, Guzman will check By-Laws and advise Board of findings.

11. *Other Items* [George Rossman]

- a) Society Historian (Meister) – no report at this time;
- b) Status of January 11, 2020 banquet (R Lopez) – set for Coco's Arcadia, advertising in *Bulletin* next issue due to promote speaker Paul Adams;
- c) Outreach activities (R Lopez) – refer to Item #7 above;
- d) Follow up on Picnic (all) – discussion included quality of Silent Auction donations needs to be improved upon (bring better stuff), 2020's picnic may cost less, attendance was good but aim for more participants in 2020, donation\$ instead of bringing food and, for planning, create list of items to bring and post in *Bulletin*.

12. *Next Board Meeting* will be Sunday, December 1, 2019 at Bruce Carter's home.

Thanks to Bruce and Kathy Carter for hospitality.

Adjourn at 2:40 p.m.

Submitted by Angie Guzman, MSSC Secretary

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**SPECIAL NOTICE: MSSC helps the environment by going paperless!**

The Annual MSSC Roster will be sent to members via email starting March 2020. MSSC will not only help the environment, but allow additional funds to be used to support our club and programs. Also attached with the MSSC Roster, will be a printable MSSC Membership card for 2020.

If you do not wish to receive your Roster via email, please respond in writing or email to Cheryl Lopez by **Dec. 1, 2019** at:

[membership@mineralsocal.org](mailto:membership@mineralsocal.org) or MSSC  
1301 Leonard Ave.  
Pasadena, CA 91107



If you do not have an email address, your Roster will be mailed to you.

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### **SILENT AUCTION ITEMS NEEDED**

On Saturday, January 11, 2020 MSSC will host our Annual Banquet / Silent Auction at the Oak Tree Room in Arcadia.

Silent Auction items are needed for the sales tables. All items sold will generate more money for MSSC.

We have two silent auctions each year, one at the picnic and the other at the annual banquet.

For those that have minerals, go through your garage and find the boxes of minerals that have been hiding for years.

If you have minerals to donate and can't make either event, please contact:

Rudy Lopez: [programs@mineralsocal.org](mailto:programs@mineralsocal.org) , I will be glad to come and pick them up. I will also provide you with a donation letter for your taxes.

How can you help if you don't have items for the silent auction? You can make a cash donation to MSSC; attend the annual Jewel Tunnel sales day in November. At the Jewel Tunnel you can buy nice minerals at great discounted prices.

MSSC uses the donated funds (from silent auctions sales and cash donations) to help pay our operating expenses and support our activities: from paying our speakers to purchasing supplies and groceries for our picnics and meeting breaks as well as minerals to give away as outreach events and for our door prizes. So you can see, these fundraisers are very important to keep MSSC ticking along!

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### **2019 MSSC ANNUAL PICNIC: Rudy Lopez**

On August 11<sup>th</sup>, MSSC annual picnic was held at the residence of Bruce & Kathy Carter.

We had a great time swapping rock stories, browsing the silent auction tables, wandering in the beautiful fruit garden, and meeting new friends. I didn't forget we did have a great lunch with Pulled Pork, Tri-Tip, fresh fruit trays, salads and great deserts.

Here are some pictures from the event.





The picnic was a great success. We had guests from Fallbrook Gem & Mineral, Jewel Tunnel and a few visitors.

Very special thanks to Kathy & Bruce Carter again for the use of their beautiful yard and great hospitality. Special thanks to Angie Guzman and Cheryl Lopez for helping set up tents, tables and food.

Thank you, Bruce & Kathy. Sorry I didn't get a picture of Kathy.

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**MSSC will be participating** at the upcoming Orange County Park's Annual "Prehistoric OC"! By: Rudy Lopez  
 MSSC has been invited to participate in OC Parks Annual *Prehistoric OC*. a free event that invites families to explore the prehistoric history of Orange County.

Ralph B. Clark Regional Park 8800 Rosecrans Avenue; Buena Park, CA 90621

**Saturday, October 12 from 10 a.m. – 3 p.m.**

We will hand out a free mineral to every kid that comes to our booth. This year I will display my minerals from around the world and fossils.

**I will need help with set up, tear down and during the event!** Please let me know if you can help.  
 Send email to: [programs@mineralsocal.org](mailto:programs@mineralsocal.org).

Prehistoric OC presents fun and educational activities and information to the public about Orange County's rich history, prehistory, and Native American culture with activities, fossils, and artifacts. This annual event welcomes the young and the young at heart, and will foster a sense of pride and respect for local natural and cultural resources.

All Ages Welcome; Event Cost: FREE    Event Parking: FREE    Event Time: 10am-2pm

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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	See emailed bulletin
A ride	Richard Stamberg	North Orange County, near Cal State Fullerton	See emailed bulletin

\*\*\*\*\*

**OTHER FREE THINGS TO DO...by Ann Meister**

The **Von Kármán Lecture** on **\*Thursday/Friday\* October 17 and 18** at 7 PM. The speakers are Alina Kiessling and Jason Rhodes, both astrophysicists at NASA-JPL. The title of the presentation is **“Darkness Surrounds Us: The Other 95% of the Universe.”** All the material we can see is just a small fraction of the universe. The rest, a full 95 percent, is invisible and mysterious. These are the enigmatic dark matter and dark energy. While dark matter keeps things like galaxies together, dark energy acts in an opposite way – it pushes groups of galaxies apart and expands the universe itself. This event will discuss how astronomers are working to map the universe’s dark matter so they can see the effects of dark energy. The results could help us understand if the universe will expand at an accelerating rate forever. **\*\* 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, **October 16** at 8 PM. The speaker is Frederick Eberhardt, Professor of Philosophy, Caltech. The title of his talk is, **" Causality: From Aristotle to Zebrafish."** What causes what? If correlation does not equal causation, then how can we untangle the “why” behind processes that regulate the brain, the climate, or the economy? And how does this apply to the development of artificial intelligences (AIs)? Eberhardt’s lecture will start with a tour of the philosophical foundations of causality and end with the discovery of neural connections in the brains of zebrafish larvae.

Check The **UCLA Meteorite Gallery** for the October lecture (<https://meteorites.ucla.edu/> ). 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.

\*\*\*\*\*

## West Coast Gem & Mineral Show

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**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/>

#### **OCTOBER**

##### **October 4 , 5 & 6: VISTA, CA**

Vista Gem & Mineral Society  
Antique Gas & Steam Engine Museum  
2040 North Santa Fe Avenue  
Hours: 10 - 4 daily  
Website: [vistarocks.org](http://vistarocks.org)

##### **October 12 - 13: TRONA, CA *Note: TRONA SHOW & EVENTS CANCELED***

Searles Lake Gem & Mineral Society *DUE TO  
EARTHQUAKE DAMAGE*  
Website: [iwvisp.com/tronagemclub](http://iwvisp.com/tronagemclub)

##### **October 19: WEST HILLS, CA**

Woodland Hills Rock Chippers  
First United Methodist Church  
22700 Sherman Way  
Hours: 10 - 5  
Website: [rockchippers.org](http://rockchippers.org) [Show Page](#)

#### **NOVEMBER**

##### **November 2 - 3: ANAHEIM, CA**

American Opal Society  
Business Expo Center  
1960 S. Anaheim Way  
Hours: Sat 10 - 6; Sun 10 - 5  
Website: [opalsociety.org/](http://opalsociety.org/) [Show Page](#)

##### **November 2 - 3: RIDGECREST, CA**

Indian Wells Gem & Mineral Society  
Desert Empire Fairgrounds  
520 South Richmond Road  
Hours: 9 - 5 daily  
Website: [indianwellsgemandmineral.com](http://indianwellsgemandmineral.com) [Show  
Page](#)

##### **November 16 - 17: LAKESIDE, CA**

El Cajon Valley Gem & Mineral Society  
Lakeside Rodeo Grounds  
12584 Mapleview Street  
Hours: Sat 10 - 5; Sun 10 - 4  
Contact: Mary Ness, (619) 449-0759  
Email: [bspcaat@cox.net](mailto:bspcaat@cox.net)  
Website: [ecvghms.org](http://ecvghms.org) [Show Page](#)

##### **November 23 - 24: OXNARD, CA**

Oxnard Gem & Mineral Society  
Oxnard Performing Arts Center  
800 Hobson Way  
Hours: Sat. 10 - 5; Sun. 10 - 4  
Website: [oxnardgem.com](http://oxnardgem.com) [Show Page](#)

#### **DECEMBER**

---No Shows Listed for December

#### **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)

**2019 MSSC Officers:**

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President	George Rossman	<a href="mailto:president@mineralsocal.org">president@mineralsocal.org</a>
Vice President	Renee Kraus	<a href="mailto:vicepresident@mineralsocal.org">vicepresident@mineralsocal.org</a>
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Treasurer	Jim Kusely	<a href="mailto:treasurer@mineralsocal.org">treasurer@mineralsocal.org</a>
CFMS Director	Jo Anna Ritchey	
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2019--2020	Leslie Ogg	
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2018-2019	Pat Stevens	
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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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To:



**With Knowledge Comes  
Appreciation**

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