



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

Volume 95 Number 10 – Octoberber, 2022

---

*The 1,005<sup>th</sup> meeting of the Mineralogical Society of Southern California*

---

***With Knowledge Comes Appreciation***

## **A ZOOM Meeting**

***October 14<sup>th</sup>, 2022 at 7:30 P.M.***

***Program : “Exploring Crustal Deformation With Mineral Magnetism”:  
Presented by Leyla Namazie***

### **In this Issue:**

<b><i>TITLE</i></b>	<b><i>Page</i></b>
<b>Program: “Exploring Crustal Deformation With Mineral Magnetism”: Presented by Leyla Namazie</b>	<b>2</b>
<b>From the Editor: Linda Elsnau</b>	<b>2</b>
<b>From the President; Mineral Groups. Installment 5, “The Micas ” by George Rossman</b>	<b>2</b>
<b>Minutes of the September 9, 2022 Meeting</b>	<b>5</b>
<b>List of Upcoming MSSC Events</b>	<b>10</b>
<b>Other Free Things To Do...by Ann Meister</b>	<b>10</b>
<b>Calendar of Events</b>	<b>10</b>
<b>Volunteers Still Needed for MSSC Board</b>	<b>11</b>
<b>2022 Officers</b>	<b>12</b>
<b>About MSSC</b>	<b>12</b>

**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: : “Exploring Crustal Deformation With Mineral Magnetism”: Presented by Leyla Namazie

Exploring crustal deformation with mineral magnetism: Magnetism is a fundamental physical property of all minerals, but ferromagnetism, in particular, is displayed by only a select few. This form of magnetism is expressed as a competition of energies within the crystal lattice and has been explored extensively for its application to structural geology and geodynamics, a practice known as paleomagnetism. In this presentation we will explore the various types of ferromagnetic minerals and their role in solving major problems in earth science. There will be special focus on the Eastern Klamath terrane, one of over a dozen accreted bodies that make up the North American Cordillera. Within this terrane, variable paleomagnetic anomalies have complicated models of Paleozoic tectonism and paleogeography. I will present the results of an ongoing project that uses rock magnetic data to constrain geometric models of crustal deformation and resolve a long-standing debate on the accretionary history of the Klamath Super terrane.

Biography: Leyla Namazie is a recent graduate from UC Berkeley, with a Bachelor's Degree in Geophysics. Her research interests lie in the applications of paleomagnetism to regional tectonism and patterns of deformation. In previous work, she has helped use magnetic fabrics to characterize mid ocean ridge heat flow processes and inform on the accretionary mechanisms of lower oceanic gabbro layers. She has completed paleomagnetism projects with the Berkeley Geochronology Center at U.C. Berkeley, the Scripps Institution of Oceanography at U.C. San Diego, and the University of Minnesota's Institute for Rock Magnetism. Leyla has received accolades for her performance in the classroom and in the field and is currently finishing an internship as a field geologist with the U.S. Forest Service in the Inyo National Forest, California.



### How to Join our ZOOM Meetings by Rudy Lopez

MSSC members are automatically included in the invite list each month.

For non MSSC Members who want to join this meeting. You must respond to our Programs chair, Rudy Lopez at [programs@mineralsocal.org](mailto:programs@mineralsocal.org) no later than Thursday, October 14, 2022. Please include “October ZOOM Meeting” in the subject line of your response. This response date will allow time for us to send you the information needed to participate in the ZOOM meeting and also will allow time to get everything organized.

\*\*\*\*\*

### From the Editor: Linda Elsnau

Welcome to Fall! Time sure does fly, doesn't it? Looks like we have another interesting program scheduled for this month. Our program chairman is working hard to keep us entertained and educated. Thanks Rudy!

Our November election for the MSSC officers is fast approaching. The Board is still looking for volunteer/nominations to fill the MSSC Executive board for 2023. If the open positions aren't filled, MSSC will have no choice but to end. Since everything is being handled via the internet, you need not be “local” to assume an executive role. Please do what you can to keep MSSC the excellent organization it has been since 1932!

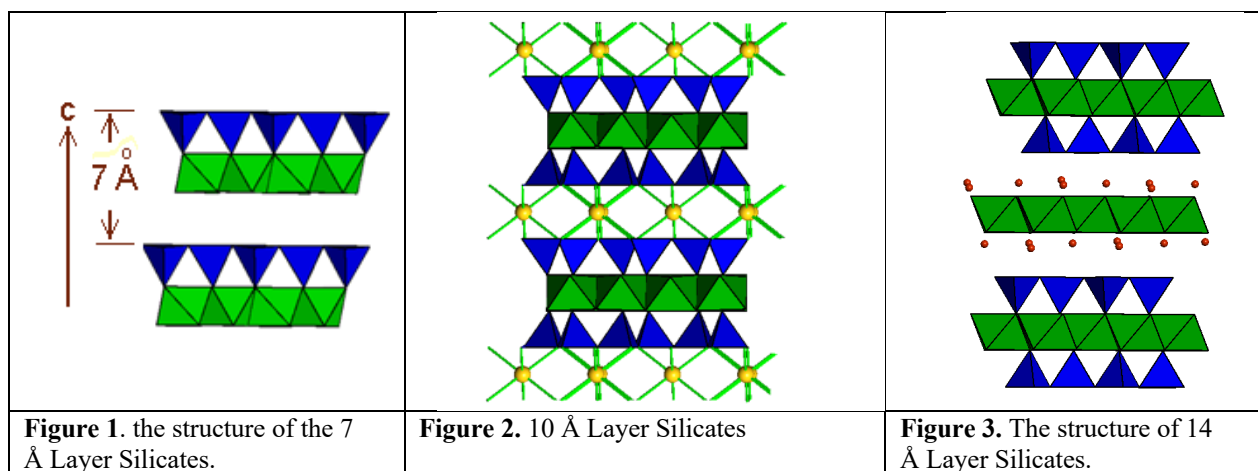
\*\*\*\*\*

### FROM THE PRESIDENT: Mineral Groups. Installment v, “The Micas” by George Rossman

Micas are common and well-known to most of us. They are classified as layer silicates. They have layers of silica tetrahedra ( $\text{AlO}_4$  and  $\text{SiO}_4$  groups) connected to layers of metal cations, in shared octahedra. The metals are commonly aluminum (Al), magnesium (Mg) and iron (Fe).

Let's start by looking at the different mineral groups that constitute the layer silicates. They are commonly classified by the repeat distance between the layers. The 7-Ångstrom layer silicates have stacks of tetrahedra

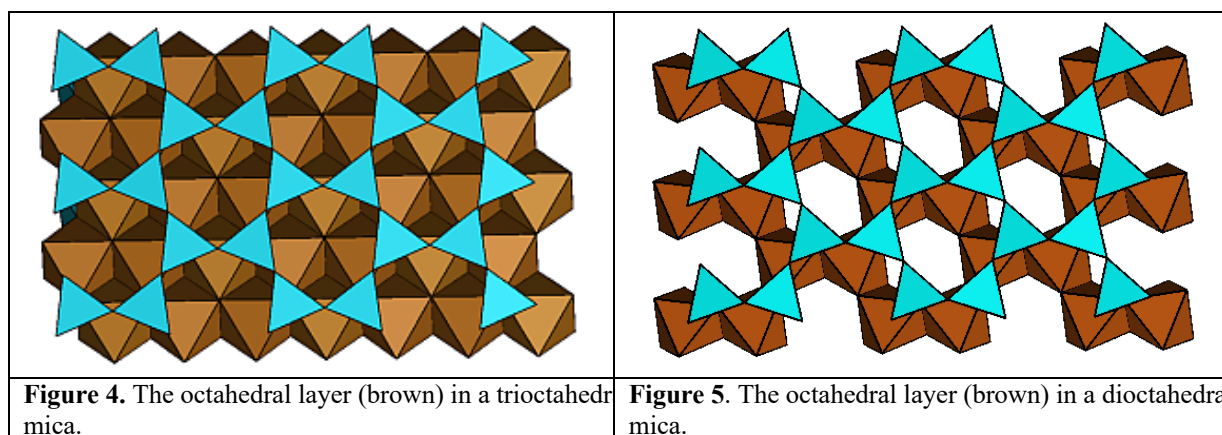
joined to octahedra that repeat along the c-axis about every 7 Å (**Figure 1**). These are not micas. Minerals in this group include common minerals such as kaolinite and the serpentine group minerals. I will jump over the 10 Å layer silicates in **Figure 2** momentarily to point out that the 14 Å layer silicates are also not micas (**Figure 3**). They are the chlorite group minerals that include phases such as clinochlore and chamosite.



There are several types of 10 Å layer silicates, several of which are not micas. Some of the 10 Å layer silicates do not have cations between the tetrahedral layers (they don't have the yellow spheres in Figure 2). Although they are not micas, they are common minerals such as talc and pyrophyllite. Because they do not have any cations holding the layers together, these minerals are soft and easily deformed. Think talcum powder.

The true micas are the 10 Å layer silicates with cations with a +1 charge between the tetrahedral layers shown as yellow spheres in Figure 2 as the yellow spheres. The +1 cations are sodium and potassium.

The next big thing we have to consider is that there are two main classes of micas. They are called trioctahedral and dioctahedral micas. The trioctahedral micas have 3 out of 3 octahedral sites filled with 2+ cations such as  $\text{Mn}^{2+}$  or  $\text{Fe}^{2+}$ . Phlogopite,  $\text{KMg}_3[\text{AlSi}_3\text{O}_{10}](\text{OH})_2$ , and annite,  $\text{KFe}_3[\text{AlSi}_3\text{O}_{10}](\text{OH})_2$ , are two examples of these. Their octahedral layer in the structure has every octahedral site filled with a cation (**Figure 4**). This is in contrast to the dioctahedral micas in which only 2 of every 3 octahedral sites are occupied (**Figure 5**). The reason for this is that the trioctahedral micas have 2+ cations in the octahedral layer. Every 3 octahedra add up to 6+ charges. In the dioctahedral micas, the octahedral sites are occupied by 3+ cations, so we only need two of them to add up to 6+ charges which is what is needed.



Common dioctahedral micas include muscovite,  $\text{KAl}_2[\text{AlSi}_3\text{O}_{10}](\text{OH})_2$ , and the sodium mica, paragonite,  $\text{NaAl}_2[\text{AlSi}_3\text{O}_{10}](\text{OH})_2$ . Phlogopite,  $\text{KMg}_3[\text{AlSi}_3\text{O}_{10}](\text{OH})_2$ , is a common trioctahedral mica.

Currently, there are 31 species in the mica group. Let's look at some of the more common ones. Probably the most common one is the dioctahedral mica, muscovite.

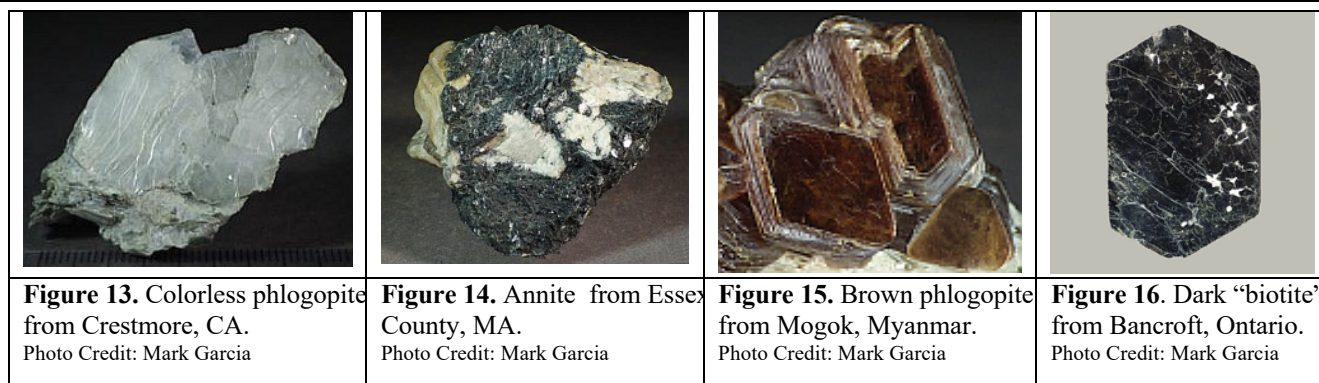
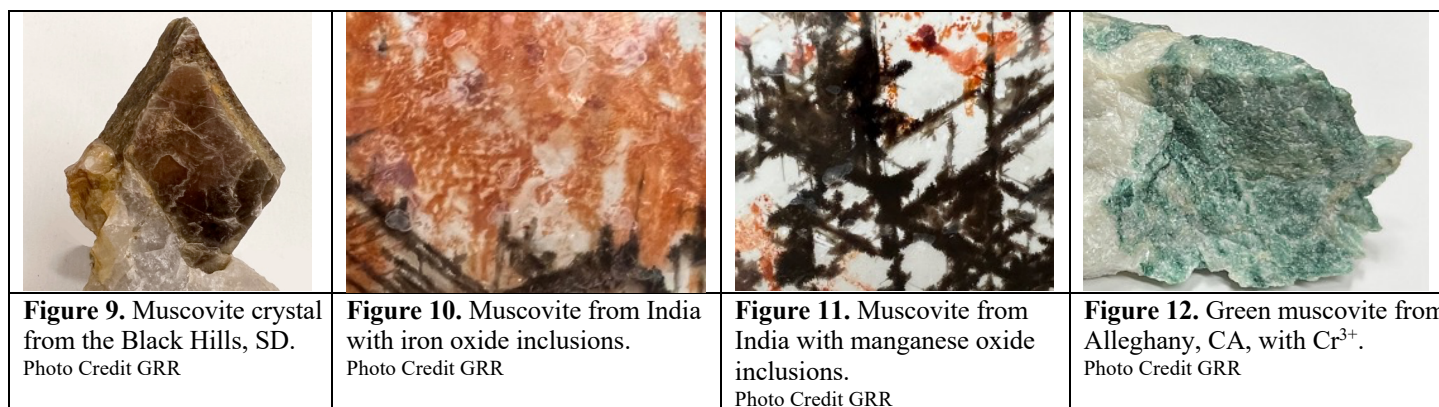
When muscovite has the ideal end-member chemical composition,  $\text{KAl}_2[\text{AlSi}_3\text{O}_{10}](\text{OH})_2$ , it is colorless (**Figure 6**). Sometimes, the sheets are so perfectly clear that large, cleaved mica sheets have been used in the past for carriage





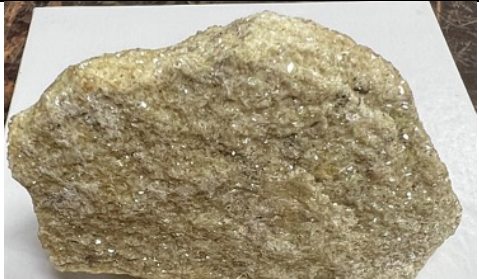
windows. Frequently, muscovite has some iron replacing the aluminum. When iron is in muscovite, it causes color. When iron is present in both the 2+ and 3+ oxidation states, or when titanium ( $\text{Ti}^{4+}$ ) is also present along with the iron, darker shades occur (**Figures 7,8, 9**). Muscovite can also be colored by mineral inclusions such as iron and manganese oxides (**Figures 10,11**) trapped between the sheets. Occasionally other elements such as vanadium or chromium (**Figure 12**) replace some of the aluminum and cause attractive green colors.



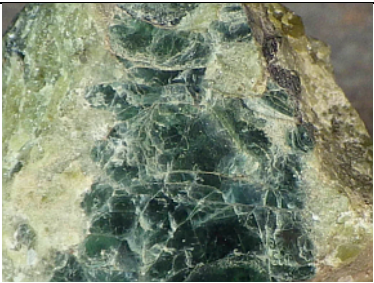

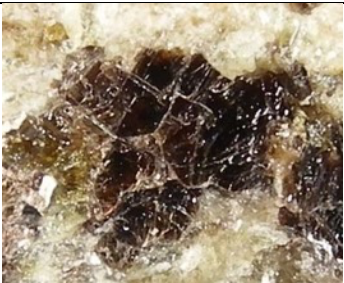
The trioctahedral micas are best represented by phlogopite (**Figure 13**),  $\text{KMg}_3[\text{AlSi}_3\text{O}_{10}](\text{OH})_2$ , and annite (**Figure 14**), the corresponding ferrous ( $\text{Fe}^{2+}$ ) mica ( $\text{KFe}_3[\text{AlSi}_3\text{O}_{10}](\text{OH})_2$ ). Intermediate members of the solid solution series between phlogopite and annite are the so-called biotite group of micas, a field term to refer to unanalyzed dark, iron-rich trioctahedral micas (**Figures 15,16**).



An interesting group of trioctahedral micas constitute the "lepidolite" series. Lepidolite is a term used to designate a member of the solid-solution series between polyolithionite,  $\text{K}(\text{Li}_2\text{Al})(\text{Si}_4\text{O}_{10})(\text{OH})_2$ , and trilithionite,  $\text{K}(\text{Li}_{1.5}\text{Al}_{1.5})(\text{AlSi}_3\text{O}_{10})(\text{OH})_2$ . Rarely have these micas been analyzed to determine their exact species name because of the former difficulty of determining the lithium content of minerals. Lepidolite mica is common in the pegmatites of Southern California, particularly in the Pala area where numerous large boulders of almost pure lepidolite are associated with the Stewart mine (**Figure 17**). Even brighter pink samples are found at the Harding Mine in New Mexico (**Figure 18**). The pink comes from a small manganese content in these samples. If there is no manganese in the lepidolites, it can be colorless or pale shades of other colors (**Figure 19**) depending on what minor components such as iron are replacing some of the aluminum

		
<b>Figure 17.</b> Lepidolite from Pala, CA. Photo Credit: Mark Garcia	<b>Figure 18.</b> Pink lepidolite from the Harding Mine, NM. Photo Credit: Mark Garcia	<b>Figure 19.</b> Yellow lepidolite from Custer, SD Photo Credit: GRR

If the cation between the layers is not a 1+ charge ion ( $\text{Na}^+$  or  $\text{K}^+$ ) but rather is a 2+ charge cation such as  $\text{Ca}^{2+}$ , then we have what are known as the brittle micas. There are eight such species, but the common ones are the dioctahedral brittle mica, margarite,  $\text{CaAl}_2[\text{Al}_2\text{Si}_2\text{O}_{10}](\text{OH})_2$ , and the trioctahedral brittle mica, clintonite,  $\text{CaMg}_3[\text{Al}_2\text{Si}_2\text{O}_{10}](\text{OH})_2$  (**Figure 20**). When you gently bend and then release a regular mica such as muscovite, the sheets flex and bounce back to their original shape. When you bend a brittle mica sheet, it snaps and remains permanently deformed. That's why they are called 'brittle' micas.

		
<b>Figure 20.</b> Clintonite from Crestmore, Riverside Co, CA. Photo Credit: Mark Garcia	<b>Figure 21.</b> Dull, olive green, minute flakes of Roscoelite in Placerville, CO sandstone. Photo Credit: Mark Garcia	<b>Figure 22.</b> Dark red-brown flakes of Hendricksite from Franklin, NJ. Photo Credit: Mark Garcia

There are a variety of other less-common or distinctly rare mica species including:

Boromuscovite	$\text{KAl}_2(\text{Si}_3\text{B})\text{O}_{10}(\text{OH})_2$ , where boron replaces some of the silicon;
Tobelite	$(\text{NH}_4)\text{Al}_2(\text{Si}_3\text{Al})\text{O}_{10}(\text{OH})_2$ , where ammonium replaces potassium;
Nanpingite	$\text{CsAl}_2(\text{AlSi}_3)\text{O}_{10}(\text{OH})_2$ , where cesium replaces potassium;
Chromphyllite	$\text{KCr}_2(\text{AlSi}_3)\text{O}_{10}(\text{OH})_2$ , where chromium replaces the aluminum.
Roscoelite	$\text{KV}_2(\text{Al})\text{Si}_3\text{O}_{10}(\text{OH})_2$ , where vanadium replaces the aluminum.(Figure 21)
Hendricksite	$\text{KZn}_3(\text{Si}_3\text{Al})\text{O}_{10}(\text{OH})_2$ where zinc replaces the magnesium. (Figure 22)

You are not likely to find any of the rare ones locally. The reality is that for many micas, it is not possible to determine the exact species name without a detailed chemical analysis. Don't worry about it, but be assured, Southern California is a region rich in micas. You definitely should have several in your collection.

\*\*\*\*\*

## MINUTES of the September 9, 2022 ZOOM Meeting

### Call to Order (Cheryl Lopez, Vice President):

Presiding Vice-President Cheryl Lopez called the meeting to order at 7:38 p.m. It was the 1,005<sup>th</sup> Membership Meeting and 28<sup>th</sup> via ZOOM conferencing of the Mineralogical Society of Southern California (MSSC). [Secy. Note: MSSC President, Dr. George Rossman, Ph.D., was excused.]

### Regular Business (C. Lopez))



**Approval of Minutes:** Cheryl Lopez asked if there were any additions or corrections to the Membership Meeting Minutes of August 12, 2022 as published in the September 2022 Bulletin. Hearing none, she asked for a motion to approve the Minutes. A Motion made by Marek Chorazewicz and seconded by Leslie Ogg. There was no further discussion. Cheryl asked for the vote by a show of hands. The Motion passed unanimously in favor to approve the Minutes as written and published.

### **Announcements and Reports**

**1. Field Trip Report (Marek Chorazewicz):** Marek reported the trip to Tecopa will be a 2-day event the weekend of October 8 & 9. Saturday is precious opal day at Tecopa. Sunday, after a short 16-mile trip up the Old Spanish Trail Highway, Emigrant offers many outcrops with trilobite fossils. Marek will camp out Friday evening and meet everyone Saturday morning at 8 a.m. at SR 127 - check the Bulletin for details, tools and camp items you may need, GPS coordinates and Google map directions. If the weather is still too hot, the trip *may* be pushed back another week...check the Bulletin for updates!

**2. Election information (Carolyn Seitz):** Carolyn Seitz made an announcement regarding MSSC's upcoming election of Officers and Directors. This year's process is different than in the past - members are encouraged to self-nominate for any of the seats. We have already had some self-nominations and are still looking to fill the seats of the President's chair and others. President Dr. Rossman is stepping down after 4 years, he will not seek another term. He feels the society would benefit from fresh ideas and leadership. Carolyn gave a President's seat position description and indicated the new leader would also preside over Membership and Board meetings. If you are not yet a member but want to serve our society and contribute as an officer, please contact any current officer or director for information or assistance to join – and, since we're in the 2<sup>nd</sup> half of the year, the membership price is reduced by half. All members are reminded that MSSC elections will be held during the November 2022 Membership Meeting. Act now! Fill out the Self Nominating Form today, scan it and submit to Cheryl Lopez, Membership Chair, at [rclopez002@verizon.net](mailto:rclopez002@verizon.net) or contact any officer or director for assistance. Thank you.

[Secy. Note: A few members have declined to run again based on their extensive previous service to the society. We thank you for your prior participation, it is much appreciated.]

### **Program**

Rudy Lopez, Program and Education Chair, introduced the night's presenter Howard Heitner. Howard has been with MSSC in the past and we welcome him again. This time, he will present *Minerals in 19th Century America*. He'll talk about early mineral dealers, collectors, scientists and even physicians having like interests. Howard himself has been collecting minerals for 60 years; his collecting has taken him to New York, New Jersey, Maine and other states. He not only collects, he has also purchased collections, as well.

**Howard Heitner** begins by telling the MSSC ZOOM audience that he got started collecting years ago. He'd bought remnants of a collection that was put together in 1893 and he became curious and interested in the dealers of the collection. The collection he purchased was located at the Exposition in Chicago at the world's fair. A library in Waterbury, CT sent someone to the Exposition and told them to: "...bring us home a mineral collection..."

In the late 18<sup>th</sup> and 19<sup>th</sup> centuries, universities did not give advance degrees in mineral science. The only advance degree was in medicine, and that only took 18 months to complete. So, we will start there. There were several doctors or other men associated with medicine in those early days who were mineral collectors, of a sort. Howard displays a list of men who were physicians that were also interested in minerals.

First are references to collectors with medical degrees or some medical background. **Archibald Bruce** (1777-1818) lived in New York City. His father was a surgeon in the British Army, which occupied New York during the Revolutionary War. Archibald discovered *brucite*, named after him. He actually found the mineral in Hoboken, NJ, right across the Hudson River from Manhattan. He described the mineral in literature he wrote.

**Louis Beck** (1798-1853) wrote the Natural History of New York, which was published in 1842. He was an M.D. and a mineral collector; **Adam Seybert** (1773-1825) was also a medical doctor; his collection is still preserved in the Philadelphia Academy of Sciences. Heitner showed a photo of a mineral collector's cabinet having 28 drawers. Howard said there was some discussion at Mindat as to whether some of the drawers could be opened, as some of them were actually jammed shut. **Samuel Robinson** (1783-1827), listed as an M.D., authored the Catalogue of American Minerals with Localities. It was published in 1825 by Cummings, Hilliard & Co. This book covered the area mostly of the eastern United States and eastern Canada; the western portions of the US and Canada were not yet recognized as mineral collection areas, or much else at the time. According to the cover page of his publication, Robinson was a member of the American Geological Society.

Howard goes on to mention **Gerhard Troost** (1776-1850), an immigrant from either Belgium or Holland, who had a mineral collection. *[Secy Note: Troost, a Dutch-American, became the first president of the Philadelphia Academy of Sciences in 1810.]* **James Eights** (1798-1882) was an artist, physician and scientist who studied minerals. Eights was one of the first Americans to visit Antarctica. *[Secy Note: The Eights Coast of Antarctica is named in his honor.]* **Ebenezer Emmons** (1799-1863) wrote a textbook/manual of mineralogy and geology, American Geology, which was published in Albany, New York in 1833. Then there was **Joseph Leidy** (1823-1891) who was a medical researcher that discovered the trichinosis parasite. Leidy's mineral collection included a Sterling Hill hemimorphite specimen that Howard was able to acquire through the Academy of Sciences sale. Howard talked about the "Infamous Collector", **John White Webster**, a Harvard professor who used his mineral collection as collateral for 2 creditors. He murdered one of them, a Francis Parkman, in 1849. Webster was hanged for his crime in August 1850.

Now we get to academics: **Benjamin Silliman** (1779-1864), began as a lawyer. *[Secy Note: Silliman was founder of American Journal of Science (AJS), which is still in publication today.]* Until the early 19<sup>th</sup> Century, universities' basic job was to educate people for the clergy. Yale was one of the first schools that started to teach physical science, chemistry, geology and botany. Silliman started the Sheffield Scientific School at Yale. The mineral *sillimanite*, an aluminosilicate, is named for him. Silliman's specimens were incorporated into the Yale-Peabody Museum.

Here Howard mentions that the Yale-Peabody is the earliest museum collection in the United States. He shows a specimen owned by Silliman who had put his initials on it in ink. Most people did not like marks on specimens, but today most specimens have a number or other type of identification indicator, most commonly a label.

**Parker Cleaveland** (1780-1858) was a geologist and mineralogist in the early times. He was from Bowdoin College in Maine, at the time, part of the commonwealth of Massachusetts. He gathered a valuable collection of minerals and published a treatise on Mineralogy and Geology. [*Secy Note: The treatise earned him the title “Father of American Mineralogy”.*]; Howard talks about **James Dwight Dana** a geologist, mineralogist, volcanologist and zoologist who was married to Benjamin Silliman’s daughter. His A System of Mineralogy, is a valuable classification reference still used today. Their son, **Edward Dana**, was a mineralogist and crystallographer.

**Charles U Shepard** (1804-1886) of Amhurst was another academic involved with mineralogy. Shepard’s collection was sold to Amhurst College but most of it was destroyed by fire in 1882; his collected meteorites, stored in a safe, were the only part of his collection to survive the fire.

Under Silliman and JD Dana, the Yale and Amhurst collections grew and included the Col. Gibbs Collection (two 18<sup>th</sup> Century European collections), Lederer collection (fund raising by Silliman) and in 1880, Blum’s collection of Pseudomorphs from Germany.

Heitner tells us about **Charles M Wheatley**’s (1822-1882) whose original chalcocite label is housed at the Yale Peabody Museum. It is named “*vitreous copper*” No.1852, Bristol, Connecticut and has Wheatley’s initials printed on the label: C.M.W. Wheatley started out as the manager of the Bristol Copper Mine.

Other collectors brought to our attention include **Frederick A Genth** (1820-1893) for whom *genthite* is named; **Ludwig Stadtmuller** (1821-1903) a high-volume mineral dealer associated with Yale who worked as an assayer at the Bristol Copper Mine and had a mineral collection; **Charles W A Herrman** (1801-1896) like Stadtmuller, a German mineral dealer, who traveled to Europe on buying trips. Herrman also sold fossils; **Capt. Newton S Manross** (1825-1862) was a professor at Amhurst who wrote The Artificial Formation of Minerals, which showed how to grow baryte crystals. Manross died in the Battle of Antietam at 37 years of age; **Reverend Ebenezer Seymour** (1801-1879) became a mineral dealer and had his office above his son’s cutlery business. He acted as an agent for European dealers and supplied other dealers thereby building a valuable business.

**A E Foote**, M.D. (1846-1895) published a Catalogue of Minerals in 1876. He also was a professor of Mineralogy at the University of Michigan. When Dr. Foot died in 1895, his wife and son, Warren, took over and continued the business until 1918 at which time they had a big sale, sold meteorites as “...Inexpensive and Acceptable Christmas Gift.” Yale bought a lot of meteorites in the clearance sale.

**Clarence S Bement** (1843-1923) was a wealthy Philadelphia manufacturer who spend \$100,000 starting around 1866. His collection was bought by J P Morgan in 1900 and was donated; **Washington A Roebling** (1837-1926), built the Brooklyn Bridge, manufactured wire and was a soldier at Gettysburg. He left money to Smithsonian and Mineralogy Society of



American. [Secy Note: The prestigious scientific eminence award, the Roebling Medal, is named in his honor.] His collection included calcite, a photo of his handwritten label was shown to us, plus a photo of the famous Roebling apatite; **Edward B Underhill** (1809-1888) collection was bequeathed to Amherst College, who bestowed an honorary degree upon Underhill. The bequeathed collection went to help replace the Charles U Shepard collection lost to fire in 1882. Included was an aragonite specimen from S C H Bailey; **Stratford C H Bailey** (1822-1910) authored On the Minerals of New York Island published 1865 and he sold some of his collection to American Museum of Natural History. There is some whisper of unsavory business as evidenced by Lazarus Fletcher's (British Museum) note on a letter from Bailey: "...no trust is put in him in America."

Other collectors mentioned in Howard's presentation included **Thomas A Greene** (1827-1894) who collected minerals and was a button manufacturer in Wisconsin, **Silas Bronson** (1788-1867) did not have a mineral collection but left \$200,000 to build a library in Waterbury, CT. In 1893 the town said they wanted a mineral collection – this is the one Howard talked about at the beginning of his presentation, the Bronson Library with European and American specimens purchased at the Chicago Expo in 1893. **Henry A Ward** (1834-1906) created Ward's Museum of Mineralogy and Zoology and was the main competitor of Foote selling meteorites. **George L English** (1864-1944) sold *microscopic mounts of minerals* out of New York. He may have been the first to sell micro mounts. He also had a crystal and gem holder, a glass tube to insert and "...show off your small crystals and gems, economically and attractively." And lastly, Howard introduces us to the California Connection: **Charles Palache** (1869-1954) he was born in San Francisco and grew up in Berkeley. He was a mineralogist and crystallographer and, in his time, one of the most important mineralogists in the United States. He spent most of his career at Harvard. [Secy Note: Palache was awarded Roebling Medal in 1937, his mineral collection is housed at Redpath Museum of McGill University, Montreal.]

Thank you, Howard for an informative and interesting presentation. There was a brief Q&A given the time difference, Howard was on ZOOM from the East Coast.

**Other:** Rudy Lopez reports that there are now 5,832 approved IMA mineral species.

**Adjournment:** There being no other official MSSC business, the meeting was adjourned at 8:45 p.m. by Vice President Cheryl Lopez.

Respectfully submitted by Angie Guzman, Secretary

### **NOTICES:**

Please **don't forget** the **MSSC's ELECTIONS**. Looking forward to your participation. See you October 14<sup>th</sup> with news and updates on Self Nominations. Elections will be held during the November 2022 Membership Meeting. 'Till then, have a great time doing what you do. Thank you, Angie Guzman, Secretary.

\*\*\*\*\*

**The Ride Share Listing** is being temporarily discontinued until such time as MSSC starts holding in-person meetings again.

**With Knowledge Comes Appreciation**

\*\*\*\*\*

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

Event	Date	Comments / Scheduled Program (if known)
Meeting Dates:	ZOOM Nov.11, 2022	Aaron Celestian – TBD
	ZOOM Dec 9, 2022	Wes Andree: "JMDC's Dinosaur Trek" our augmented reality (AR) dinosaur hunt.
	ZOOM Jan 13 , 2023	Denise Nelson: Diamonds of the Forbidden Zone
	ZOOM Feb , 2023	
Board Meeting	ZOOM October 16, 2022	ZOOM at 1:00 PM
Field Trip	October 8-9, 2022	2- day trip to Tecopa for Fossils

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

\*\*\*\*\*

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

The **Watson Lecture Series at Caltech** has not yet published the 2022-2023 schedule. Check the website [Earnest C. Watson Lecture Series | Caltech Public Programming](#). Find past Watson Lectures on [Caltech's YouTube channel](#).

The **Von Kármán Lecture** is on Thursday, **October 13** at 7:00 PM. Available live on YouTube at [NASA Jet Propulsion Laboratory - YouTube](#). The speaker is Dr. Davide Farnocchia, Navigation Engineer, NASA/JPL. The title of the presentation is “**Near Earth Objects: Opportunities for Discoveries.**” Comets and asteroids offer clues to the chemical mixture from which the planets formed some 4.6 billion years ago. If we wish to know the composition of the primordial mixture from which the planets formed, then we must determine the chemical constituents of the leftover debris from this formation process - the comets and asteroids. In this talk, we'll discuss with how Near-Earth Objects are opportunities for discovery.

The **UCLA Meteorite Gallery** has reopened. Check the website for hours. The monthly lecture will be presented on Sunday, **October 16** at 2:30 PM. The speaker is Dr. Emmanuel Jacquet; Muséum National d'Histoire Naturelle, Sorbonne Universités. The title is “**Refractory Inclusions, the first solids of the Solar System.**” Among the components of chondrites (or primitive meteorites), refractory inclusions, while making up only a minor proportion thereof, have achieved prominence in being the oldest dated solids of the Solar System. They are believed to have originally formed by condensation out of a gas of solar composition at temperatures of 1500-2000 K, perhaps during the very building stage of our protoplanetary disk. The exact astrophysical setting of their formation is uncertain. Early models had them formed at the very inner edge of the disk so as to benefit best from sunlight and account for the presence of some short-lived radionuclides. However, that tiny region may have been hostile to the survival of a significant number of refractory inclusions and evidence is mounting in favor of formation over a wider range of heliocentric distances, up perhaps to the current position of the Earth. **Zoom Registration:** [https://ucla.zoom.us/meeting/register/tJEqduyupj0vGd3S0\\_52FsbHTbPjYr0sZQUj](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](mailto:jahook@ucla.edu). Note: Registration is only needed once as this is a recurring meeting in Zoom. Visit the website and check on events and videos and other neat things about meteorites

\*\*\*\*\*

## Calendar of Events:

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

**September 30- October 2, 2022, Vista, CA 92083**  
Vista Gem and Mineral Society  
Antique Gas and Steam Engine Museum, 2040 N.  
Santa Fe Ave., Vista CA 92083

Hours: Fri & Sat 10 AM – 5 PM, Sun 10 AM – 4 PM  
Website: <http://www.vistarocks.org>

**October 9, 2022 – Fallbrook, CA**  
 Fallbrook Gem and Mineral Society  
 Fall Festival of Gems & Minerals  
 123 W. Alvarado Street, Fallbrook CA 92028  
 Hours: 9 AM-4 PM  
 Website: <http://www.fgms.org>

**October 15, 2022 – West Hills, CA**  
 Woodland Hills Rock Chippers  
 First Methodist Church, 22770 Sherman Way, West  
 Hills, CA 91204  
 Hours: 10 AM – 5 PM  
 Website: <http://www.rockchippers.org>

**NO other programs listed for 2022**

<b>MSSC Advertisement Policy:</b>			
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 <a href="mailto:bulletin@mineralsocal.org">bulletin@mineralsocal.org</a> and the payment should be sent to the <b>MSSC Treasurer 13781 Alderwood Lane, #22-J, Seal Beach, CA 90740</b>			

\*\*\*\*\*

### **Volunteers still Needed for MSSC Board**

Self-Nominations are needed for MSSC Board Positions. To nominate yourself, all you need to do is complete the form below indicating which position you are nominating yourself for. Please submit to Cheryl Lopez at [rclopez002@verizon.net](mailto:rclopez002@verizon.net) by Oct. 13, 2022. The election is Nov. 11, 2022.

#### **MSSC Self Nomination for 2023 Board Position:**

- President: \_\_\_\_\_
- Vice President: \_\_\_\_\_
- Secretary: \_\_\_\_\_
- \_\_\_\_\_
- Treasurer: \_\_\_\_\_
- CFMS Director: \_\_\_\_\_
- Director #1: \_\_\_\_\_
- Director #2: \_\_\_\_\_

Return this form to: Cheryl Lopez at: [rclopez002@verizon.net](mailto:rclopez002@verizon.net)  
 by Oct. 13, 2022



## 2022 MSSC Officers:

OFFICERS		
President	George Rossman	<a href="mailto:president@mineralsocal.org">president@mineralsocal.org</a>
Vice President	Cheryl Lopez	<a href="mailto:vicepresident@mineralsocal.org">vicepresident@mineralsocal.org</a>
Secretary	Angie Guzman	<a href="mailto:secretary@mineralsocal.org">secretary@mineralsocal.org</a>
Treasurer	Carolyn Seitz	<a href="mailto:treasurer@mineralsocal.org">treasurer@mineralsocal.org</a>
CFMS Director	Angie Guzman	
Past President	Ann Meister	
DIRECTORS		
2022-2023	Pat Caplette	
2022-2023	Ahni Dodge	
2021--2022	Rudy Lopez	
2021--2022	Pat Stevens	
2021--2022	Leslie Ogg	
COMMITTEE CHAIRS		
Bulletin Editor	Linda Elsnau	<a href="mailto:bulletin@mineralsocal.org">bulletin@mineralsocal.org</a>
Field Trip	Marek Chorazewicz	
Historian	Ann Meister	
Hospitality	Laura Davis	
Membership	Cheryl Lopez	<a href="mailto:membership@mineralsocal.org">membership@mineralsocal.org</a>
Micro Mount Conf. Chairman	Al Wilkins	
Program and Education	Rudy Lopez	<a href="mailto:programs@mineralsocal.org">programs@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. 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 \$30.00 for an individual membership, \$40.00 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:** [treasurer@mineralsocal.org](mailto:treasurer@mineralsocal.org)

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

Permission to reproduce and distribute original material published herein, in whole or in part, for non-commercial purposes, is hereby granted provided the sense or meaning of the material is not changed, the editor is notified, and the author's notice of copyright is retained. **All other articles used in our bulletins are with the specific permission of the author. Permission to use these documents must be obtained from the author for each use**

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

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

To:



**With Knowledge Comes  
Appreciation**

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