



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

Volume 93 Number 10 - October, 2020

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*The 982<sup>nd</sup> meeting of the Mineralogical Society of Southern California*

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*With Knowledge Comes Appreciation*

## **A ZOOM Meeting**

**October 9<sup>th</sup>, 2020 at 7:30 P.M.**

**Program: Fossils In The Los Angeles Basin: An Embarrassment Of Riches**  
**Presented By : Karin Rice Preparator, Rancho La Brea**

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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: Fossils In The Los Angeles Basin: An Embarrassment Of Riches

Presented By : Karin Rice, Preparator, Rancho La Brea

Apart from the world famous La Brea Tar Pits, the Los Angeles area is probably not thought of as a region rich in fossils. When most of us think about fossil expeditions we picture field crews in remote badlands in Montana, South Dakota, or Wyoming, or even in Mongolia, digging up dinosaur bones and building plaster and burlap jackets around the fossils to collect them. Most people who live in the LA basin have little idea how many remains of ancient organisms exist under foot. There are so many fossils in the rocks around the greater LA area that they are frequently encountered during local construction projects. Fortunately, CEQA, the California Environmental Quality Act, has a provision to mitigate damage and to protect and preserve fossils found in California. The geology of the LA basin has preserved rich and diverse flora and fauna from Cretaceous plants and vertebrates (even dinosaur bits!) to Miocene marine mammals to Pleistocene Ice Age megafauna and countless marine invertebrates, all in localities within a few hours of downtown LA.

As a Preparator at Project 23, Karin is responsible for excavating fossils, training volunteers and students and sharing her expertise with the public. She is a geologist by training with industry experience in environmental and engineering geology, and paleontological resource mitigation. She has always been drawn to natural history and fossils. Since 2005 she has worked as a paleontological monitor on construction sites, later as a fossil Preparator at the Natural History Museum of Los Angeles County and today as a Preparator at Project 23.



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### From the Editor:

Happy October, everyone! Here is hoping everyone is doing well during the current long lasting global health issue! Please follow the advice given so that you can stay healthy and someday we can have “normal” MSSC meetings.

Our Program Chairperson, Rudy Lopez is doing an extraordinary job of finding excellent ZOOM speakers for our new meeting format. Thank you Rudy for all of your hard work! The October speaker, Karin Rice, will be bringing us an exceptional program about local area fossil history. Don't miss it!

Linda Elsnau

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**FROM THE PRESIDENT: Interesting Minerals, A to Z. Round 2, installment 7, the letter “G”:** by George Rossman

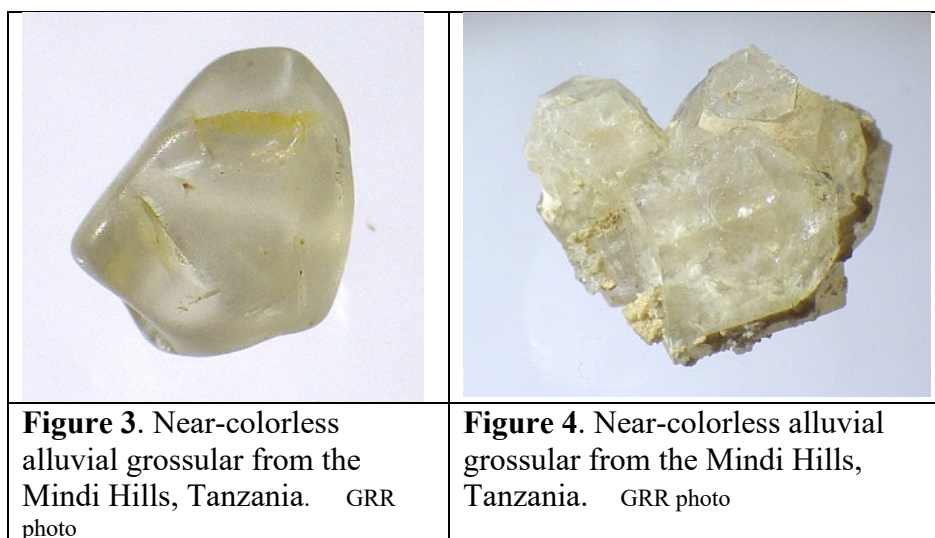
### Grossular, $\text{Ca}_3\text{Al}_2(\text{SiO}_4)_3$

Grossular is a common member of the garnet family of minerals.

It was originally named "cinnamon stone" ("Kanelstein" in German) in 1803 by Abraham Gottlob Werner but later renamed grossularite by Werner in 1808. It was named for the color of gooseberries (*Ribes grossularium*) as the original specimens were this color. The type locality (the location where the first fully described sample originated) is at the mouth of the Akhtaragda River, Vilyui River Basin (also spelled: Vilui River Basin or Wilui River Basin), in the Mirninsky District, Sakha Republic (Yakutia), Russia (**Figures 1, 2**).



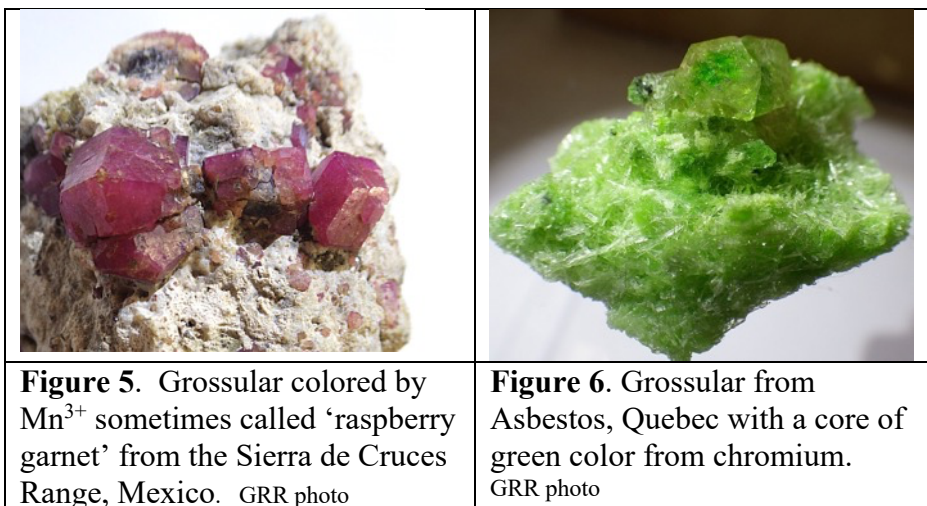
The ideal end-member grossular would be colorless. None of its components,  $\text{Ca}^{2+}$ ,  $\text{Al}^{3+}$ , or silicate, can cause color. Colorless and near-colorless grossulars are found at several localities (**Figures 3, 4**). But usually, grossular contains variable amounts of other metal ions with puts it in solid solution series with other garnet species such as andradite, uvarovite and spessartine and pyrope. Most commonly, grossulars have variable amounts of iron and manganese in them which cause color.



First, let's look at the less-common, more-spectacular examples of color in grossular due to individual metal ions replacing either the calcium or the aluminum. A colorful raspberry-red variety of grossular garnet occurs in the Sierra de Cruces Range, Mexico (**Figure 5**). The color comes about when a small amount of the aluminum is replaced by manganese in the 3+ oxidation state. Manganese 3+, as we have seen, also causes pink color in a variety of other minerals such as tourmaline, spodumene, and piemontite.

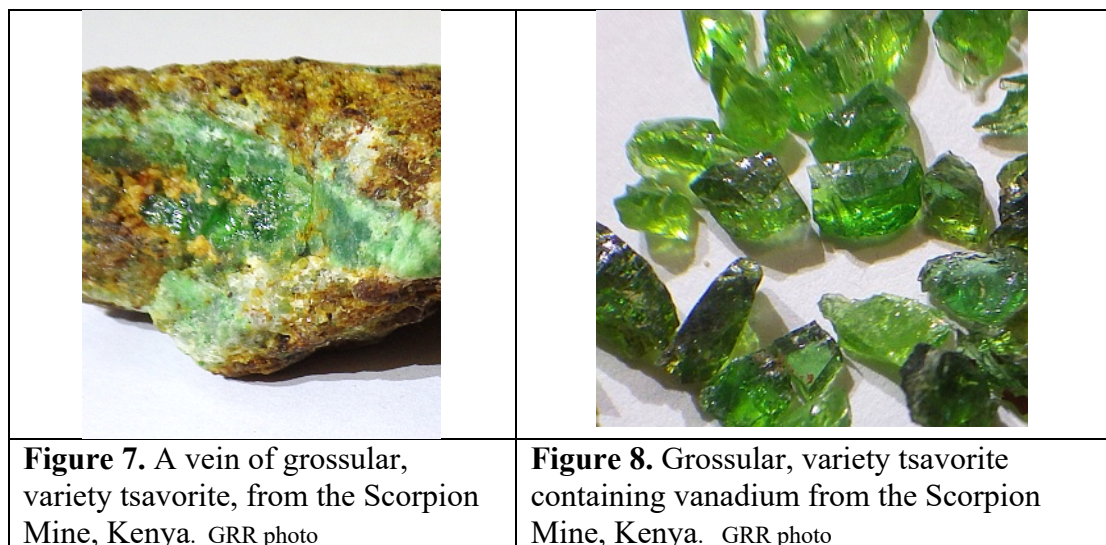
Grossular acquires a green color when chromium in the 3+ oxidation state replaces some of the aluminum (**Figure 6**). To understand why chromium occupies the aluminum site, we pay attention to the size of the site. Aluminum is bound to 6 oxygen ions and, according to Shannon and Prewitt (1969), has an ionic radius of 67.5 pm (picometers: 0.001 micrometer = 1 nanometer = 1000 picometers). Chromium in the 3+ oxidation state has an ionic radius of 61.5 pm, a reasonably close fit to the aluminum site. Why doesn't chromium go into the calcium site? The calcium site is much too large for chromium to fit comfortably without rattling around. Calcium is coordinated to 8 oxygen ions and, according to Shannon and Prewitt, has an ionic radius of 106 pm. However, iron 2+ easily occupies this site, because when bound to 8 oxygen ions, is has an ionic radius of 112 pm, a close fit to the calcium site.

Shannon RD and Prewitt CT (1969) Effective Ionic Radii in Oxides and Fluorides. Acta Crystallographica B25, 915-946.



One particularly commercially important variety of grossular is the tsavorite variety (**Figures 7,8**). It was discovered by Campbell Bridges in 1967 in Tanzania. The first reported analysis was by Switzer in 1974 who found that it contains around 0.1 wt% vanadium. The vanadium is the 3+ oxidation state and replaces the aluminum. Lesser amounts of chromium also occur in tsavorite, and also is in the 3+ oxidation state where it also replaces aluminum and causes a green color. In most tsavorites, vanadium occurs at much higher concentrations than chromium, but in a few cases, chromium has been found to exceed the vanadium content. In each case, however, the garnets are green.

Bridges, C.R. (1974): Green grossularite garnets (‘tsavorites’) in East Africa. *Gems & Gemology*, 14, 290–295.  
 Switzer, G.S. (1974): Composition of green garnet from Tanzania and Kenya. *Gems & Gemology*, 14, 296–297.



Tsavorite is primarily a trade name. The origin of the name is the Tsavo National Park in Kenya where it was first discovered. You can read more about its history and mining at <http://tsavorite.com>. Tsavorite became a popular colored gemstone (**Figure 9**) because of marketing by Tiffany & Co. And, I might add, rather expensive when in the finest colors and larger sizes.

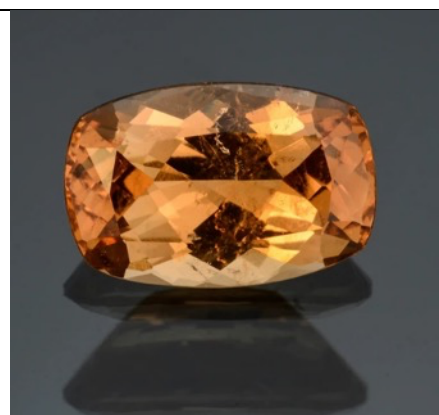




More commonly, iron and manganese are the minor components in grossular that give it color. When present in low concentrations, the grossular may be transparent and brownish-orange color. Then it is given the varietal name, hessonite (**Figures 10-12**). According to the GIA's *Gem Reference Guide*, the name comes from an ancient Greek word, ἡσσών (hēssōn), which means inferior. "Inferior" refers to the fact that hessonite has a lower hardness and lower density than many other species or varieties of garnets. If just the right ratio of Fe to Mn is present, and if they are present at sufficiently low concentrations, other attractive colored gems can occur (**Figure 13**).



**Figure 10.** Grossular, variety hessonite with Fe and Mn, from Asbestos, Canada.  
Mark Garcia photo



**Figure 11.** Faceted grossular, variety hessonite, from Asbestos, Canada. Photo: PalaGems

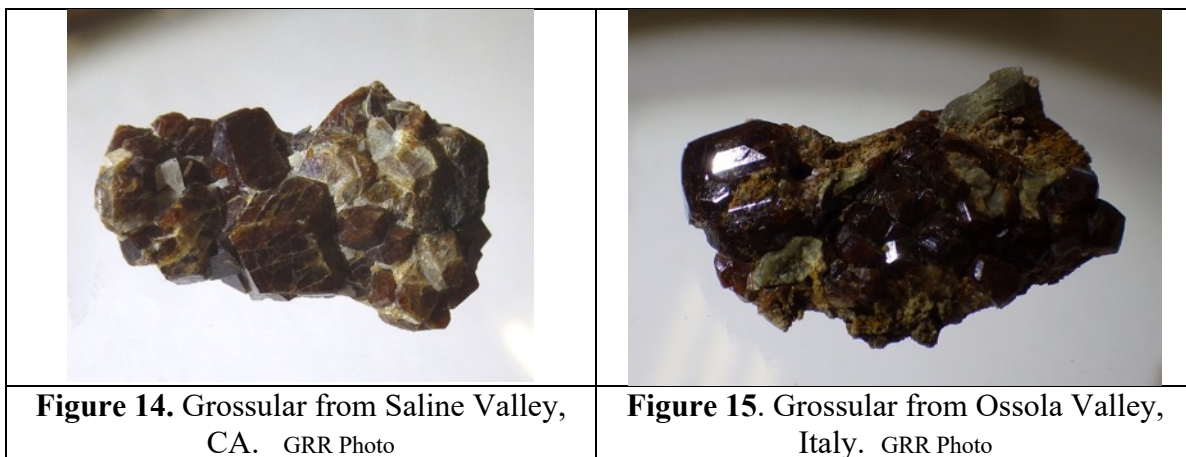


**Figure 12.** Grossular, variety hessonite, from Asbestos, Canada.  
GRR Photo



**Figure 13.** Grossular from the Umba Valley, Tanzania  
Photo: Pala Gems

With increasing amounts of mostly iron plus some manganese, grossular becomes increasingly darker (**Figures 14,15**).



Garnets, such as grossular, are members of the orthosilicate family of minerals. These minerals are also called nesosilicates. That means in the atomic structure of the garnet, each silicate ( $\text{SiO}_4$ )<sup>4-</sup> group is isolate from other silicate groups by intervening ions (Ca and Al in the case of grossular). Another way of looking at it is to say, no two silicon atoms share a common oxygen ion between them. Other orthosilicates comprise the olivine, zircon, and phenakite groups.

Grossular garnets are commonly found in skarn deposits. Skarns are coarse-grained metamorphic rocks that often form when a magma body intrudes into a pre-existing carbonate rock. Hydrothermal fluids are associated with the metamorphism and are involved with the formation of new minerals at the contact zone between the carbonates and the intruding rock body. Typical minerals in these skarns are garnets, pyroxenes and other calc-silicates. Sometimes, valuable ore-minerals containing zinc, copper, molybdenum, tin, and other elements concentrate in skarns.

We have several such skarns in Southern California, some of which are rich in garnets. Go out and find one and collect some garnets.

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## MINUTES of the September 11, 2020 General ZOOM Meeting

At 7:34 p.m., the **981<sup>st</sup> Membership Meeting** of the Mineralogical Society of Southern California (MSSC) was called to order by President Dr. Rossman, Ph.D. This is our 4<sup>th</sup> ZOOM conference meeting due to the ongoing Coronavirus (COVID-19) pandemic. We are grateful to Caltech that, through Dr Rossman, MSSC was afforded the opportunity to use the university's license for this meeting. Thanks to all who signed on to "attend". There were several member and non-member attendees, local and international and we thank you all for your interest and participation. Come again next month!

**Message from the Chair:** Dr. Rossman reported that the number of International Mineralogical Association (IMA) published and approved mineral species are now 5,617, up from last month's 5,603. George highlighted one of Tony Kampf's (along with P Elliott) contributions, the mineral *plumboperloffite*, IMA 2020-7. Plumboperloffite was collected in a feldspar and phosphate mine in Australia. That area is now a nature reserve and no more collecting is allowed. The chemical formula for plumboperloffite is:  $\text{PbMn}^{2+}_2\text{Fe}^{3+}_2(\text{PO}_4)_3(\text{OH})_3$ .

### Regular Business

**Minutes:** Dr. Rossman directed our attention to the Minutes of the last membership meeting, August 14, 2020 as published in the September 2020 *Bulletin* and asked for a motion to approve. The motion was made by M. Chorazewicz and seconded by A. Dodge. Seeing and hearing no corrections, additions or objections, the minutes were declared approved.

### Announcements and Reports:

**a) Updates (R. Lopez):** Rudy Lopez, Program Chair, announced that the Installation Banquet held in January 2021 will not occur. Instead, MSSC will meet via ZOOM and the guest presenter will be Denise Nelson. Also, next month, October 2020, will feature Karin Rice from La Brea Tar Pits with her ZOOM presentation.

**b) Field trip report (M Chorazewicz):** Marek states the (Saturday) October 24, 2020 field trip to Red Cloud Mine has not yet been cancelled. However, please check the website and/or *Bulletin* for further information and latest updates.

**c) Other announcement:** Dr. Rossman sadly reports the death of longtime member Edmund “Ed” Kiessling. Ed peacefully passed in his sleep August 23, 2020. He was 92. A Guzman added that the family will have a formal memorial service, including military honors, after COVID-19 is over. Updates will be announced and posted when they become available.

**Program:** Rudy Lopez introduced speaker, Vali Memeti from Cal State Fullerton. Rudy and Vali met at the O C Park event(s), where MSSC participates and where she simulates volcano eruptions. Dr. Memeti is a geologist whose focus is magma, its spatial and compositional evolution within plumbing systems and coupled regional tectonics in continental magmatic arcs. Basically, how volcanic and plutonic rock of the same magma plumbing system are connected to volcanic eruptions.

Dr. Memeti begins her presentation by showing a graph photo of lava flow devastation from the recent (5/8/2018) eruption at the volcano, on Kilauea in Hawaii. The expanse is huge and even 1-1/2 years later the ground is still hot!

Vali Memeti reminds us the Mt. St. Helen volcano eruption on 5/18/1980 killed 57 people. The eruption actually began January and February 1980, then earthquakes followed and finally, the volcano erupted laterally, known as a lateral blast. The magma rose and caused outward expansion of the flanks, as it continued to rise, magma was diverted and it pushed out laterally. Aside from Mt. St. Helens volcano, this type of lateral eruption occurred at Mt. Pelee (1902-Caribbean) and Mt. Etna (multiple-Sicily).

Dr. Memeti showed photos of how lateral blast caused Mt. St Helens to be 1,300 feet (400 meters) shorter!

Expulsion of magma by volume, a comparison:

- Mt. St. Helen's: 40 years ago, it erupted-laterally (blew out, not up) leaving the volcano 1,300 feet (400 meters) shorter and no conventional caldera! Magma volume =  $1\text{km}^3$ ;

- Toba in Sumatra: 74,000 years ago, erupted and left a 50-mile-long by 18-mile-wide caldera, now a huge lake. Magma volume =  $2,800\text{km}^3$ ;

- Bishop (CA Hwy 395): 760,000 years ago erupted, the rhyolitic pyroclastic flow created the Long Valley caldera (20 miles x 11 miles). Tuff deposits cover 850 sq mi and are 490' - 660' deep. Magma volume =  $1,400\text{km}^3$ ;

- Fish Canyon (Colorado): 28mya (million years ago), erupted and left the largest ever ash field of 1,200 cu. mi. and left the La Garita caldera. Magma volume =  $5,000\text{km}^3$ .

Dr Memeti mentions the Tuolumne Intrusive Complex (TIC), the “Superpluton”, in Yosemite Park, one of the most studied intrusions in the world. She talked about pluton crystals including granodiorite, plagioclase, phenocrysts, quartz, biotite and hornblende. TIC was exposed due to glaciations started 2-3mya and ended 10,000 years ago. The complex has array of magmatic impressions: (a) Kuna Crest Granodiorite is the oldest granite in TIC and has biotite and hornblende; (b) Half Dome is the granite dome at the eastern end of Yosemite that rises over 4,000'; (c) Cathedral Peak, in south central Yosemite, is an offshoot of Sierra Nevada Batholith and is mostly granodiorite and phenocrysts of microcline, and (d) Johnson Peak in Yosemite is composed of granite. Johnson Peak Porphyry is the youngest at 85mya.

Dr. Memeti and her helpers, including Chambers, Oppenheimer and Williams, have done extensive research and experiments using chemistry, scopes, graphs, slices of specimen and dig in the dirt experience to determine the structure of magma in specific parts of the plumbing system. She and her group see that magma can be (a) crystal poor, (b) crystal mush, (c) ridge sponge and, (d) solidified. She cites Miller and Paterson's (2001) work

on pluton growth and Bachman and Huber's (2019) research of crustal distillation columns and silicic magma reservoirs. Vali speaks to K-feldspar (orthoclase) megacrysts, hornblende magmas from all units have lost felsic melt – what remained in the magma chamber is a pile of crystals! And same results with plagioclase.

Vali says you can get the story of Fire and Ice Yosemite National Park on an app for your phone. Visit <http://www.travelstorys.com/tours/154/Yosemite%20National%20Park>

Dr. Memeti's presentation was chock-full of great photos and other visuals that enhanced her oral material. Rounding out her presentation, Vali showed a video of her (famous) demonstration that simulates a volcano eruption. Then, she showed it in s l o w m o t i o n. What an impact, the "ash" (water in the demonstration) coming to the surface, slowly spreading out in all directions, reaching out as far as possible, then ever so slowly drifting down, down, down only to settle where it could.

Lively Q & A followed with questions about volcano at Amboy in Mojave, Farallon Plate subduction, the 1615 Tambora eruption, and a *hypothesis* about Toba's eruption. So, the hypothesis states that ash from Toba (74,000 years ago) went to Africa and was thought to have brought humanity to near extinction, except for 2,000 people. These survivors are thought to be our ancestors. The eruption brought a 10 year long volcanic winter and killed all vegetation. Remember, a hypothesis but probably true, says Dr. Memeti.

Dr. Memeti, thank you for an interesting presentation, great photos, lots of information and, congratulations on your research and hard work. Visit us again!

Adjourn at 8:51 p.m.

Note: "Break-room" discussion continued with a few more questions about pegmatites, twin feldspars and K-feldspar collecting and other topics.

Submitted by Angie Guzman, MSSC Secretary

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

Event	Date	Comments / Scheduled Program (if known)
<b>Meeting Dates:</b>	November 13, 2020	Professor Abby Kauner UCLA: Minerals Under Pressure via ZOOM
	December 11, 2020	Renee Newman: Exotic Gems via ZOOM
	January, 2021	Denise Nelson: TBA ZOOM
	February 12, 2021	Tony Kamph: The Journey from an Unknown to a New Mineral.
<b>Board Meeting</b>	October 4, 2020	Via ZOOM
<b>Field Trip</b>	October 24, 2020	Red Cloud Mine in Arizona

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

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**OH DARN!** Did you miss the great presentation given by our own Dr. George Rossman, Ph.D., via the webinar hosted by *Mineral Talks Live!* Well, if you missed it or want to see it again, you have a chance to catch the replay (Episode 14) on



<https://www.youtube.com/watch?v=Acuzp08JeCE> or  
<https://www.facebook.com/pages/category/Community/Mineral-Talks-LIVE-106986071038407/>

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### Field Trip Information: Red Cloud Mine in Arizona

**Please check with Marek Chorazewicz [marekc@ixiacom.com](mailto:marekc@ixiacom.com) before heading out of town for this trip to be sure it hasn't been cancelled or rescheduled**

The world-famous Red Cloud Mine is still accepting people to collect **wulfenite** on dumps based on a fee. They are planning to reopen the mine in the middle of October when the heat subsides and I'm hoping that the virus



subsides by then as well. The fee per person is \$35 for groups up to 20 people, and \$20 for groups over 20 people. I'd like to know if you'd be interested in the trip on **Saturday, Oct 24th**, with a backup date on Oct 31st in case of bad weather. Some of you have attended another society trip there earlier this year so I do not expect a huge turnout. I think even if the virus is still going around, we could separate ourselves easily on the dumps. Collecting underground there is not allowed. The Mindat location is <https://www.mindat.org/loc-3348.html>

There are some options for visitors there. Pets are welcome as long as they are not harassing other guests. Primitive camping is allowed on-site, showers available, bring your own towels. There is another paid site 1.5 miles away called North Geronimo Mine, famous for the red **vanadinite** finds. The fee for this mine is \$40. Only people in good physical condition are allowed, as this is an underground dig and access involves a lot of ladder climbing. This could be an option for some people on Saturday afternoon or Sunday morning. There is an article in Mineralogical Record about this mine and the Mindat location is <https://www.mindat.org/loc-4611.html>.

The drive is very long, ~300 miles, 5 hours, from Pasadena to Yuma, AZ. The road to the mine is sandy on the way in and gets rough a few miles before the mine. The miners will bulldoze road washouts from the summer monsoons before opening the mine in October. By the way, I will not encourage carpooling on the last segment due to the virus situation, unless arranged privately before the trip. Masks will probably still be necessary, too early to say. And, important — if you feel sick close to the trip, I recommend staying home, get better, and plan for another trip.

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## In Memoriam, Edmond “Ed” Walter Kiessling

MSSC member, Edmond W Kiessling of Pasadena, CA. Ed peacefully passed away due to natural causes on August 23, 2020. He was at home, surrounded by his family. Ed was 92.



Originally from Oakland, Ed worked in San Francisco, lived throughout the state then settled in Pasadena 50 years ago. He graduated from L. A. High and received his Master's in Geology from UCLA (1958). Ed enlisted in the Army during the Korean conflict and served as a naval reservist thereafter. He served 39 years as a geologist with the California Department of Conservation, Division of Mines and Geology and retired in 1994. He had extraordinary memory of everything ever published by the Division and had a love of geologic literature.

Ed loved the outdoors, was a backpacker, a climber (climbing numerous peaks throughout the U.S.) and hiked many local trails. He was active in his community through outdoor and historical preservation and was a devout member of St Bede in La Canada.

In the late 70's, during the 80's and into the early 90's, before his retirement, Ed participated in the Mineralogical Society of Southern California (MSSC) mineral shows with his exhibits of maps and publications. Since his retirement in 1994, he continued to be affiliated with MSSC by attending meetings before becoming a member in 2003. Well into his advanced age, he still wanted to participate with MSSC and even took public transportation to get to our meetings. Ed was a knowledgeable, friendly and independent man who left a positive impression on all.

He is survived by 2 sons, 2 daughters-in-law and 4 grandsons. Due to COVID-19, formal military memorial services are postponed. The family will contact MSSC with details as they become available.

Angie Guzman, MSSC Secretary

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## Future MSSC Zoom Presentations By: Rudy Lopez

MSSC zoom meetings have become a great success, great attendance, including Indonesia! I have set up zoom meetings for the rest of the year.

we have a great list of speakers and adding more. If you have a speaker you want to present, please send me the information.

I will send an all call email each month to our members about the meeting.

For Non-Members,

If you want to participate in our future zoom meetings, please go to the MSSC website. read our Bulletin and send me an email and I will make sure you're contacted.

Email: [programs@mineralsocal.org](mailto:programs@mineralsocal.org)

Website: [www.mineralsocal.org](http://www.mineralsocal.org)

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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	Richard Stamberg	<i>No meetings now due to COVID-19</i>	

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

The **Von Kármán Lecture** on Thursday **September 17** at 7:00 PM. The event is live on Ustream.

<http://www.ustream.tv/nasajpl2> Check online for changes and other viewing options.

[https://www.jpl.nasa.gov/events/lectures\\_archive.php?year=2020&month=9](https://www.jpl.nasa.gov/events/lectures_archive.php?year=2020&month=9)

The speakers are Sasha Samochina, Deputy Manager of the Ops Lab, NASA JPL and Jason Craig, Visualization Producer, NASA JPL. The title of the presentation is **“Visualizing Space Exploration: AR, VR & Emerging Tech.”** We will explore how Augmented Reality, Virtual reality, and other forms of Mission Ops visualization can influence our Public Outreach and vice versa. As we delve deeper into the synergy of this work, we will see how it affects the way we design our spacecraft and the way we look at the world.

The **Watson Lectures** at Caltech's Beckman Auditorium are on hiatus for the summer. Hopefully, they will return in the Fall. Haven't seen a schedule yet. For online stuff at Caltech go to <http://events.caltech.edu/>

The **UCLA Meteorite Gallery** is temporarily closed until further notice, however the monthly lecture will be presented on Zoom on Sunday, **September 20** at 2:30 PM.

**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. The speaker Dr. Andrew Davis, University of Chicago. The title of the presentation is. **“Rocks and Minerals from Stars.”** One of the most remarkable discoveries of the twentieth century is that some meteorites contain dust grains made around other stars that lived and died more than 4.5 billion years ago, before our Solar System formed. Stars only twice the mass of our Sun eventually turned into red giant stars and lost much of their mass as gas and dust. More massive stars ended with spectacular explosions called supernovae, and throw off much of their mass. Both kinds of stars return copious amounts of dust to the interstellar medium (the stuff

between the stars), a portion of which formed new stars like our own, and we have recognized dust grains from both red giants and supernovae in meteorites. Each dust grain retains a chemical and isotopic record of the star around which it formed and by analyzing individual dust grains in the laboratory, we can study the interiors of stars in ways not possible by astronomy with telescopes. The study of stardust in the laboratory has led to new understanding of how the chemical elements are made in stars. Stardust was also not uniformly mixed into the solar nebula, the disk of gas and dust from which the Sun and planets formed. This caused small differences in isotopic composition among Solar System materials that have proven to be powerful tracers of the relationships between planets and different kinds of meteorites. Visit the website and check on events and videos and other neat things about meteorites: <https://meteorites.ucla.edu>

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<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 1855 Idlewood Road, Glendale, CA 91202</b>			

## *With Knowledge Comes Appreciation!*

### Calendar of Events: The only Southern CA show currently still active for October, 2020

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



**Fallbrook Gem & Mineral Society**

# FALL FESTIVAL OF GEMS

**Sunday, October 11th**  
9am to 4pm

**Everyone is welcome to our FREE annual event!**

Artisan  
Jewelry, Gemstones,  
Minerals, Fossils,  
**REINVENTED**  
Raffle Prizes,

**NEW LOCATION!**  
**IN THE PARKING LOT**  
**across the street**  
123 W. Alvarado Street, Fallbrook  
(760) 728-1130 - [www.fgms.org](http://www.fgms.org)

[@FallbrookGems](https://www.facebook.com/FallbrookGems)

**YES!!!** The Fallbrook Gem & Mineral is excited to announce that we have reinvented the Fall Festival of Gems and will be holding it in the parking lot across the street on Sunday October 11th!

We will be following County, State, and CDC guidelines. We want to ensure the safety of our members, vendors, and the general public.

- Masks are required
- Social distancing will be practiced
- Hand sanitizer stations will be available at every booth
- There will be wide aisles and one-way traffic flow

We hope that you are as excited as we are.

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## Featured Mineral **Kermesite**

**Formula**  $\text{Sb}_2\text{S}_2\text{O}$

**Crystal System:** Triclinic

**Name** From Greek kermes (from the Persian "qurmizq", "crimson"), a name (in the older chemistry) for red amorphous antimony trisulphide, often mixed with antimony trioxide.



© Irocks

**Kermesite**  $\text{Sb}_2\text{S}_2\text{O}$  , **Quartz**  $\text{SiO}_2$

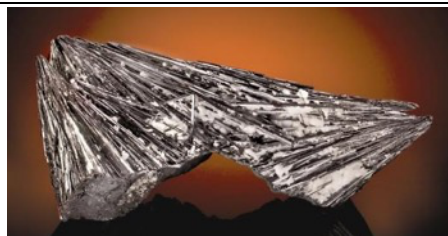
**Locality:** Neue Hoffnung Gottes Mine, Bräunsdorf, Niederwiesa, Mittelsachsen, Saxony, Germany  
2.6 cm x 2.5 cm x 2.2 cm



© Irocks

**Kermesite**  $\text{Sb}_2\text{S}_2\text{O}$  ,  
**Calcite**  $\text{CaCO}_3$

**Locality:** Kolársky vrch deposit, Pezinok, Pezinok District, Bratislava Region, Slovakia  
3.4 cm x 2.8 cm x 1.8 cm



© Irocks

**Kermesite**  $\text{Sb}_2\text{S}_2\text{O}$

**Locality:** Kermesite occurrence, Dafeng, Shanglin County, Nanning, Guangxi, China  
21 cm.



© Irocks

**Kermesite**  $\text{Sb}_2\text{S}_2\text{O}$

**Locality:** Kolársky vrch deposit, Pezinok, Pezinok District, Bratislava Region, Slovakia  
9.7 cm x 8.0 cm x 1.8 cm



© Irocks

**Kermesite**  $\text{Sb}_2\text{S}_2\text{O}$

**Locality:** Anzac Mine, Kwekwe District, Midlands, Zimbabwe  
3.3 cm x 1.3 cm x 0.5 cm

*With Knowledge Comes Appreciation !*



## 2020 MSSC Officers:

<b>OFFICERS</b>		
President	George Rossman	<a href="mailto:president@mineralsocal.org">president@mineralsocal.org</a>
Vice President	Ahni Dodge	<a href="mailto:vicepresident@mineralsocal.org">vicepresident@mineralsocal.org</a>
Secretary	Angie Guzman	<a href="mailto:secretary@mineralsocal.org">secretary@mineralsocal.org</a>
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2019--2020	Leslie Ogg	
2020-2021	Pat Caplette	
2020-2021	Currently open	
<b>COMMITTEE CHAIRS</b>		
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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 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 \$20.00 fee if you prefer paper bulletins mailed to your address. The Society's contact information:

**Mineralogical Society of Southern California**

**1855 Idlewood Rd.,**

**Glendale, CA 91202-1053**

**E-mail:** [treasurer@mineralsocal.org](mailto:treasurer@mineralsocal.org)

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

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

To:



**With Knowledge Comes  
Appreciation**

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