

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

Volume 91 Number 6 - June, 2018

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*The 957<sup>th</sup> meeting of the Mineralogical Society of Southern California*

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*With Knowledge Comes Appreciation*

**June, 8<sup>th</sup>, 2018 at 7:30 P.M.**

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

***Program : The Colorful Condor Agates of Argentina***  
**Presented By: Dick and Mary Pat Weber**

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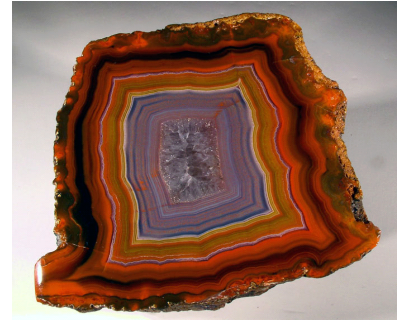
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**Remember:** If you change your email or street address, you must let the MSSC Editor and Membership Chair know or we cannot guarantee receipt of future Bulletins

## About the Program: “The Colorful Condor Agates of Argentina”

Presented By: Dick and Mary Pat Weber

This month’s program will be “The Colorful Condor Agates of Argentina” presented by Mary Pat Weber, geologist and mineral collector. She will present the amazing story of how these agates were discovered, lost, and re-discovered in a remote, inhospitable region high in the foothills of the Andes Mountains. Specimens of these beautiful agates from her personal collection will be on display along with other agate specimens from Argentina.



Dick and Mary Pat Weber are retired exploration geologist. Who have worked and traveled extensively throughout North America, Australia and New Zealand. During these travels’ they have been granted special access to many mines and unique geological areas.

Along with active participation in local gem & mineral clubs, they have been avid agate and mineral collectors for more than 20 years.

This presentation will be appropriate for general audience and will include a Powerpoint presentation and a specimen display. Rudy will provide two additional tables for the display items.

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### From the Editor:

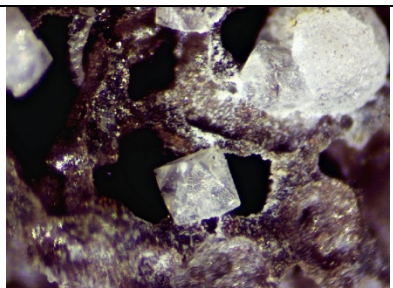
It seems like putting the Bulletin together each month can be quite an adventure! This time it was computer issues. I had all of the expected articles available on the 23<sup>rd</sup> (a week ago) and got about 80% of the bulletin assembled by the 26<sup>th</sup>. (The hardest part is filling the empty spaces and writing this piece) Then Microsoft decided it was a good time to install their latest update to my system. After slowing down my DSL connection for two days (really annoying) the installation was finally finished. Suddenly, about half of my system components stopped working. Sound system, printer connections, mouse access etc. were iffy if they worked at all. Unfortunately, I need to be calm to work on this type of situation, so I took several days to work through the problem. I also did a new backup for all of my documents to be sure they were OK. After slowly working through most of it, I ended up removing the update completely and revived everything but the sound card. I had to locate a driver file, and get it installed to get my bells and whistles back. All good now and the Bulletin is almost done. Happy June everyone! Linda Elsnau

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### From the President: Interesting Minerals, A to Z. Installment 6, the letter “F”: by George Rossman

#### Faujasite

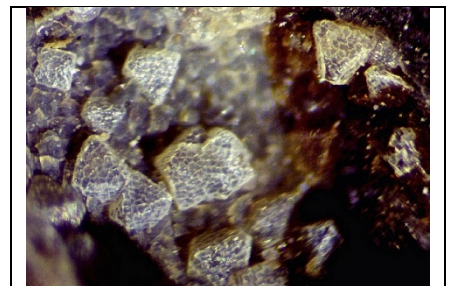
The comparatively rare zeolite mineral, faujasite, was originally first described in 1842 by A.A Damour (Description de la faujasite, novella espèce minérale, Annales des Mines, 1, p 395-397. It was found in small, crystal-filled cavities in volcanic rocks from Kaiserstuhl, Germany. Its formula was said to be



**Figure 2.** Octahedral faujasite from Table Mountain San Bernardino County, CA.

$(\text{Na,Ca,Mg})_2(\text{Si,Al})_{12}\text{O}_{24} \cdot 15\text{H}_2\text{O}$ , a sodium-dominant hydrated aluminosilicate. It was named in honor of a French mineralogist, Barthélemy Faujas de Saint Fond. It forms octahedral crystals (Figure 1).

In 1975 Rinaldi et al. described a magnesium-dominant faujasite from Sasbach am Kaiserstuhl, Germany, and in 1982 William Wise of UC Santa Barbara described a calcium-dominant faujasite from a cinder cone on Table Mountain, near Halloran Spring, San Bernardino County, California. There, it occurs with spherical aggregates of the zeolite phillipsite (Figure 2).

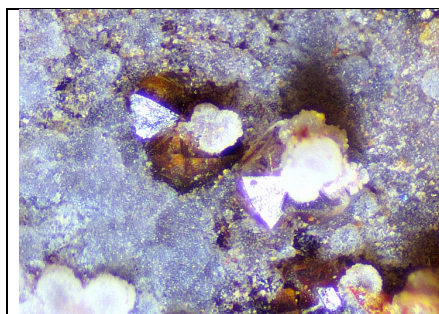


**Figure 1.** Octahedral crystals of faujasite from Kaiserstuhl, Germany

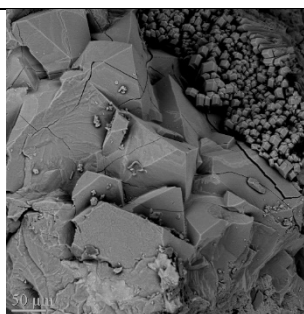
Because of these new discoveries, and others regarding the chemical complexity of this and other zeolites, the Commission of New Minerals and Mineral Names of the International Mineralogical Association discussed zeolite nomenclature and, in 1997 (Coombs DS et al.), presented a new recommendation for the species nomenclature for all the zeolites including the faujasite series. The general chemical formula for the series has been refined by better modern analyses and is  $(\text{Na,Ca}_{0.5},\text{Mg}_{0.5},\text{K})_x[\text{Al}_x\text{Si}_{12-x}\text{O}_{24}] \cdot 16\text{H}_2\text{O}$ . Members of the series (species)

include faujasite-Na, faujasite-Ca, and faujasite-Mg where the -X at the end of the name indicate the dominant cation. Depending on the relative amounts of plus-1 cations ( $\text{Na}^+$ ,  $\text{K}^+$ ) to plus-2 cations ( $\text{Ca}^{2+}$ ,  $\text{Mg}^{2+}$ ) the ratio of aluminum to silicon varies over a range of compositions.

While the Kaiserstuhl locality remains the most documented occurrence, on Mindat.org, faujasite group minerals have been reported from San Bernardino County at the Mohawk Mine, Clark Mountains, Table Mountain, in the Shadow Mountains, and Siberia Crater near Dish Hill (by MSSC's Bob Housley – Figures 3,4).



**Figure 3.** Octahedral faujasite and round clusters of phillipsite from Siberia Crater, San Bernardino County, California.

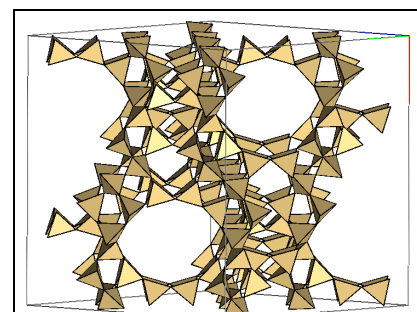


**Figure 4.** A scanning electron microscope image of faujasite from Dish Hill, California, taken by MSSC's Bob Housley. The octahedral crystals of the zeolite dehydrate in the vacuum of the SEM and tend to crack. Small crystals of the zeolite phillipsite are seen in the upper right side of the image.

So, what makes this rare mineral so important? First of all, its atomic structure is comparatively simple for a zeolite. Figure 4 shows the structure of the aluminum and silicon tetrahedra framework of faujasite. But, the real importance is in the synthetic versions which are the basis of multi-billion-dollar industries. In the mid-20th century, synthetic faujasite became profoundly important as a cracking catalyst in the petroleum refining industry. It allows heavy paraffins to be broken down into the lighter molecules found in gasoline, diesel and other petroleum products. Figure 4 also illustrates some of the super cavities into which large molecules can enter in the catalytic process. Often, small amounts of rare-earth elements such as cerium or lanthanum are incorporated in the zeolite to increase the acidity and reactivity of the synthetic catalyst.

Synthetic faujasite comes in two variants known as type X or type Y. Zeolite Y, as it is known, has a somewhat higher ratio of Si to Al and is a favored catalyst. It also is a common drying agent known used in industry and academic labs to remove water from gasses (known as a molecular sieve).

Here we have an example (and there are many more such as perovskite, and triphylite, to name a few) of how the study of uncommon minerals becomes the basis of important technology that is used in industry and in our everyday lives.



**Figure 5.** The structure of faujasite showing the locations of the  $\text{AlO}_4$  and  $\text{SiO}_4$  tetrahedra and the large cavities within the structure that are so important for industrial catalytic activity

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## MINUTES of the May 11, 2018 Meeting

On Friday, May 11, 2018, the 956<sup>th</sup> Membership Meeting of the Mineralogical Society of Southern California (MSSC) was called to order at 7:30 p.m. by President George Rossman.

Dr. Rossman noted that there are 5,327 known mineral species recognized by the International Mineralogical Association. George says there are new approved amphiboles, a floral amphibole and a manganese amphibole, but his new favorite is *Greenlizardite*, an ammonium, sodium, uranium hydroxyl sulfate. [The chemical formula is  $(\text{NH}_4)\text{Na}(\text{UO}_2)_2(\text{SO}_4)_2(\text{OH})_2 \cdot 4\text{H}_2\text{O}$ ]. MSSC member Tony Kampf is the person who presented the paper on it and gave it its mineral name. Another new mineral; Vanadium, V – a new native element mineral from the Colima volcano, State of Colima, Mexico. It is found in sublimates that precipitate in the range 550-680 C.

George also mentioned an L A Times on-line article about diamonds found in meteorites, bigger than normal. The authors of the article speculated that protoplanets are out there having these diamonds and perhaps one day we'll go there and mine the diamonds!

## Field Trip Report(s)

Dr. Rossman asked Dr. Housley and/or Marek Chorazewicz to give a report on the last field trip to *Ord Mountain*, south of I-40. Marek had a PowerPoint with photos and he spoke about some of the specimens they brought back: malachite,

azurite, chrysocolla, baryte and hematite (a first-time find at Ord Mountain!). At a second spot, *Josephine Adit*, collecting included malachite, brochantite, chalcophyrite, atacamite, gypsum, azurite (a first time find at Josephine!). Sadly, no one found gold nuggets - *this time*.

The next field trip will be May 19<sup>th</sup> to *Blue Bell Mines* in Soda Mountains. Meet at Zzyzx Road exit off I-15. Bring your hard hat with headlamp, hammer, chisel, dust mask, water and sunscreen. The road to Blue Bell is a little rocky, not like (smooth) Ord Mountain road. Notify Marek if any questions or you want to sign up to go.

Bob Housley reported that there is malachite and chrysocolla on quartz crystals at the Josephine Adit. There will be specimens in the break room for show and tell after the meeting.

### **Other Reports**

George reported on the 15<sup>th</sup> Annual Sinkankas Symposium in Carlsbad, CA. held April 14, 2018. There were about 100 people in attendance. This year, the symposium commemorates the 50<sup>th</sup> anniversary discovery of Tanzanite and Tsavorite. Topics and speakers included keynote speaker Dr. Raquel Alonso-Perez with an overview of the chemistry, mineralogy and geology of tanzanite and tsavorite; World-class collecting and faceting (Meg Berry); 50 years of Tsavorite and Tanzanite, closing of the mine - claim jumpers? (Bridges, wife and son of Campbell Bridges who discovered tsavorite and was first the bring tanzanite to the U.S. for identification); Tanzanite and Tsavorite geology and gemology (Gessner); Collecting (Bill Larsen, Will Larsen {Pala}); Treatments and spotting imitations (McClure, GIA); Microworld inclusions in the minerals (Renfro, GIA), Pricing trends (Robertson) and Color in minerals (by Dr. George Rossman, Ph.D., CalTech). It sounds like the symposium was very interesting and chock full of great information. MSSC President Dr. Rossman says, "Think about going if you've never been."

### **Visitors**

Dr. Rossman asked if there were any visitors and to please introduce themselves. There was new guest, Jeanie Kaliveda who noticed MSSC on-line, was interested and came out. Also, in attendance were two other guests who came to the last meeting, Rebecca Pry and Rigo Cervantes. Welcome!

**Show and Tell** Marek and Bob will have their samples in the break room after the meeting.

**Programs** Chair Rudy Lopez introduced the meeting's speakers Tony and Sandie Fender. The Fenders will talk about some interesting sites in the Mojave Desert.

**50 Interesting Sites in the Mojave Desert** is based on the publication, "*Guide to 50 Interesting and Mysterious Sites in the Mojave*" (Vol.1) by Bill Mann. Sandie begins by telling us Bill lived in the desert and discovered different things there. He decided to write a book about the things he found, then another 50 discoveries. Soon he wrote about Calico Ghost Town, Big Bear and California Desert Byways (backcountry drives). He visited the Saline Valley in northern Mojave Desert, think Death Valley. Sandie cautions that if you value your vehicle, you shouldn't take *your* car! The Fenders take their dogs with them on their excursions.

Tony picks up here and takes us just outside of Barstow to Fort Irwin and part of the Mormon Trail (at the Marine base), there's an abandoned well (there is water sometime and sometime not) and there used to be an old pottery pot beside the well that was used by native peoples – but that's gone now. An intaglio nearby is in the form of a skull. It lies on the ground and was crafted using rocks and boulders. Of course, there is wildlife in the desert and lizards are not exception. Watch where you walk!

In the Mojave River flood of 1964, several rail cars derailed. There are train wheels and cars that are still lying in the desert as a testament, sometimes visible and sometimes covered over. Since locations are quoted in Bill Mann's books, some folks have gone out there and removed some of the train wheels and other items he mentions.

The Fenders tell about Sloopy Cave, go back about 30' into the canyon and you can actually climb up to Cave Mountain. Speaking of canyons, Afton Canyon is sometimes called the Grand Canyon of the Mojave. Created 18,000 years ago by a massive flood, it is colorful and steep walled. The "Cathedral" is interesting to visit and there is plenty of shade there. Another thing you don't expect to find is quicksand. But, you guessed it, they found it! Fortunately, they were able to get their vehicle out even though it took 7 cars to do so. The quicksand was like a vacuum, sucking the vehicle down. Tony comments that you don't go into Afton Canyon alone!

Onward, to Broadwell Dry Lake where there are igloos 10' in diameter made of rock! The structure actually was quite cool in its day. Now, however, there is damage to the igloos and they are probably not used today. The northernmost part of Death Valley is where Mesquite Springs is located. There's also a bathtub out there and people get in the tub to have their

picture taken inside of it. Above Mesquite Springs, there are 2,000-3,000-year-old petroglyphs from the extinct culture that lived there.

Crucero, California is ghost town at the crossroads of the Tonopah and Tidewater (T&T) Railroad and the Union Pacific. Nearby are rock stacks and alignments, the “Malcolm Rogers Rocks”(he found them). Near the road from Ludlow are 2 kilns used for pottery firing in the 1960’s. Not too far, at the side of a hill is a megaphone made of ¼” steel, drilled and cemented into the rock. It is 10’ x 2-1 /2’ diameter; very odd. It is unknown who put it there or why, but it likely has a military connection.

Off we go to Inscription Canyon over by Opal Mountain. The canyon is 2 miles long and has lots of petroglyphs on both canyon walls. It is very sandy so the best time to go is in the winter when the ground is harder, more solid. The “Birdman” is the symbol of the petroglyph society. Near Inscription Canyon there are sleeping circles where rocks had been cleared out, so the native peoples could sleep in the open but on smoother ground.

Keep in mind that Bill Mann was dyslexic, so some of his directions are not exactly accurate. But, if you move the numbers around, you’ll be able to figure out what and where he meant by his gps coordinates.

Finally, there are several graves in the area east of Afton Canyon: Delores Holland was 5 years old and her remains are respected today, 90 years later; there’s a plaque for a Buddy Kiebler. His original “headstone” was a scribbled-on piece of paper that is now in the museum at Barstow. A metal plaque was put in its place a time ago; there are motorcyclists memorials that have various motorcycle parts standing or lying in circle, all as a tribute to those riders who lost their lives in the Mojave.

Wow! Never knew there was so much in the desert! A great presentation by Tony and Sandie Fender, thank you! You certainly had fascinating experiences visiting all those interesting and mysterious sites in the Mojave. A short Q&A followed the Fender’s presentation.

**Door Prize** drawing was won by Ed and Anette Pumphrey.

The meeting adjourned at 8:20 p.m.

Respectfully submitted by Angie Guzman, MSSC Secretary

Secretaries’ Notes: Refreshments, Show and Tell and interesting conversations followed the meeting. There were lots of specimens to look over and take home. Thank You to Bob Housley and Marek Chorazewicz for bringing in the specimens to share. Thank You to Laura Davis for bringing the refreshments.

Reminders: Next Membership meeting will be Friday, June 8<sup>th</sup>; Next Board meeting will be Sunday, June 17<sup>th</sup> at the Carter residence; Deadline for *Bulletin* submissions is the 22<sup>nd</sup> of each month.

If you missed this presentation, you missed some mighty interesting stuff. Come to our next meeting, June 8<sup>th</sup>, to see and hear a great presentation. You won’t be disappointed!

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

Event	Date	Comments / Scheduled Program (if known)
<b>Meeting Dates:</b>	July 13, 2018	Chuck Howser
	August 12, 2018	<i>MSSC Picnic</i>
	September 14, 2018	Eric Scerri: What is This Thing Called Science (An Introduction to the Philosophy of Science).
	October 12, 2018	Aaron Celestian: “Halophiles in Minerals”
<b>Board Meeting</b>	June 17, 2018	Board Meeting at Bruce Carter’s house
<b>Annual Picnic</b>	August 12, 2018	at Bruce Carter’s house

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

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### MSSC Fieldtrip to Ord Mountain, April 28, 2018, By Marek Chorazewicz, Simi Valley, Southern California

On a beautiful Saturday morning, April 28, 2018, several cars gathered near the Daggett Rd exit, off Fwy 40, 6 miles east of Barstow. The fieldtrip to Ord Mountain was originally scheduled at the middle of April, but due to the rain forecast it has been pushed off by 2 weeks. At 9:00AM the caravan took off on Camp Rock Rd towards Ord Mountain 12 miles



away. After approx. 30-minute drive on the dirt road the cars parked near the first stop on the trip itinerary, the Brilliant claim. The weather started getting windy, but that did not deter the mineral enthusiasts.



The Brilliant claim is a part of the Ord Mountain mine complex, consisting mostly of gold, silver and copper claims (see more info on Mindat: <https://www.mindat.org/loc-89177.html>). This claim is famous for its great deep green malachite needles filling vugs in the rock and brilliant deep blue azurite crystals up to 1/8 inch in size. After short walk from the parking spot everybody got busy collecting on the main dump and other areas or breaking off pieces of green rock from the ledge. The area has two very deep shafts, so everybody was cautious about safety. The participants filled their buckets with a lot of beautiful green and blue material. The minerals found were: deep green malachite, deep blue azurite, light blue chrysocolla, transparent blades of baryte. One of the participants found a specimen with lustrous black blades of hematite.

After a couple of hours, the trip moved to the second location, the Josephine mine adit, about a mile directly south of the Brilliant claim. The road was much rockier and bumpier than the Camp Rock Rd, so the high clearance was necessary for the vehicles. We parked near the Copper Junction adit and walked to the Josephine dump. Next, we put on our helmets and headlamps and took a tour of the adit, which is 365 feet long and intersects two copper ore veins. Some good oxidized vein material was taken out of the tunnel and broken up for the participants to share. The material contained brilliant deep green malachite needles and some blue-green crystals of brochantite. One piece of rock with malachite also contained a small spot of azurite, reported here for the first time from the Josephine adit. There is also an occurrence of atacamite on gypsum, near the main vein, which is thought to be a post mining occurrence caused by salty water interacting with copper minerals. The atacamite balls are below one-millimeter, lighter green earthy color. In some areas it occurs as transparent deep green microscopic crystals on white gypsum, making very showy micro specimens. Also found with gypsum was chalcantite, forming translucent light blue masses, and surprisingly resilient to the SoCal dry air. There was also a lot of good material available on the dump, including some large pieces of iridescent chalcopyrite ore. Nobody found any microscopic gold nuggets this time, although some small finds were reported during previous trips several years ago.

Around lunch time the weather was warming up a lot and the wind was getting stronger, so the participants wrapped up the finds and started heading home. At the parking spot we were reminded to respect the desert by a beautiful rattle snake that kept it distance from the people and slowly slithered away into the bushes as the cars were leaving too.

Pictures attached were taken by some of the participants: Rudy, Bob, Reid and me. And are used with their permission.

 <p>Rattlesnake</p>	 <p>Oxidized copper ore vein in Josephine adit</p>	 <p>Malachite from the Brilliant claim.</p>
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 <p>Entrance to the Josephine adit</p>	 <p>Collecting at the Brilliant claim</p>
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**OTHER (FREE) THINGS TO DO...**From Ann Meister

Slim pickins' this month.

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

The **Von Kármán Lecture will not be held in June!** They will continue in July at which time the Thursday lecture will continue to be held at the Von Kármán Auditorium at JPL and Friday will change venue to Ramo Auditorium at Caltech.

The **UCLA Meteorite Gallery** lecture is on Sunday, **June 10**. The presentation will be by Researcher Paul Warren and Research Professor John Wasson. Their title is **“Ureilites, diamonds and meteorites from bodies the size of Mercury”**. We will discuss and critique a recent Nature article about diamonds found in a ureilite that fell in the Sudan in 2008. Although the diamonds are relatively small, it is inferred that they originally reached sizes of 100 micrometers; they contain some tiny Fe<sub>3</sub>(P,S) minerals which have compositions that require pressures only obtained at a depth of >2000 km in a planet the size of Mercury or Mars. These would be the first confirmed evidence of such high static pressures in meteorites. 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.

Not free, but definitely interesting is the **Orbit Pavilion** at the Huntington Botanical Garden and Library. This outdoor installation is the brainchild of Dan Goods and David Delgado, visual strategists at NASA’s Jet Propulsion Laboratory, who conceived an innovative “soundscape” representing the movement of the International Space Station and 19 Earth satellites. Inside the large, nautilus-shell-shaped sculpture, distinctive sounds are emitted as each satellite passes overhead: a human voice, the crashing of a wave, a tree branch moving, a frog croaking. Each sound interprets one of the satellites’ missions. For more information, check out <http://www.huntington.org/orbit/>.

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## **HISTORICAL MEANDERINGS from 60 Years Ago** by Ann Meister

In the past, the MSSC held its Annual Meeting in June. The announcement in the June 1958 *Bulletin* invited members to the Odd Fellows Hall at 175 N. Los Robles Avenue in Pasadena on Saturday, June 7. If you look for that address now, you will find the Westin Pasadena Hotel and the Plaza Las Fuentes. The Odd Fellows Hall building was moved to El Molino Avenue just north of Union Street and is now an adult day care center. The Annual Meeting was also our Show! We set up displays for that afternoon and evening only. For the more ambitious collectors, there were competitive exhibits as well as an audible auction, and a sales table on which “through the generous arrangement on the part of George Burnham of Burminco we will have, on consignment, a great variety of minerals” and some donated items from members. After the catered dinner, there was a business meeting which included election of officers. In 1958, H. M. (“Deac”) Flick was elected President (for a second term), Vice-President was Eugene A. Singer (who also taught the geology study group which met at the Flick’s home on 2 Monday nights each month), Secretary was Connie Flick, Treasurer was Ray Bittman, and the Federation Director was Gus Meister. For many years, we often had a husband-wife team as President and Secretary.

In “The President’s Corner” of the June 1958 Bulletin, President Deac Flick hyped the Annual Meeting:

“Perhaps a few words on our Annual Meeting, June 7th, will be in order. OUR show is YOUR show; it’s success depends on UNITED participation, and all signs indicate we are all going to enjoy it wholeheartedly.

“For our newer members who may not have attended previously, this traditional annual affair is a combination banquet, business meeting and earth science display. Business is conducted, officers and Board of Directors are elected, the year’s accomplishments noted, and the awards are presented with all possible dispatch so there is no delay in getting the auction started where most of us enjoy bidding for and buying new material. There will also be a sales table where you may purchase mineral specimens and other items.

“Here is the chance to demonstrate what we have discussed in the past, namely what incentives have we to display? We like to display our collections for others to enjoy and because we are proud of them. The values are relative only, so they need not be superb specimens to be interesting. If you or your friends are unable to come to the banquet, invite them to come later and see our outstanding displays.

“Come to the Annual Meeting and you may find just that specimen you have been wanting to add to your collection – and remember – this is the only money raising activity our Society has during the year. Yours for a successful show, [signed] Deac”

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## *With Knowledge Comes Appreciation !*

## The Crystal Radio Receiver by Stephen Mulqueen

A crystal radio receiver, also known as a crystal set or “cat’s whisker receiver”, is the simplest form of a radio receiver. Its only power source is the radio wave that is received by a simple wire antenna.

The crystal radio gets its name from the crystal detector, usually made from a cleaved portion of a metallic mineral such as galena (lead sulfide ore). The galena crystal acts as a diode, which allows an electric current to pass in one direction (the diode’s forward direction), while blocking current in the opposite direction (the diode’s reverse direction). The galena crystal (diode) is a rectifier, which converts alternating electric current (AC) to direct electric current (DC). In the crystal radio, the galena crystal allows for the extraction of modulation from radio waves.

The crystal radio receiver is a very simple device. It is made of inexpensive components including a short length of wire for the antenna, a coil of copper wire for the adjustment of frequency, a capacitor, the crystal detector and earphones with wire connections.

The rectifying properties of crystals were first discovered in 1874 by Karl F. Braun. Crystal detectors were applied to radio receivers during 1904 by Jagadish C. Bose, G. W. Pickard and many other scientists who were conducting experiments during the early 1900s.

Crystal radios, the simplest form of radio receivers, were the first widely used radios and the main type readily available during the Wireless Telegraphy Era. They were sold in kits and assembled by the millions. The crystal radios were inexpensive, reliable, and became the major driving force to the introduction of radio as a medium to the general public.

By 1920, more complicated radio receivers were developed and sold to the masses, forming an entertainment medium that is still popular. All subsequent radio receivers, including the more sophisticated electronic instruments available today, still use the basic radio science developed in the early 1900s.

**Source of information:** Conduct research on the Internet under the key words crystal radio, crystal set or radio receivers.

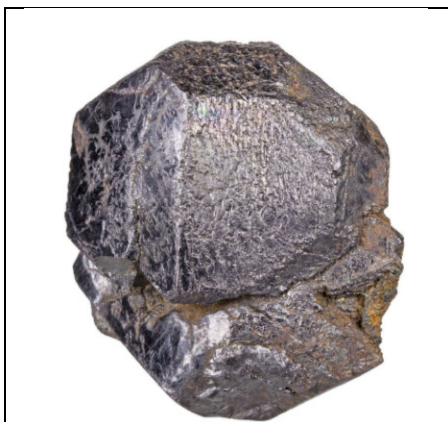
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### Featured Mineral: **Ilmenite**

**Formula:**  $\text{Fe}^{2+}\text{TiO}_3$

**Crystal System:** Trigonal

**Name:** Named in 1827 by Adolph Theodor Kupffer after its type locality in the Ilmen Mountains, Russia.



*irocks.com photo*

**Ilmenite** :  $\text{Fe}^{2+}\text{TiO}_3$

**Locality:** Åmdal, Åmdalsmoen, Froland, Aust-Agder, Norway

5.1 cm x 4.5 cm x 2.7 cm



*irocks.com photo*

**Ilmenite** :  $\text{Fe}^{2+}\text{TiO}_3$

**Locality:** Shigar Valley, Skardu District, Baltistan, Gilgit-Baltistan, Pakistan

3.9 cm x 3.0 cm x 2.0 cm



*irocks.com photo*

**Ilmenite** :  $\text{Fe}^{2+}\text{TiO}_3$ ,

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

**Locality:** Tormiq valley, Haramosh Mts., Skardu District, Baltistan, Gilgit-Baltistan, Pakistan

4.1 cm x 4 cm x 1.5 cm



*irocks.com photo*

**Ilmenite** :  $\text{Fe}^{2+}\text{TiO}_3$

**Locality:** Åmdal, Åmdalsmoen, Froland, Aust-Agder, Norway

4.1 cm x 4.1 cm x 3.8 cm

## 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	See email bulletin

\*\*\*\*\*

### Note the NEW Location!

**West Coast Gem & Mineral Show**  
November 9 - 11, 2018

80 Select Retail & Wholesale Dealers' Minerals ♦ Fossils  
Gems ♦ Jewelry  
Lapidary ♦ Home Decor  
and much more!  
\*Wholesale for qualified buyers

**NEW LOCATION!**  
Hilton Orange County  
3050 Bristol St., Costa Mesa, CA 92626

FREE Admission  
Parking \$5/day  
OPEN to the Public

www.MineralShowsLLD.com  
MineralShowsLLD@gmail.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 <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>			

\*\*\*\*\*

## Calendar of Events:

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

### JUNE 2018

#### June 8 - 10: LA HABRA, CA

North Orange County Gem & Mineral Society  
La Habra Community Center  
101 W. La Habra Blvd.

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

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

#### June 9 - 10: ESCONDIDO, CA

Palomar Gem & Mineral Club  
California Center for the Arts, Escondido  
340 N. Escondido Blvd.

Hours: 10 - 5 daily

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

#### June 9 - 10, 2017: GLENDORA, CA

Glendora Gems  
Goddard Middle School  
859 E. Sierra Madre Avenue  
Hours: Sat 10 - 5; Sun 10 -

#### June 23 - 24: CULVER CITY, CA

Culver City Rock & Mineral Club  
Veterans Memorial Auditorium  
4117 Overland Blvd

Hours: Sat 10 - 6; Sun 10 - 5

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

### JULY

No shows listed for July

### AUGUST

#### August 3 - 5: NIPOMO, CA

Orcutt Mineral Society  
Nipomo High School

525 Thompson Avenue

Hours: Fri-Sat 10 - 5, Sun 10 - 4

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

### SEPTEMBER

#### Plan Ahead for the CFMS Show:

#### September 15 - 16: CHICO, CA

##### The 79th

##### CFMS Convention

will be held alongside of the

**Feather River Lapidary & Mineral Society**

**Silver Dollar Fairgrounds**

**2357 Fair Street**

Hours: Sat 9:30 - 5; Sun 9:30 - 4

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

[Show Flier](#)

[Worldwide Tumbling Contest](#)

### Random Quote From Mineral Literature:

The physical characters of minerals fall under the following heads:

I. Characters depending upon *Cohesion* and *Elasticity* == viz., cleavage, fracture, tenacity, hardness, elasticity, etc.

II. *Specific Gravity*, or the Density compared with that of water,

III. Characters depending upon *Light* == viz., color, luster, degree of transparency, special optical properties, etc.

IV. Characters Depending upon *Heat* == viz., heat=conductivity, change of form and of optical characters with change of temperature, fusibility, etc.

V. Characters depending upon *Electricity* and *Magnetism*.

VI. Characters depending upon the action of the senses – viz., taste, odor, feel.

From: A Textbook of Mineralogy with an extended treatise on Crystallography and Physical Mineralogy by Edward Salisbury Dana, Fourth Edition, Twentieth Printing, September, 1963; Page 207 ¶ 1.

## 2018 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	
<b>DIRECTORS</b>		
2016--2018	Bruce Carter	
2016--2018	Bob Housley	
2016--2018	Leslie Ogg	
2018-2019	Pat Caplette	
2018-2019	Pat Stevens	
<b>COMMITTEE CHAIRS</b>		
Bulletin Editor	Linda Elsnau	<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 Elsnau	<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)

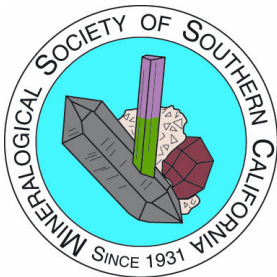
**Website:** [www.mineralsocal.org](http://www.mineralsocal.org) **The Mineralogical Society of California, Inc.**

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

*To:*



**With Knowledge Comes  
Appreciation**

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