



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

Volume 92 Number 5 - May, 2019

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*The 968<sup>th</sup> meeting of the Mineralogical Society of Southern California*

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*With Knowledge Comes Appreciation*

**May 10<sup>th</sup>, 2019 at 7:30 P.M.**

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

***Program:* Chasing Color; Mining Boulder Opal in Australia  
Presented by the Webers**

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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: Chasing Color; Mining Boulder Opal in Australia

During their year-long “walkabout”, geologists Dick and Mary Pat Weber visited most of the major opal mining districts of Australia. Their favorite area was the boulder opal deposits in the channel country of Queensland. Miners live under primitive and hazardous conditions in a remote area of the Outback, where there are more snakes, lizards and kangaroos than people.

Unique to the region, this opal is found in massive ironstone concretions of Cretaceous age. Through the generosity of their friends at Broken River Mining, they learn how this material is mined and processed in order to bring the world's most beautiful opal to market.



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### From the Editor:

This has been a challenging month for me. I'm in the middle of cataract surgery, one eye is done and healing slowly and I've delayed the other eye for another 2 weeks at least. I'm not able to wear my glasses yet, one eye needs them and the other eye can't use them. The corrected eye works part of the time but it has to learn how to use the new multi-distance lens and that's taking time. Oh well, I'll just keep plugging on...Linda Elsnau

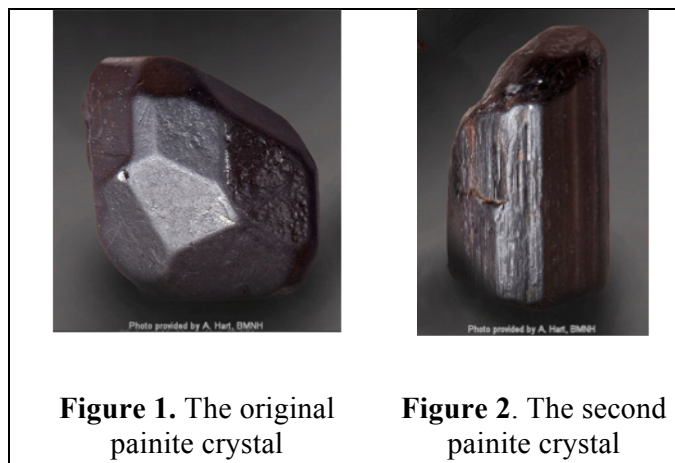
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## From the President: Interesting Minerals, A to Z. Installment 16, the letter “P”: by George Rossman

### Painite, $\text{CaZrB}[\text{Al}_9\text{O}_{18}]$

Let's talk about rare minerals. Twenty years ago, painite was considered one of the rarest minerals on the planet and was also considered to be the rarest gemstone. The first example was a 1.7-gram crystal discovered in Burma in the early 1950's. It was found by A.C.D Pain in a gemstone field near Ongaing, a small village near Mogok, Burma. Pain donated the sample to the British Museum of Natural History in London (their sample number: 1954,192) where it is on display today (**Fig. 1**).

Claringbull et al. studied the mineral and, in 1957, wrote an article about it in Mineralogical Magazine. Paul B. Moore, a professor at the University of Chicago, removed a small slab from it, solved its structure and presented an article about it in American Mineralogist in 1976.



**Figure 1.** The original painite crystal

**Figure 2.** The second painite crystal

Claringbull GF, Hey MH, Payne CJ (1957) Painite, a new mineral from Mogok, Burma.

Mineralogical Magazine 31, 420-425.

Moore PB, Araki T (1976) Painite,  $\text{CaZrB}[\text{Al}_9\text{O}_{18}]$ : Its crystal structure and relation to jeremejevite,  $\text{B}_5[\text{Al}_6(\text{OH})_3\text{O}_{15}]$ , and fluoborite,  $\text{B}_3[\text{Mg}_9(\text{F},\text{OH})_9\text{O}_9]$ . American Mineralogist 61, 88-94.

Later, a second crystal (**Fig. 2**) made it way to the British Museum. But it has never been studied in detail. And for nearly a quarter century, that was the extent of known painites in the world. Even though only two crystals were known to exist and no gemstones had been made from painite, painite was still listed as the rarest gemstone.

A third painite (**Fig. 3**), a small prismatic crystal fragment, was discovered in 1979 at the Gemological Institute of America in a parcel of gemstone rough from Burma. That and a small slice of Painite #1 that was used for the

X-ray structure determination made its way to Caltech. There, together with researchers at the GIA and the LA County Museum of Natural History, additional studies of their compositions, color and other properties were conducted in 1986.

Shigley JE, Kampf AR, Rossman GR (1986) New data on painite. *Mineralogical Magazine* 50, 267-70.

Two additional painite crystals were found prior to 2002, all coming from the vicinity of Mogok, Myanmar. One of them was even cut into a gemstone. So, now we do have the rarest gemstone.

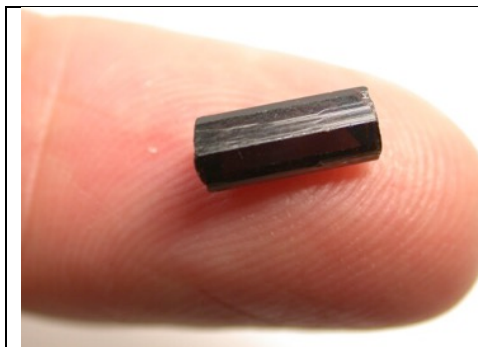
A second locality for painite was recognized after this author purchased two small painite crystals in Namya, northern

Myanmar, in 2002 (**Fig. 4**). The cost was only \$10.00 for two of them, in a bag that included a lot of spinels and corundums and zircons. Of course, when they were purchased in the bag of small-sized gem rough, neither buyer nor seller knew that painites were in the bag. News of this discovery was relayed to geologists in Myanmar and efforts were soon underway to find more in the northern province. Successful efforts, it turned out. By 2005, a total of 22 painites were discovered near Mogok and Namya. Many of them were studied in Pasadena. Studies of the inclusions in the new painite crystals were published, and the results of these studies quickly made their way back to Myanmar. These studies described the geologic environment in which the painites formed – skarn deposits. Within a few weeks, the Burmese discovered the outcrops where painites occur and within a few months, hundreds of painites entered the world's markets. Many of them came to Southern California to Pala International's store in Fallbrook, CA, where more were made available for research locally. They included crystals from the original localities near Mogok, Myanmar (**Figure 5**) and from the northern part of the country near Namya (**Figure 6**). By the end of 2005, painite was no longer the world's rarest mineral or its rarest gemstone. Rarity is fleeting.

Painite had been an extremely rare gem. Even today, relatively few are nicely transparent and of a suitable color. The Natural History Museum of Los Angeles County has a nice example (**Fig. 7**).

And, gems attract gems. Several of the newly discovered painites were partly replaced by rubies (**Fig. 8**)

We can ask, why is painite red to brownish-red. It is because it contains a few tenths of a weight percent of chromium and vanadium and a trace of iron. Just as is the case for the rubies, the chromium is primarily responsible for painite's color.



**Figure 3.** Painite #3. The author's finger for scale



**Figure 4.** One of two small painites from Namya.



**Figure 5.** Painite crystals from the Mogok region of Myanmar.

*Photo Credit: GRR*



**Figure 6.** A light pink painite crystal from the Namya region of Northern Myanmar.

*Photo Credit: PalaGems.*





Photo Credit: Tony Kampf, Natural History Museum, LA County  
**Figure 7.** A painite gemstone in Los Angeles.



**Figure 8.** A 4.5 cm painite crystal mostly replaced by rubies. Photo Credit: GRR

If painite is no longer such an extremely rare gem, what is now the world rarest gem? It is kyawthuite (**Fig. 9**), named for a Burmese geoscientist-gem dealer. Only one example of the mineral is known to exist. And that one piece is a faceted gemstone that was initially found as an alluvial pebble in

Myanmar. Only after it was faceted into a gemstone was it realized that it was an unidentified mineral. It ultimately came to Los Angeles for detailed characterization.

Kampf AR, Rossman GR, Ma C, Williams PA (2017) Kyawthuite,  $\text{Bi}^{3+}\text{Sb}^{5+}\text{O}_4$ , a new gem mineral from Mogok, Burma (Myanmar). *Mineralogical Magazine* 81, 477-484.

And what now is the rarest mineral? That is a little bit more difficult to determine. It probably is a recently described micro mineral found in a meteorite. Monipite,  $\text{MoNiP}$ , is known to exist only as a single  $1 \times 2$  micrometer crystal (**Fig. 10**). I bet you don't have that in your mineral collection!

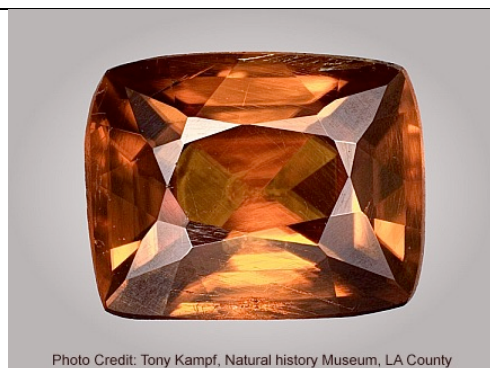
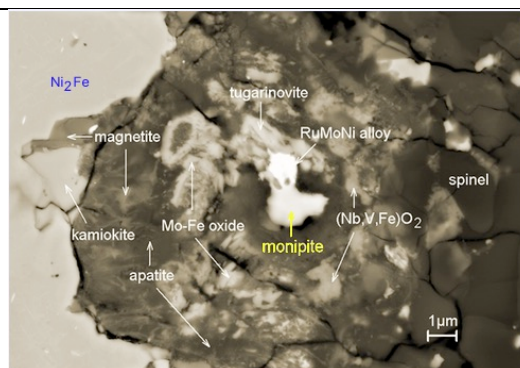


Photo Credit: Tony Kampf, Natural history Museum, LA County  
**Figure 9.** The only known example of kyawthuite



**Figure 10.** A scanning electron microscope image of the only known crystal of monipite in a slice of the Allende, Mexico, meteorite.

Image Credit: Chi Ma  
 Ma C, Beckett JR, Rossman GR (2014) Monipite,  $\text{MoNiP}$ , a new phosphide mineral in a Ca-Al-rich inclusion from the Allende meteorite. *American Mineralogist* 99, 198-205.

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## MINUTES of the April 12, 2019 General Meeting

### Call to Order:

On Friday, April 12, 2019, the 967<sup>th</sup> **Membership Meeting** of the Mineralogical Society of Southern California (MSSC) was called to order at 7:30 p.m. by President Dr. George Rossman, Ph.D.

### President's Opening Remarks:

Dr. Rossman begins the meeting by talking about certain minerals that contain organic components. For example, Abelsonite, new minerals from Russian coal mines and discoveries at the Weddell Sea in Antarctica. Also of interest, recently announced this month, vanadium hydride,  $\text{VH}_2$ , inclusions found in ejected material from pyroclastic eruptions at Mount Carmel, Israel.  $\text{VH}_2$  is the first hydride mineral ever found in nature!

[Secy Note: Dr. George provided several chemical formulas and structures but there is not enough room to recreate them here.].

## **Business and Reports:**

Dr. Rossman asked for a **Motion to approve the Membership Meeting MINUTES of March 8, 2019** as published in the April 2019 *Bulletin*. The Motion was made by R. Lopez and seconded by M. Chorazewicz. The President asked for corrections or any additions, hearing none, called for the vote to approve. A voice vote was taken, and the MINUTES were **approved unanimously**.

## **Field Trip Report** - M. Chorazewicz:

The Siberia Crater (Dish Hill) field trip was made [visit <http://www.mineralsocal.org/bulletins/>] where 3 minerals were found that had not previously been found at that location! True, they were microscopic, seen at 200x magnification, but a great find nevertheless!

The next trip will be Saturday, April 13, at the borate area of Calico Mountains. The search will be for celestine crystals and colemanite geodes. Also, keep an eye out for fossils in shale. Bob Housley mentioned a fossil leaf was found on the last trip there, close to where the fossil insects and celestine crystals were found. There are other opportunities, as well: search for iron sulfates at Sulfur Hole just around the corner from the mine, a visit to the famous Calico Ghost Town or go to check out the nearby Maggie Silver Mine tunnels. This looks to be a great field trip.

Marek brought collected specimens of gypsum and colemanite from last month's trip. See them after the meeting.

## **Programs Chair Report** - R. Lopez:

Rudy reported that the 5<sup>th</sup> annual Nature Fest held at the LA County Museum on March 16-17, 2019, was a success, and, there were a lot of kids and parents that stopped by the booth. A good number of kids wanted to do the crystal cut-outs and, of course, all the kids got to pick a mineral to take home. Thanks to all who came out and volunteered. Rudy prepared a short, fun Power Point of the event and MSSC's participation. Thanks, Rudy!

Rudy will again participate in the home school event this time called "Mineral Collecting of the Future", a micromount lesson for youngsters. He has been in contact with Dino Lite Microscope, who will lend several microscopes for the event. Rudy will oversee 8-10 tables and conduct how-to sessions on micro mounting minerals. Rudy is looking for donations of small plastic boxes, new or used, for micromounts. Check in the *Bulletin* or on the website for further details, or, contact Rudy directly.

## **Program**

Program Chair Lopez introduced the night's speaker, Dr. George Rossman, Ph.D. Dr. Rossman is Professor of Mineralogy at California Institute of Technology, Caltech. He has expertise in Inorganic Chemistry, Mineralogy, Spectroscopy and Geochemistry. Dr. Rossman is extensively published and is recipient of many awards including Caltech's most prestigious teaching honor, the Richard P. Feynman Prize. *Rossmannite*, a mineral species of the tourmaline family, is named after him. Dr. Rossman is the President of Mineralogical Society of Southern California, MSSC. His presentation is entitled: "Tales of Manganese Oxides."

Beginning his presentation, Dr. Rossman tells us he will talk about petroglyphs, desert varnish, mineral species, dendrites, nodules and government intrigue, all itself sounding intriguing.

When we think of petroglyphs, images created by removal of parts of rock surfaces, we generally think of drawings in caves and other rock faces that were made by ancient peoples. The images depict animals, man, nature and other objects. Other types of petroglyphs include application of chalk-type substance or some form of a dye on the rock surface, as well. In the western USA, manganese oxides play an important role on the rock surfaces used to make petroglyphs

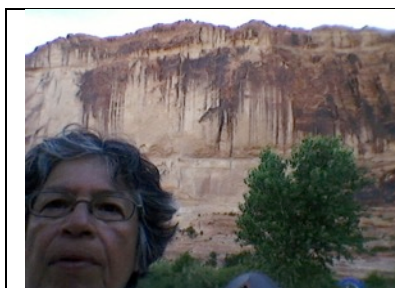
Desert varnish, is a dark, shiny film or coating covering some rock surfaces that had been created by moisture and airborne particles containing manganese over a very long period of time. There is unproven hypothesis concerning bacterial, microbial action associated with the rock and desert varnish. That aside, an example of desert varnish can be seen on the rock walls at Zion National Park and other locations (see below).

Aside from birnessite, iron oxide (hematite) also has an effect on rock, many times showing a reddish or rust color. As for desert varnish, Dr. Rossman tells us that the deeper the color coating, the older the rock. This is the mineralogy of desert varnish.

The primary matrix of desert varnish is clay, which locally, consists of illite (resembles mica) and montmorillonite (a soft phyllosilicate group of mineral

crystals that form when precipitated from water solution (aluminum-rich clay). The black-ish materials have ~30% oxides while the orangey materials have ~10%. Nearby at Stoddard Wells, half buried rhyolite rock is coated with desert varnish on the exposed portion of a rock. After unearthing the rest of the rock, below the ground line, there is no evidence of dark desert varnish but an orange coating had developed. Note, the Stoddard Wells area is no longer a good place to locate desert varnish due to the high volume of off-road activity there. The photo Dr. Rossman showed was an amazing specimen.

Dr. Rossman spoke about the atomic structure, layering and open channels within the manganese oxides:



Desert Varnish, Moab, Utah, June 2014  
Angie Guzman in foreground.  
Photo by Angie Guzman

Both petroglyphs and desert varnish display the manganese oxide known as birnessite (that also contains small amounts of calcium, sodium and potassium).

1 <sup>st</sup> order for Manganese Oxide: $MnO_2$		channel size	examples
Can tell these apart using R=pb infrared methods	Ramsdellite ( $Mn^{4+}O_2$ )	2x1	goes to Goethite
	Romanechite ( $Ba, H_2O)_2(Mn^{4+}, Mn^{3+})_5O_{10}$	2x3	psilomelane, So. Dakota, Barstow
	Hollandite Group (various chem.)	2x2	cryptomelane R=k; coronadite
	Todorokite (various chem.)	3x3 also 4x3	Pala White Queen Mine
	Birnessite (various chem..)	$\infty$ (infinity)	like mica, Maine lead mine
Pyrolusite – infrared ( $Mn^{4+}O_2$ )		1x1	close to Maine lead mine
Nsutite- infrared ( $Mn^{4+}, Mn^{2+})(O, OH_2)$		2x1, 1x2	Mina de Azul, Brazil

Dendrites can be the mineral species birnessite, nsutite and todorokite, but not pyrolusite. Dendrites are crystalline structures that resemble trees. They “grow” on rocks, as actually superficial deposits of manganese oxide that then crystallize.

Dr. Rossman moves on to deep sea nodules. Manganese nodules are rock concretions at the bottom of the sea. They grow when metal compounds of manganese, nickel and cobalt dissolve in water columns or in water contained in sediment.

And lastly, to the government intrigue, “...we can neither confirm nor deny...”. In the late 1960’s, a Russian submarine sank in the Pacific Ocean. The US was interested in locating the sub to see if it could be raised. In the 1970’s, the USNS Hughes Glomar Explorer, a deep-sea drilling ship was dispatched, by the CIA, under the auspices to locate our very own manganese oxide deep sea nodules. However, the real purpose was to covertly locate and raise the lost Russian submarine. The Russian sub was found but efforts to raise her were attempted but failed – the sub broke in half and could not be recovered. Sadly and worst of all, no manganese oxide deep sea nodules were collected during that mission.

Great presentation! Q&A followed with lots of interesting conversation. Thank you, Dr. George.

Notice: NASA has released the first photograph of a black hole. The amazing photo was a collaborative effort and one of the key persons, Dr. Katie Bouman, Ph.D., will be soon be an Assistant Professor at Caltech.

## **Guests**

Dr. Rossman asked if there were any guests and, if so, would they introduce themselves. Mike Blais, who volunteered at the Nature Fest and Karen Childs, who is working with the Rock Currier collection at Jewel Tunnel Imports were guests.

## **Announcements:**

Ann Meister announced the Von Karman lecture on April 19<sup>th</sup> ("The Future is Cloudy, NASA's Look at Clouds and Climate") and the Watson lecture on April 24<sup>th</sup> ("The Mind's Eye: Richard Feynman in Word and Image.")

**Door Prize** drawing was won by Marek Chorazewicz. Congratulations, Marek!

**Adjourn:** The meeting was adjourned at 8:35pm. Refreshments and good conversation served in the break room.

Respectfully submitted by Angela Guzman, MSSC Secretary (Advance apologies for misspelled names, elements and/or other words. )

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

Event	Date	Comments / Scheduled Program (if known)
<b>Meeting Dates:</b>	June 14, 2019	Bruce Carter – Mineralogical – Santa Cruz Island
	July 12, 2019	Peter Goetz: Slovakian Opal - Beautiful opal mines in eastern Slovakia
	August, 2019	MSSC Annual Picnic
	September 13, 2019	Eric Scerri: A Tale of Seven Elements
<b>Board Meeting</b>	June 9, 2019	Board Meeting at Bruce Carter's house
<b>Field Trip</b>		<i>No Field Trip Scheduled at this time</i>

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

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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	North Orange County, near Cal State Fullerton	<i>See email Bulletin</i>

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## **DONATION TO MSSC FROM THE ROCK CURRIER TRUST**

MSSC has received a donation from The Rock H. Currier Living Trust of more than 1000 (empty) micromount boxes, various micro mounting supplies and a copy of Milton L. Speckles' book, *The Complete Guide to Micromounts*. Along with his fabulous macro-mineral collection, Rock had an extensive micromount collection (more than 7000 mounts) that was sold at Tucson in 2019. For those of you who never knew Rock, he was President of MSSC and an active member for many years. For more information, see the Rock Currier Collection page on the internet ( <http://www.rockcurrier.com/> ).



## Rock Currier Minerals to be auctioned:

There was an announcement in the April, 2019 Mineralogical Record Newsletter that over 300 of Rock's finest minerals will be auctioned at Heritage Auction Gallery, Slocum Gallery Annex, 1518 Slocum Street, Dallas, Texas, on Monday, **August 26th, 2019**. They haven't indicated a date when the catalog will be available, but you can check their website: [www.ha.com](http://www.ha.com)

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### May Featured Mineral: **Creedite**

**Formula:**  $\text{Ca}_3\text{SO}_4\text{Al}_2\text{F}_8(\text{OH})_2 \cdot 2\text{H}_2\text{O}$

**Crystal System:** Monoclinic

**Name:** After the type locality, in the Creede quadrangle, Colorado.



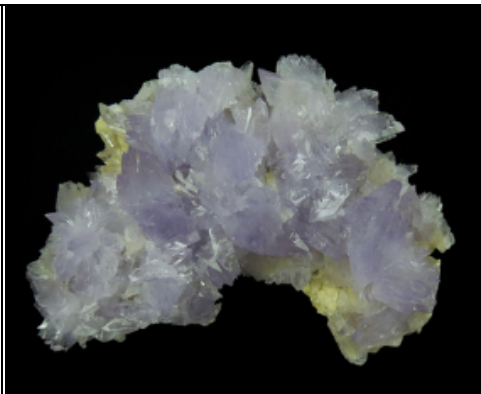
© irocks.com photo

#### **Creedite**

$\text{Ca}_3\text{SO}_4\text{Al}_2\text{F}_8(\text{OH})_2 \cdot 2\text{H}_2\text{O}$

**Locality:** Navidad Mine, Abasolo, Rodeo, Rodeo Municipality, Durango, Mexico

8.4 cm x 6.9 cm x 5.7 cm



© irocks.com photo

#### **Creedite**

$\text{Ca}_3\text{SO}_4\text{Al}_2\text{F}_8(\text{OH})_2 \cdot 2\text{H}_2\text{O}$

**Locality:** San Antonio Mine, East Camp, Santa Eulalia District, Aquiles Serdán Municipality, Chihuahua, Mexico

5.0 cm x 3.5 cm x 1.6 cm



© irocks.com photo

#### **Creedite**

$\text{Ca}_3\text{SO}_4\text{Al}_2\text{F}_8(\text{OH})_2 \cdot 2\text{H}_2\text{O}$

**Locality:** Qinglong Mine, Dachang Sb ore field, Qinglong Co., Qianxi'nan, Guizhou, China

4.2 cm x 3 cm x 1.6 cm



© irocks.com photo

#### **Creedite**

$\text{Ca}_3\text{SO}_4\text{Al}_2\text{F}_8(\text{OH})_2 \cdot 2\text{H}_2\text{O}$

**Locality:** Akchatau Mine, Akchatau, Shet, Karaganda Region, Kazakhstan

4.0 cm x 3.3 cm x 2.7 cm



© irocks.com photo

#### **Creedite**

$\text{Ca}_3\text{SO}_4\text{Al}_2\text{F}_8(\text{OH})_2 \cdot 2\text{H}_2\text{O}$

**Locality:** Akchatau Mine, Akchatau, Shet, Karaganda Region, Kazakhstan

3.2 cm x 2.3 cm x 1.9 cm



© irocks.com photo

#### **Creedite**

$\text{Ca}_3\text{SO}_4\text{Al}_2\text{F}_8(\text{OH})_2 \cdot 2\text{H}_2\text{O}$

**Locality:** Granite camp, Lodi District, Lodi Hills, Nye Co., Nevada, USA

4.3 cm x 3.9 cm x 3.6 cm



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

The **Von Kármán Lecture** on \*Thursday/Friday\* **May 9 and 10** at 7 PM. The speakers "To-Be-Announced". The title of the presentation is "**Cubesats.**" Some are the size of a toaster. Others a suitcase. They can ride into space as secondary payloads in a rocket's "trunk," or even be tossed out of an airlock, to start their missions. Small satellites often collectively called "cubesats," are changing the way we explore space and monitor our home planet. \*\* 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, **May 29** at 8 PM. The speaker is Linda Hsieh-Wilson. The title of her talk is, "**Sugars: The Underappreciated Building Blocks of Life.**" Sugars, also called glycans, are one of the four major classes of macromolecules that make up living systems (along with proteins, nucleic acids, and lipids). Glycans assemble into complex structures on the surfaces of cells, forming a thick, fuzzy coating that surrounds cells and modulates the ability of cells to communicate (with other cells). In her lecture, Linda Hsieh-Wilson will describe the development of new tools to help researchers uncover the roles of glycans in the brain, including their participation in neurological and psychiatric disorders such as Alzheimer's and autism.

The **UCLA Meteorite Gallery** lecture is on Sunday, **May 12**. The speaker is **Dr. Ashwin Vasavada** of JPL, Project Scientist for the Curiosity Mars Rover. His title is "**Curiosity Rover, Gale Crater and evidence of flowing water on Mars.**" Nearly seven years after its dramatic arrival at Mars, the Curiosity Rover continues to reveal Mars as a once-habitable planet. Streams and lakes persisted there for millions of years and created landforms that Curiosity explores within Gale crater. While the water has long since disappeared, shifting sands and seasonal cycles of methane gas reveal a dynamic planet today. This talk will cover the latest findings from the mission, some striking images, the challenges of exploration, and what lies ahead. The 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.

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# West Coast Gem & Mineral Show

## May 10 - 12, 2019



75 Select Retail & Wholesale Dealers' Minerals ♦ Fossils Gems ♦ Jewelry Lapidary ♦ Home Decor and much more!

Approved, Salt Brines, etc. etc. Hosted by JMA Society Mineral Show Committee

**NEW LOCATION!!!**

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MSSC Advertisement Policy:			
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	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:**

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

#### **MAY, 2019**

##### **May 3, 4, 5 & 6: YUCAIPA, CA**

Yucaipa Valley Gem & Mineral Society

Yucaipa Music & Arts Festival

Yucaipa Blvd and Adams Street

Hours: Fri 6 pm-10 pm; Sat 12 noon-10 pm: Sun 12 noon-6 pm

Website: [yvgms.org](http://yvgms.org)

##### **May 4 - 5: ANAHEIM, CA**

Searchers Gem & Mineral Society

Brookhurst Community Center

2271 W. Crescent Avenue

Hours: Sat 10 - 5; Sun 10 - 4:30

Website: [searchersrocks.org](http://searchersrocks.org)

#### **JUNE**

##### **June 7, 8 & 9: LA HABRA, CA**

North Orange County Gem & Mineral Society

La Habra Community Center

101 W. La Habra Blvd.

Hours: Fri 5 - 8; Sat 10 - 8 & Sun 10 - 4

Website: [www.nocgms.com](http://www.nocgms.com)

##### **June 8 - 9: GLENDORA, CA**

Glendora Gems

Goddard Middle School

859 E. Sierra Madre Avenue

Email: [ybidwell2@aol.com](mailto:ybidwell2@aol.com)

##### **June 29 - 30: CULVER CITY, CA**

Culver City Rock & Mineral Club

Veterans Memorial Auditorium

4117 Overland Blvd

Hours: Sat 10 - 6; Sun 10 - 5

Website: [culvercityrocks.org](http://culvercityrocks.org) [Show Page](#)

##### **June 29 - 30: ESCONDIDO, CA**

Palomar Gem & Mineral Club

California Center for the Arts

340 N. Escondido Blvd.

Hours: 10 - 5 daily

Website: [palomargem.org](http://palomargem.org) [Show Page](#)

#### **JULY**

No CFMS Shows scheduled for July

## 2019 MSSC Officers:

<b>OFFICERS</b>		
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>
Secretary	Angie Guzman	<a href="mailto:secretary@mineralsocal.org">secretary@mineralsocal.org</a>
Treasurer	Jim Kusely	<a href="mailto:treasurer@mineralsocal.org">treasurer@mineralsocal.org</a>
CFMS Director	Jo Anna Ritchey	
Past President	Ann Meister	
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2019--2020	Bruce Carter	
2019--2020	Bob Housley	
2019--2020	Leslie Ogg	
2018-2019	Pat Caplette	
2018-2019	Pat Stevens	
<b>COMMITTEE CHAIRS</b>		
Bulletin Editor	Linda Elsnaue	<a href="mailto:bulletin@mineralsocal.org">bulletin@mineralsocal.org</a>
Hospitality	Laura Davis	
Membership	Cheryl Lopez	<a href="mailto:membership@mineralsocal.org">membership@mineralsocal.org</a>
Micro Mount Conf. Chairman	Al Wilkins	
Program and Education	Rudy Lopez	<a href="mailto:programs@mineralsocal.org">programs@mineralsocal.org</a>
Publicity	Linda Elsnaue	<a href="mailto:bulletin@mineralsocal.org">bulletin@mineralsocal.org</a>
Webmaster	Leslie Ogg	<a href="mailto:webmaster@mineralsocal.org">webmaster@mineralsocal.org</a>

### About the Mineralogical Society of Southern California

Organized in 1931, the Mineralogical Society of Southern California, Inc. is the oldest mineralogical society in the western United States. The MSSC is a member of the California Federation of Mineralogical Societies, and is dedicated to the dissemination of general knowledge of the mineralogical and related earth sciences through the study of mineral specimens. The MSSC is a scientific non-profit organization that actively supports the geology department at Pasadena City College, Pasadena, California. Support is also given to the Los Angeles and San Bernardino County Museums of Natural History. The Bulletin of the Mineralogical Society of Southern California is the official publication of the Mineralogical Society of Southern California, Inc.

The MSSC meetings are usually held the second Friday of each month, January, February and August excepted, at 7:30 p.m. in Building E, Room 220, Pasadena City College, 1570 E Colorado Boulevard, Pasadena, California. The annual Installation Banquet is held in January, and the annual Picnic and Swap Meeting is held in August. Due to PCC holidays, meetings may vary. Check the Society website for details.

The Society also sponsors the annual Pacific Micro mount Symposium held at the San Bernardino County Natural History Museum during the last weekend of January.

Annual Membership dues for the MSSC are \$20.00 for an individual membership, \$30.00 for a family membership. Bulletins are delivered by email, there is an additional annual \$20.00 fee if you prefer paper bulletins mailed to your address. The Society's contact information:

**Mineralogical Society of Southern California**

**1855 Idlewood Rd.,**

**Glendale, CA 91202-1053**

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

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

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MSSC Bulletin Editor  
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Glendale, CA 91214-2415

*To:*



**With Knowledge Comes  
Appreciation**

**Your MSSC  
Bulletin Is  
Here!**