



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

Volume 92 Number 6 - June, 2019

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*The 969<sup>th</sup> meeting of the Mineralogical Society of Southern California*

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*With Knowledge Comes Appreciation*

**June 21<sup>st</sup>, 2019 at 7:30 P.M.**

**Special Note: The June, 2019 Meeting is the THIRD Friday of the month!**

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

**Program : Tectonic Geomorphology and the Generation of Mega-floods on Santa Cruz Island, California: An Example of How Detailed Mineralogy Can Shed Light on Major Geologic Events, presented by Bruce Carter**

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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: Tectonic Geomorphology and the Generation of Mega-floods on Santa Cruz Island, California: An Example of How Detailed Mineralogy Can Shed Light on Major Geologic Events,**  
presented by Bruce Carter

Santa Cruz Island is part of the Channel Islands National Park that is one of the least visited of all the nation's National Parks. Because of its limited access, the island hides many secrets, including evidence of catastrophic events that have implications for many other parts of California. This presentation will give people a sense of what it is like to explore some of the remotest parts of Santa Cruz Island and study geologic features of great significance to all Californians. In particular, it is the detailed understanding of mineralogy that provides the key to recognizing and interpreting several catastrophic events that have affected southern California over the past hundreds to hundreds of thousands of years.

This presentation will give a sense of what it is like to explore the remote interior of Santa Cruz Island, including the steep terrain, rough roads, beautiful shoreline coves, unique ecosystems and well-preserved record of ancient human habitation of Santa Cruz Island. It will help you understand how unexpected geologic features; subtle landscape forms and surprising mineralogical details can lead to recognition of major geological events of great relevance to all Californians.

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**From the Editor:**

Wow, here we are at the middle of 2019 already! They say time flies when you are having fun! This has been a pretty good year for MSSC so far, yes? Excellent speakers for our meetings, a few field trips, an excellent micromineral conference and plenty of fine time spent with like minded mineral enthusiasts. We have more meetings and an annual picnic to look forward to before 2019 ends. Yep, looks like another great year for MSSC!

What can you, our members do to help keep MSSC the great club it is? Now is the time to think about how and where your talents and interests might be helpful. Have you ever wondered what is involved in any of the officer/chair positions within MSSC? Perhaps you could spend some time talking to the current position holders about what they do for MSSC and how much time is involved. Volunteer to help the person currently doing the job you think you may be of interest to you. The end of the year and the nominations aren't that far away. Linda Elsnau

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**FROM THE PRESIDENT: Interesting Minerals, A to Z. Installment 17, the letter "Q":** by George R. Rossman

**Quartz.**

No, that is too easy. We all know something about quartz. Let's discuss a much less-well-known mineral: qingheiite-(Fe<sup>2+</sup>).

**Qingheiite-(Fe<sup>2+</sup>)** is a sodium iron magnesium aluminum phosphate found in phosphate pegmatites (Fig. 1). Its chemical formula is Na<sub>2</sub>Fe<sup>2+</sup>MgAl(PO<sub>4</sub>)<sub>3</sub>. It is the Fe<sup>2+</sup> analogue of the manganese mineral qingheiite, Na<sub>2</sub>MnMgAl(PO<sub>4</sub>)<sub>3</sub>. Qingheiite was first described by Yu et al in 1983, the same year its structure was described (Ma et al.). It was named for the locality, Qinghe County, Xinjiang Uygur Autonomous Region, China.

Yu T, Ma Z, Wang W, Wu M (1983) Qingheiite – a new mineral of phosphate. Acta Mineralogica Sinica 3, 161-170

Ma Z, Shi N, Peng Z (1983) Crystal structure of a new phosphatic mineral – qingheiite. Scientia Sinica, Series B 26, 876-884



**Figure 1.** Black qingheiite-(Fe<sup>2+</sup>) with quartz from the Smith Mine, New Hampshire. GRR photo

Qingheiite-(Fe<sup>2+</sup>) and qingheiite are members of the wyllieite group of sodium metal-ion phosphate minerals that are found in a number of phosphate pegmatites, world-wide. Qingheiite-(Fe<sup>2+</sup>) was first published in 2010. It was first found in the eastern Brazilian pegmatite province in an abandoned brazilianite mine. Type specimens are stored in the University of Liège, Belgium, and in the Natural History Museum, Luxembourg.

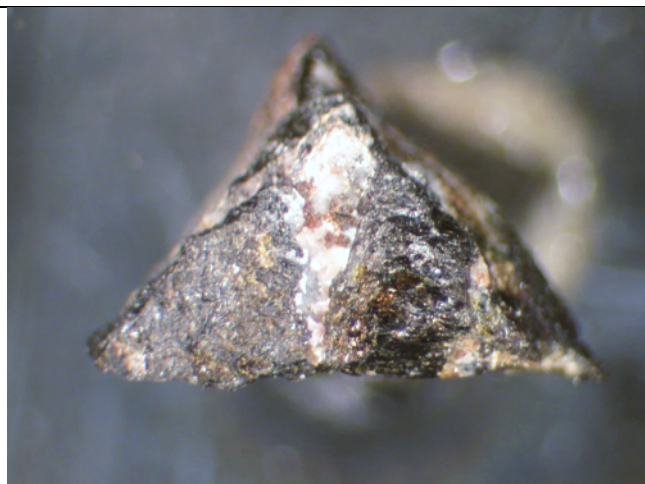
Hatert F, Baijot M, Philippo S, Wouters J (2010) Qingheiite-(Fe<sup>2+</sup>), Na<sub>2</sub>Fe<sup>2+</sup>MgAl(PO<sub>4</sub>)<sub>3</sub>, a new phosphate mineral from the Sebastiao Cristino pegmatite, Minas Gerais, Brazil. European Journal of Mineralogy 22, 459-467.

When one of the sites in the crystal's structure, known as the M(1) site, is occupied by manganese, the mineral's name depends on which cation is dominant in another site, known as the M(2) site. Three members of this group are important. When magnesium is dominant, the mineral species is qingheiite, NaMn<sup>3+</sup>MgAl(PO<sub>4</sub>)<sub>3</sub>. When Fe<sup>2+</sup> is dominant, the mineral species is wyllieite, NaMn<sup>3+</sup>Fe<sup>2+</sup>Al(PO<sub>4</sub>)<sub>3</sub>. When Fe<sup>3+</sup> is dominant, the mineral species is rosemaryite, NaMn<sup>2+</sup>Fe<sup>3+</sup>Al(PO<sub>4</sub>)<sub>3</sub>, (**Fig 2**).

If the M(1) site is occupied by Fe<sup>2+</sup>, rather than manganese, then, previously, the mineral's name would have begun with "ferro". Examples are: ferrowyllieite (**Fig. 3**) and ferrorosemaryite (**Fig. 4**).



**Figure 2.** Dark greenish-black rosemaryite from the Rock Ridge pegmatite, near Custer, South Dakota. GRR photo



**Figure 3.** Black ferrowyllieite, NaFe<sup>2+</sup>Fe<sup>3+</sup>Al(PO<sub>4</sub>)<sub>3</sub>, from the Victory Mine, South Dakota. GRR photo



**Figure 4.** Dark brown ferrorosemaryite, NaFe<sup>2+</sup>Fe<sup>3+</sup>Al(PO<sub>4</sub>)<sub>3</sub>, in thin section from the Rubindi pegmatite, Rwanda. Photo it: Frédéric Hatert



One might think that the  $\text{Fe}^{2+}$  analogue of qingheiite would be called ferroqingheiite. But due to nomenclature changes introduced in 2008 by the International Mineralogical Association, the name for this mineral became qingheiite- $(\text{Fe}^{2+})$ .

Positive identification of these mineral species typically requires a detailed chemical analysis. Think: electron probe micro analysis. Think: that costs money.

We have phosphate pegmatites in southern California. For example, the Stewart Mine, near Pala, better known for tourmaline and lepidolite, has a number of manganese and iron phosphate minerals such as

stewartite,  $\text{MnFe}_2(\text{PO}_4)_2(\text{OH})_2 \cdot 8\text{H}_2\text{O}$ ,  
sicklerite:  $\text{Li}_{1-x}(\text{Mn}^{3+}_x\text{Mn}^{2+}_{1-x})\text{PO}_4$ ,  
hureaulite:  $(\text{Mn},\text{Fe})_5(\text{PO}_4)_2(\text{HPO}_4)_2 \cdot 4\text{H}_2\text{O}$ ,  
phosphosiderite:  $\text{FePO}_4 \cdot 2\text{H}_2\text{O}$ ,  
jahnsite- $(\text{MnMnMn})$ :  $(\text{Mn})\{\text{Mn}\}\{\text{Mn}_2\}\text{Fe}_2(\text{PO}_4)_4(\text{OH})_2 \cdot 8\text{H}_2\text{O}$ ,  
and tryphylite:  $\text{LiFe}^{2+}\text{PO}_4$ .

However, never has a member of the wyllieite group been reported from the Pala district.

So, why did I pick the wyllieite group of minerals to discuss? One of the reasons is that these and other phosphate minerals are important components of the South Dakota phosphate pegmatites. The greater reason is that the people for whom 4 members of this group [wyllieite, ferrowyllieite, rosemaryite, ferrorosemaryite] were named, namely, Peter Wyllie and his wife, Rosemary Wyllie, live in Altadena, CA, a short drive from where the Mineralogical Association of Southern California meets. Peter has served as a professor at both the University of Chicago and at Caltech. Rosemary serves as the director of Caltech's architecture tours.

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## MINUTES of the May 10, 2019 General Meeting

### Call to Order:

On Friday, May 10, 2019, the **968<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. The attendance was 13, not including the presenters.

### President's Opening Remarks:

In his opening remarks, Dr. Rossman informs us that, thus far, the International Mineralogical Association (IMA) has approved **5,468** mineral species. By comparison, at the end of April the number was 5,449 and March was 5,415 approved mineral species.

Names are often interesting, for instance *Reaphookhillite*,  $\text{MgZn}_2(\text{PO}_4)_2 \cdot 4\text{H}_2\text{O}$ , was actually found at Reaphook Hill, Martins Well, South Flinders Ranges in South Australia. This mineral was mined in 1970's by Chris Johnson who found it in zinc and phosphorus rich deposit hosted in breccias of [Proterozoic] sedimentary rock. Other names include "*Domerockite*" and "*Middlebackite*" Dr. Rossman asked Dr. Bob Housley how many minerals he helped identify or was involved with, his response was approximately 30. Dr. Rossman himself was involved with 47 and Tony Kampf, MSSC Honorary Member, has been involved with 250 + minerals. Each of these scientists has a mineral named in their honor: *Housleyite*, *Rossmanite* and *Kampfite*, respectively.

According to Dr. Rossman, how minerals are identified include the following: mineral must be deposited in a recognized museum, publication to a mineralogical register must be made within 3 years, chemical, physical and structural analysis must be completed as well as other accepted identifying practices needing to be completed. In spite of that intricate process, some are denied on a technicality of some sort; for those, the process begins again.

## Business

Approval of Minutes: Dr. Rossman called for a motion to approve the April 2019 Membership Meeting Minutes as written unless there were corrections or additions. The motion was made, seconded by Rudy Lopez and voice vote was called. The motion passed unanimously.

## Field Trip Report

Dr. Rossman provided a report on the last MSSC field trip made to Pacific Coast Borax mine near Mule Canyon Road in Calico Mountains. The trip was well attended; several minerals were found including large *gypsum* crystals, *celestine* prismatic crystals and *colemanite* geodes, as well as, *howlite* nodules and *jarosite*. The surprise find was the blue opaline silica, *scorodite*, a hydrated iron arsenate. It was the first discovered at Sulfur Hole, around the corner from Big Borate Canyon. Well done! [Secy: Check MSSC's website, Field Trip page for more information and great photos.]

The next field trip will be to Arizona for hematite (*Editor's Note: This trip has been cancelled*)

## Guests

Dr. Rossman asked if there were any guests who would like to introduce themselves. Simona from Italy is a geologist and is a new member. Welcome!

## Announcements

-Rudy Lopez announced that the Banquet will be January 11, 2020 at Coco's. There had been uncertainty, but the management contacted him recently and arrangements were made for Coco's to once again host the event. The price will be \$40 each. We are honored to have Paul Adams as our speaker. And, our Silent Auction will be in full swing at our annual Installation event;

-Rudy will be leading a micromount class for Home School Program through the Natural History Museum. Check *Bulletin* for more information;

-MSSC received a nice donation from the Rock Currier Collection;

**-IMPORTANT NOTICE: due to conflicting schedules associated with PCC, our next General meeting will be held on JUNE 21<sup>st</sup>, the third Friday of the month.**

## Program

Rudy introduced Dick and Mary Pat Weber, speakers for this evening's presentation. The Webers are exploration geologists who have worked and travelled extensively in North America, Australia and New Zealand. Their specialty is agate, though they have also been avid mineral collectors for over 20 years. Dick and Mary Pat previously gave a wonderful presentation on "Condor Agates of Argentina" about a year ago.

Before beginning her presentation, Mary Pat Weber announced that the Long Beach Mineral and Gem Society will have a 1 day only on show 9/21/19; vendor/club tables are \$50 ea. This show is significant because it has been several years since Long Beach has hosted a show. [Secy: Watch the *Bulletin* for more information.]

Tonight's presentation: *Chasing Color: Mining Boulder Opal in Australia* by the Webers. The specimens on view are on loan from Broken River Mining, Queensland, in Australia. Boulder opals are distinguishable by their layer of brown ironstone left on the back of the stone. Boulder opals are the second most valuable type following black opal. Thin veins of opal forms in cracks and fissures in the boulder and because the color veins are so thin, cutters leave some of the brown ironstone on the back of the opal to form a full-size stone.

Opal mining fields in Australia include areas of South Australia, New South Wales, Queensland and the Northern Territory. The Webers travelled to Eromanga (aboriginal for "hot, windy plain") in Queensland. Queensland is slightly north and west of Brisbane, located on the east coast of Australia. In 1880's, miners were drawn to the plentiful opal fields. Even today, these fields are surrounded by sheep and cattle properties.



Mary Pat Weber with Opal  
Broken River Mining



Dick Weber with Opal



Opal specimens

*Photos by A Guzman*

The Eromanga Sea was an ancient inland sea from the Cretaceous period of Mesozoic era, eventually depositing sedimentary rocks and leaving behind Winton Sandstone, the host rock for the Boulder Opal. In fact, the town of Winton, Queensland, has marine fossils in their museum. Dinosaur tracks, called the Dinosaur Trail, are located nearby. Not far from Winton is Broken River Mining. The operation is owned by Sue and Asher \_\_\_\_\_ who have since become good friends with Dick and Mary Pat Weber.

Each opal stone (mineraloid) is unique. Varieties of color catch the light to display brilliant schemes. The internal structure of opal is composed of silica spheres, closely packed in lattice stacks which cause the light diffraction. The orderliness of the spheres determines the quality of the opal. The color(s) observed are determined by the stacking (order) of the planes. Mary Pat refers to spheres as ping-pong balls of  $\text{SiO}_2$ , filled with  $\text{H}_2\text{O}$  molecules, densely packed the molecules give the color! The ping-pong balls not so densely packed are referred to as “potch”, the hazy-milky, no color opal, which is most commonly referred to as sh\*t. Mary Pat displayed great photos of the different types of opals and colors they exhibit.

Generally, in the Eromanga Sea area, there are several localities showing conglomerates, opal breccias, silty mudstone, ironstone nodules, replacement coniferous wood and mollusk shell. Acidic weathering and a falling water table are needed to “produce” boulder opal; both these events occurred at Eromanga. In the ironstone nodules, opal deposits in the voids and cracks.

To mine opal, mine shafts and tunnels may be too dangerous and expensive to construct in the soft sandstone, plus safety concerns are taken into account. Many miners opt for open “pit” mining which is preferred by many co-op miners.

Isolated Mount Margaret Cattle Station (ranch) a cattle and sheep station has fine grained red dust, as does most of the land around those parts. From there, Broken River Mining mine is a 3-day trek out on roads 8’ wide where BIG trucks ramble down the road, passing small cars that had better move over to let the big rigs pass. Oh, no one goes over the posted speed limit, you never know when a Roo may hop out on the road! Broken River camp has a corrugated building, a donkey (water heated by scrub brush fires), a landing strip for doctor service with improvised landing lights made from toilet paper rolls and kerosene. There is a trailer, storage buildings, machinery and tools.

This camp has fresh water and there is a variety of wildlife in the area. The 2<sup>nd</sup> mining claim is a day’s travel from the larger camp, but it is a lot less luxurious, somewhat more primitive, you might say. Light flooring in both camps help to see the venomous Mulga Brown snake and big blue spiders native to the area. Hence, the doctor service air strip is a good thing! The food supply is limited to canned goods, so if you go for a visit, take along fresh veggies!

Sue has a blasting license and Ash runs the large equipment (scoops, etc.). Ash scrapes the side of a hill and Sue checks the materials to see if it passes her inspection. The standard ironstone concretion nodules are broken up by the equipment. Their son, Cody, helps out in the operation. Many specimens are brought back home to look through, cut, block out and crack open to find the hidden treasures. They also create a reject pile, some of which may be used at a later time. Sue does lapidary making cabs and organizes landscape pieces. They separate the collector pieces and clean them up. Ash works at cutting and cracking open.

In Australia, their summer is hot, as much as 120°-130°F; it's hot work, dirty work and hard work. All in all, for Sue, Ash and Cody, it is very satisfying work.

A bit of history: in 79AD, Pliny the Elder called opal the "kaleidoscope" gem. One of the oldest deposits of opal was found in Slovakia during the Roman era. In 1870, Australian opal had no value because people thought it was fake! Later when it became popular, the diamond people became upset, the pearl divers became upset and they both spread the myth that opal was unlucky. But Queen Victoria favored it. Now, opal can be high-end, designer pieces, it is the birthstone for October and represents a 14<sup>th</sup> anniversary. Boulder opal is spectacular and beautiful.

Thanks to Mary Pat and Dick Weber for a fascinating presentation and wonderful show and tell pieces. Q & A followed their presentation.

**Door Prize** was won by Immanuel Bissell. Congratulations!

**Adjourn:** The meeting was adjourned at 8:58p.m. Thanks to Laura Davis and Rudy Lopez for goodies and refreshments.

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>	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
	October, 11, 2019:	Karin Rice: Geology of Rancho La Brea/ LA Brea Tar Pits
<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 emailed bulletin</i>

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

The **Von Kármán Lecture** on \*Thursday/Friday\* **June 20 and 21** at 7 PM. The speakers “To-Be-Announced”. The title of the presentation is “**Such Stuff as Dreams are Made On: Designing Tomorrow’s Space Missions Today.**” Walk through the life cycle of a mission from its start as a crazy idea, to concept, to development, construction, testing and launch. \*\* Thursday is at the Von Kármán Auditorium at JPL and Friday is at Ramo Auditorium at Caltech.

The **Watson Lecture Series at Caltech** is on hiatus until the Fall semester. Stay tuned until October!

The **UCLA Meteorite Gallery** lecture is on Sunday, **June 9**. The speaker is **Dr. David (“Duck”) Mittlefehldt** from the Johnson Spacecraft Center in Houston. His title is “**The History of Asteroids, Written in Stone.**” Achondrites – a subset of stony meteorites – were formed by processes familiar to any terrestrial geologist: melting to form magmas, separation from their sources, and crystallization upon cooling. There are a number of achondrite groups; each from a different asteroid; each with its own story to tell of the geology of its parent asteroid. In this talk, Dr. Mittlefehldt will discuss the mineralogy, texture, and chemistry of several achondrite groups, and describe how they inform us of the earliest phases of the geologic history of asteroids. 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

November 22, 23, 24, 2019

*75 Select Wholesale  
and Retail Dealers*

*Minerals\*Fossils  
Gems\*Jewelry*

*\*Lapidary\**

*\*Decorator Pieces\*  
and much more!*

**Hours: 10-6 FRI & SAT  
10-5 SUN**

**\*Free admission  
\*\$10/day parking**



*Martin Zinn  
Specimen*

*Benitoite  
San Benito County, CA  
Jeff Scovil*

**New Location!!**  
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**\*See our website for map and driving directions**  
**[www.mineralshowsllc.com](http://www.mineralshowsllc.com)**

### MSSC Advertisement Policy:

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 [bulletin@mineralsocal.org](mailto:bulletin@mineralsocal.org) and the payment should be sent to the  
**MSSC Treasurer 1855 Idlewood Road, Glendale, CA 91202**

With Knowledge Comes Appreciation !



## Calendar of Events:

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

### JUNE, 2019

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

#### 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

There are no scheduled programs for July

### AUGUST

#### August 2, 3 & 4: NIPOMO, CA

Orcutt Mineral Society  
Nipomo High School  
525 Thompson Avenue  
Hours: Fri-Sat 10 - 5, Sun 10 - 4  
Website: [omsinc.org](http://omsinc.org)

### SEPTEMBER

#### September 21: LONG BEACH, CA

Long Beach Mineral & Gem Society  
Expo Arts Center  
4321 Atlantic Avenue  
Hours: 10:00 - 5:00  
Email: [lbmineralgemsociety@gmail.com](mailto:lbmineralgemsociety@gmail.com)

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### A Fun Field Trip Picture:

Many years ago, Fred and I were on an MSSC field trip. One of the MSSC members (who wishes to remain nameless) used the last bit of life out of his boots! After many years of rough and faithful wear, these boots just gave up their soles! Fortunately, he had a spare pair of boots with him and was able to continue collecting fine specimens for the rest of the day.



Fred L. Elsnau photo

## June Featured Mineral: **Beryllonite**

**Formula:**  $\text{NaBePO}_4$

**Crystal System:** Monoclinic

**Name:** Named by Edward S. Dana in 1888 in allusion to its composition, containing beryllium



© irocks.com photo

**Beryllonite :**  $\text{NaBePO}_4$ ,

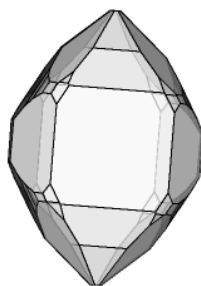
**Quartz :**  $\text{SiO}_2$ ,

**Albite :**  $\text{Na}(\text{AlSi}_3\text{O}_8)$ ,

**Schorl :**  $\text{Na}(\text{Fe}^{2+}_3)\text{Al}_6(\text{Si}_6\text{O}_{18})(\text{BO}_3)_3(\text{OH})_3(\text{OH})$

**Locality:** Nyet-Bruk, Braldu Valley, Skardu District, Gilgit-Baltistan, Pakistan

9.4 cm x 7.4 cm x 5 cm



Beryllonite no.2 - Goldschmidt (1913-1926)



© irocks.com photo

**Beryllonite**  $\text{NaBePO}_4$

**Locality:** Elias Lopes claim, Linópolis, Divino das Laranjeiras, Minas Gerais, Brazil

2.2 cm x 2.2 cm x 1.4 cm



© irocks.com photo

**Beryllonite**  $\text{NaBePO}_4$

**Locality:** Paprok, Kamdesh District, Nuristan, Afghanistan

8.7 cm x 5.4 cm x 4.4 cm



© irocks.com photo

**Beryllonite**  $\text{NaBePO}_4$

**Locality:** Paprok, Kamdesh District, Nuristan, Afghanistan

3.9 cm x 2.4 cm x 2.2 cm ©



© irocks.com photo

**Beryllonite**  $\text{NaBePO}_4$

**Locality:** Paprok, Kamdesh District, Nuristan, Afghanistan

11.8 cm x 7.6 cm x 7.2 cm ©

## 2019 MSSC Officers:

<b>OFFICERS</b>		
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### About the Mineralogical Society of Southern California

Organized in 1931, the Mineralogical Society of Southern California, Inc. is the oldest mineralogical society in the western United States. The MSSC is a member of the California Federation of Mineralogical Societies, and is dedicated to the dissemination of general knowledge of the mineralogical and related earth sciences through the study of mineral specimens. 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:

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*To:*



**With Knowledge Comes  
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