



Bulletin of the Mineralogical Society of Southern California

Volume 88 Number 5 - May, 2015

The 921st meeting of the Mineralogical Society of Southern California

With Knowledge Comes Appreciation

Friday, May 15th, 2015 at 7:30 P.M.

Please Take Note of the Change in Date to The 15th

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

Program: Ethiopian Opals...Always Shining and Inspiring

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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: Ethiopian Opals...Always Shining and Inspiring: The Nature of Welo Opals - Presented by Gabriel Mosesson

Welo opals were discovered in 2007 in Welo, Ethiopia. Since then, Welo opals have been captivating the gem world and have risen to the top of the list for most precious gems due to their beauty, depth, fire, diversity and ease to work with. Gabriel Mosesson of Ethiopia Imports will talk about the discovery of the Welo opal in 2007. He will also discuss and show samples of the opal's unique characteristics including diversity in color, and types of fire patterns.

The lecture will cover information on lapidary techniques, cutting and polishing Welo Opal, as well as recommendations on setting Welo opals in fine jewelry. The presentation will include a slideshow of Gabriel's opal collection. Samples of Welo opals will be on display during the lecture, including rough, polished, hand carved opals, and rare opal specimens. Opals will also be available for purchase after the lecture.

Ethiopia Imports has been working with Welo Opals since their discovery. Gabriel is well experienced in working with these opals which he polishes, and sets into his own jewelry designs. His hand carved opals display his unique style of cutting. Gabriel collaborates with other local jewelers in the Los Angeles area, creating one of a kind custom jewelry designs. Gabriel participates in Gem & Jewelry Trade Shows across Southern California.

For a list of upcoming events and more information about Gabriel's opals please visit www.ethiopiaimports.com

From the Editor:

OK, April has come and gone and I am assuming everyone happily got though the 15th. Our April program was excellent and those that were not there missed a real treat. Our Secretary was unable to attend the meeting so the meeting minutes for April's meeting do not include her thorough program report. While we all enjoy the wonderful recaps that are published in the bulletin, you shouldn't depend on them and you should try to attend the meetings whenever possible so you don't miss our excellent speakers. This month's program on Welo Opals looks like another one not to miss, especially as the speaker will be bringing specimens for our members to purchase! I hope all who can will be there. Linda Elsnau

Meanderings From The President by Ann Meister

Checking the on-line Caltech Public Events Calendar brings interesting rewards. I discovered that on Tuesday, April 21, the 3-day 2015 Seismological Society of America Annual Meeting that was being held in Pasadena was sponsoring an open-to-the-public Town Hall Meeting titled "The Future of Earthquake Hazard Mitigation: *How earthquakes impact Southern California... come meet the experts.*" The session at the Pasadena Convention Center was well attended by both the general public and SSA attendees, who were from around the world. (There was a map in the lobby into which the attendees stuck a pin to show where they were from.)

The topic of the first speaker, Kate Scharer from USGS, was "Earthquake Faults in Southern California." She used our faults (pun intended) to discuss the three questions to answer about each fault: How fast does the fault move? (Its slip rate) Is there a pattern of timing between large earthquakes? How big will the earthquake be? Which is related to the type of rocks underground. Aerial photographs and paleoseismology assist in answering the three questions. She emphasized that they can now forecast earthquakes – give the long-term odds that one will happen along a section of a fault, but that is not a prediction of when, the day or week, that it will happen. The new model, referred to as the third Uniform California Earthquake Rupture Forecast, or UCERF3, provides "authoritative estimates of the magnitude, location, and likelihood of earthquake fault rupture throughout the state" according to the 6-page Fact Sheet. Resource websites are <http://earthquake.usgs.gov> and <http://earthquakecountry.org> and <http://www.WGCEP.org/UCERF3>

Next, Monica Kohler from Caltech, spoke on "Citizen Science' and Earthquake Monitoring of Smart Buildings." As an engineer and seismologist, she is focused on what happens to structures in earthquakes. Seismic engineers are expanding their knowledge by putting sensors in buildings and homes through projects

such as the Community Seismic Network (CSN) (<http://csn.caltech.edu>) which is asking for volunteers in the San Gabriel Valley to connect seismic sensors to their computers. The sensors are provided free of charge. There are also sensors in buildings on the Caltech (Milliken Library), UCLA (Factor Building), USC, and JPL campuses and a 54-story building in downtown Los Angeles that has sensors on nearly every floor so that they can trace the P (primary) and S (secondary) waves as they propagate through the building and see how the building is stressed. This helps in setting standards for earthquake safety in building design.

The third speaker was Doug Givens of USGS spoke on "Earthquake Early Warning." The early warning is on the order of seconds to perhaps minutes depending on the sensors near the center of the earthquake and the distance of the receiver from the propagating quake. This is the Shake Alert system. It is all dependent on the density of the sensors and the ability to get the message to those who need to know, such as early responders, hospitals (to stop delicate procedures in progress), and transportation such as BART or high speed trains. There's the possibility of using "hover boards" to isolate delicate equipment in laboratories and industry. And there's also the possibility to trigger responses to automatically open the fire house doors so that they are not jammed as the P and S waves do their damage. This system requires the investment of millions of dollars that will save us from billions in losses. (<http://earthquake.usgs.gov/research/earlywarning/>)

The last speaker, Mark Simons of Caltech, spoke on "The Advanced Rapid Imaging and Analysis (ARIA) Project: Earthquakes from orbit." This was about space-based geodesy to develop before-and-after pictures and maps of the devastation. If available quickly, they can be used for rapid response to the disaster, especially in areas that are difficult to reach to assess damage. The pictures and maps are used not only for immediate response, but also for debris removal, clean up and rebuilding, cost assessments, types of damage, how much slippage, etc. This requires sufficient coverage of the globe to get the "after" data while it is fresh.

Then on Thursday of that week, the Von Kármán lecture at JPL was about RoboSimian, JPL's unique entry into the DARPA Robotics Challenge Finals. The DRC is a competition of robot systems and software teams vying to develop robots to respond to disasters. These are robots to go where people can't and do things such as turn the valve that would have prevented the additional damage at Fukushima after the earthquake and tsunami. The Finals will be held at the Pomona Fairplex on June 5-6, 2015 and are open to the public. I'm going...

MINUTES of the April 10, 2015 Meeting

The 920th Meeting of the Mineralogical Society of Southern California (MSSC) was held on Friday, April 10, 2015 at the Geology Department of Pasadena City College. President Ann Meister brought the meeting to order at 7:38 p.m.

Regular Business

Welcome to all in attendance at tonight's meeting. Refreshments are served after the meeting in the room next door.

Minutes:

President Ann Meister asked for a motion to approve the Minutes of the last Membership Meeting as listed in the March, 2015 Bulletin. The Minutes of March 13, 2015 meeting were approved by motion from Fred Elsnau, seconded by George Rossman and carried by membership vote.

President's Messages:

- Items for the Bulletins are due to Linda by April 24, 2015. If you have any article, please submit them to Linda.
- The next MSSC meeting is the 3rd Friday May 15, 2015 due to a conflict with Graduation at PCC.
- August 9, 2015 is the Picnic at Bruce Carter's home.
- June 7, 2015 is the MSSC Board Meeting at Bruce Carter's home. Everyone is welcome to attend.

Announcements:

- April 18, 2015 is the Sinkankas Symposium Event. Limited seating may be available.

- Field Trip Report-Rudy Lopez: The field trip led by Steve Mulqueen was on March 28, 2015. They went to see oil seeps and had a private tour of the California Oil Museum. Everyone had a great time!
- May 2015 Guest speaker is Gabriel Mosesson on Ethiopian Opals. He will bring samples and jewelry for sale.
- August 10, 2014 is the Picnic from noon until 5:00 p.m. at Bruce Carter's home. Theme for this year was discussed with suggestions of: Favorite Past Programs, Memory Lane. Other clubs to be invited are: GMC- LA History Museum, Fallbrook, MOROCKS, and the Dana Club.
- Shows: Culver City EOM, June
Opal Society Show, November

Show & Tell

- Pat & Geoff Caplette brought in what was identified by Dr. Rossman to be a dinosaur egg.

Program

Rudy Lopez, Program Chair, introduced tonight's speaker Bethany Ehlman. She is an Assistant Professor, California Institute of Technology; Research Scientist, Jet Propulsion Laboratory; Division of Geological and Planetary Sciences. The Topic was *Mineralogy of the Martian Surface: Aqueous Environments during Mars' First Billion Years*. The last decade of Mars exploration with orbiters and rovers has revealed that liquid water was relatively widespread during the first billion years of the planet's history with diverse aqueous, potentially habitable environments varying in space and time. Results from select regions observed with the orbiting MRO/CRISM infrared imaging spectrometer was presented and tied in with recent results from the Opportunity and Curiosity rovers.

Door Prize Winner was Pat Caplette who passed to one of the guest attending tonight's meeting.

Adjournment

The meeting was adjourned at 9:10 p.m. After the meeting, refreshments were served.

Respectfully submitted, Cheryl Lopez

List of Upcoming MSSC Events : Mark your Calender!

Event	Date	Comments / Scheduled Program (if known)
Meeting Dates:	June 12, 2015	Justin Zzyzx: Palos Verdes, Barite, Mines and History
	July 10, 2015	Forestry Service: Monument Program
	September 11, 2015	Fred & Linda Elsnau: "Bones of the Thunder Lizard"
AnnuaPicnic	August 9, 2015	At Bruce & Kathy Carter's home
Board Meeting	June 7, 2015	Board Meeting at Bruce Carter's house
Annual Banquet	January 9, 2016	At The Oak Tree Room, CoCo's Restaurant, Arcadia

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

Possible Upcoming MSSC Field Trip to the UCLA Meteorite Collection

Our new Field Trip Chairman, Rudy Lopez, has been in touch with the UCLA meteorite Gallery and tells us that they are willing to give us a private tour. The UCLA Museum has offered a Sunday tour for us if we are interested. This could be an exciting trip to the new UCLA Meteorite Gallery.

The date has not been set and he needs feedback from you. If you are interested in joining a visit to see this excellent new Southern California exhibit, please contact Rudy Lopez at: programs@mineralsocal.org He will let us know when he is able to schedule our visit.

With Knowledge Comes Appreciation!

Cleaning Quartz by Rock Currier Part III

Editor's note: This article is being used with Rock Currier's permission and is as it was published in mindat.org. (<http://www.mindat.org/article.php/403/Cleaning+Quartz>) However, as we needed individual permission for each photo, I exchanged some of the pictures to those I have permission to use. Same location, same mineral, different photographer.

Cleaning amethyst specimens from Thunder Bay, Canada.

Chemicals can be used to remove thin films of iron oxide minerals that are commonly present on amethyst specimens from Thunder Bay. However at this locality the iron oxide minerals can be quite thick and removing them with chemicals present challenges not found on quartz from other localities. Chemicals are used to clean these specimens but it is not as easy as cleaning specimens from other localities and a time consuming task. The reagent mixtures can include both hydrochloric acid and oxalic acid and heat. The formulas for the reagents used are proprietary and are arrived at only after considerable experimentation. Since they confer an economic advantage on the miners that use them, they usually don't want to give up the cleaning methods that have made them money over the years. If someone would care to share detailed information about cleaning these kinds of quartz specimens we would be delighted to relate them here.

9. Cleaning Quartz with commercially prepared reagents containing small amounts of bifluoride.

Here is a quartz cleaning technique that was suggested and documented by Mindat member Nik Nikiforou that appears to be so practical and good we are presenting it here for all Mindat members. If you are familiar with the way specimens look, especially quartz crystals look when they are freshly collected from a pegmatite pocket you will want to be aware of this method of cleaning them, especially if you don't have any air abrasive tools at your disposal. Even if you do, you may want to give this method a try. Look at this before and after image of this quartz and spodumene var. kunzite specimen below. Although the before picture is not very sharp and not taken from exactly the same position as the after shot, it is plain to see that the cleaning of the specimen was very effective.



This specimen of kunzite & quartz from Konar (Kunar; Konarh; Konarha; Nuristan) Province, Afghanistan was taken before it was cleaned

A picture of the same specimen after it was cleaned.

These images have been released to the public domain by N. Nikiforou and may be used freely

"Cleaning the above specimen with Whink took me about three weeks using three complete cycles, to get the piece to where I was satisfied that I had done enough. Note that even though most of the white stuff came off the quartz crystal, it was still extremely "luster challenged" after cleaning. Nonetheless, I am quite pleased with the results (although I have also messed up a few pieces as well).

Although you can probably prepare a similar reagent using ammonium hydrogen fluoride (ammonium bifluoride, a white poisonous powder) we would recommend you use a commercially prepared reagent called Whink. This is one that should easily be obtainable here in the United States. There are probably others. Perhaps someone will come forward with a formula and reagent preparation procedure for a similar reagent, but till then, this one will do well. For those of you in foreign countries who may not have access to this particular brand of bifluoride reagent I would advise you to ask or pay an industrial chemist to whip up a formula for one that you can use and perhaps even sell to others that may want to clean their quartz specimens. But for now, let's listen to what Nik Nikiforou says:

I've had good results removing the silicate "white stuff" from Quartz and other minerals using an easily obtained product called Whink Rust Stain Remover. It is a liquid and comes in a brown plastic bottle in 6, 10, 16 & 32 oz. sizes and can be bought in many hardware stores and or on line. Before I go any further you need to know that this product contains 2% to 3% hydrofluoric acid, one of, if not THE most corrosive acids known, and extreme safety precautions need to be taken,

including working with it ONLY OUTDOORS, wearing SAFETY GOGGLES and chemical resistant GLOVES. You must NOT let the liquid touch your skin and you must not breathe the fumes. I can't stress that enough.

Having said that, I use it by putting the specimen to be cleaned in a LOOSELY covered plastic container (not glass as it will eat through glass!), pouring enough of the liquid in to cover the specimen, and keeping it out in the sun for several days or longer. If I need to process a large piece I will dilute it with enough water to cover the specimen, although this will prolong the amount of time needed for it to work. I will check it every couple of days by gently scraping at the white stuff to see if it has begun to soften. At that point I will remove it from the Whink and soak it in water for a few days, changing the water daily, in order to remove any remaining HF, especially if the piece is at all porous. I then gently scrape off as much of the stuff as I can with a dental tool or knife, and if the piece can physically stand up to it, hit it with the water gun. I often have to REPEAT this process two or three times (Whink treatment, water soak, mechanical removal) to get the last of the white stuff off. A lot of work, so it only pays to do this with better pieces.

CAVEATS:

1. This is not the cheapest way to use HF - you can get more bang for your buck by using HF obtained from chemical supply houses, which is much more concentrated and can be diluted to your needs. This is NOT an option for me or for most collectors - I have seen photos of the severe tissue damage caused by even short exposures to this acid and don't want it anywhere near me.
2. Whink can DULL the shine on Quartz and other silicates if used for a prolonged amount of time. It will also destroy some other minerals (don't use it on Apatite!), and it will slowly begin to etch Feldspars and Micas. Do some research or test on lesser pieces first.
3. Getting the white stuff off often does NOT improve the appearance of the specimen. In my experience, most crystal faces that are under the white stuff tend to be dull anyway; this is one of the reasons that the white stuff is so tenaciously attached to the crystal as it has lots of micro surfaces to "get a grip" on.
4. I've had a couple of cases where the specimen either lost some crystals or came apart because the "white stuff" was actually holding it together. You need to closely examine your specimen to gauge if this is likely to happen.

If you plan on using Whink, **PLEASE TAKE ALL PROPER SAFETY PRECAUTIONS!**

[Nik Nikiforou 2009]

In Brazil, the dealers who frequently buy and sell quartz crystals use a commercial cleaning liquid called Chispas which derives its cleaning effect from ammonium bi fluoride and other ingredients. It is used to clean iron stains from the quartz crystals and they credit it with also making the quartz brighter and this may be the result of the weak HF solution removing very micro-crystalline quartz from the surface of the quartz crystals. But I am not sure about this. I have seen it used in Rio Grande do Sul among the producers of amethyst specimens to make amethyst crystals bright and clean, and have been told that if the amethyst is left too long in Chispas, especially fresh Chispas, it will dull the amethyst crystals. I have seen specimens of amethyst where the amethyst crystals are still bright and shiny, but the underlying agate has been turned white on the outside and was told this was the result of even a short cleaning in Chispas. The fluorine in the solution attacked the chalcedony/agate very quickly compared to the crystallized amethyst. There are a number of commercial cleaning products that use bifluoride in their make-up; among these are those used on a regular basis in commercial car washes. Solutions of ammonium bifluoride should be neutralized by dumping marble or limestone chips into the solution. This will cause bubbling and a white precipitate of calcium fluoride (fluorite). To be sure the neutralizing reaction has been complete, keep adding marble or limestone chips till no more bubbling occurs. This may take a while.

10. Possibly cleaning and or removing quartz with Hydrofluoric Acid (HF)

I am not going to tell you how to use this terrible chemical, but I will tell you some things about it that I hope may persuade you not to try to use it. I'll also tell you about some of the things it can and cannot do. The danger involved in using this acid is so great that even the experts here on Mindat recommend that you not use it. Further there is an informal policy here on Mindat, that the experts will not tell people on the bulletin board how to use this acid. There are a few uses for it that cannot be replaced with less dangerous chemicals and if you really need to use HF for those purposes, then you need to find someone who knows how to handle HF. An old chemist or chemistry teacher will do nicely; have him/her train you in how to use this reagent safely. To try and teach you about this acid by writing is not something I will willingly do. It would be inviting all kinds of trouble, especially in this litigious society.

Hydrofluoric acid is basically the poisonous gas hydrogen fluoride, dissolved in water. In its concentrated form it is a clear liquid that cannot be stored in glass because it will dissolve the container. I have been told, that in old chemistry labs it used to be stored in bottles made of paraffin. This was before the advent of modern plastic containers. In small

quantities it now comes in bottles made of thick plastics like polypropylene. When you open the bottle the gas will start to escape and on a humid day you can see it. It will rise up a little like steam, and let me assure you that you really do not want to breathe the stuff. So if the day is not humid, and you do not have a fume hood to get rid of the fumes from the HF, you really can't tell if you are going to breathe any of the stuff until it is too late. A bit probably won't kill you, but if you get a whiff of it, you will run for cover. Even the most callous of us that have used this reagent many times treat this beast with respect. That is as far down that road as I am going to take you. Let me also say that many people, even those trained in chemistry have been injured short and long term by this chemical. It can do nasty things to your body. If in spite of what I have said here, you persist in trying to use HF whatever else you do, go to Wikipedia on the net and read about the acid and the attendant dangers. http://en.wikipedia.org/wiki/Hydrofluoric_acid. [Link Broken? Nov 2013] The terrible effects caused by contact with this chemical have been known for more than 100 years. Six drops will kill a dog. <http://lateralscience.blogspot.co.uk/2013/06/little-dog-hydrofluoric-acid.html>

All that being said, if you want to remove quartz or other silica containing minerals from around gold, silver or other minerals that are not affected by HF, then there may be no other option. In a few cases, quartz crystals may be coated with a thin druse of secondary micro quartz crystals that can possibly be dislodged by using hydrofluoric acid. To dissolve, or partially dissolve the quartz from around gold, silver, etc. you need to use fairly concentrated HF and then the process will be slow, a day or two or more, depending upon on how much you want to remove. Massive quartz (bull quartz), chalcedony and opal are attacked much more quickly than the surface of regular quartz crystals. To dissolve a well-formed quartz crystal with room temperature HF can take several days, and it does not polish the quartz and make it look shiny like it will regular glass, but rather jagged and dull. I have seen some rather drab Japan law twined quartz from Washington Camp, Arizona treated in fairly concentrated HF for several hours with the surprising result that the very fine drusy quartz that was giving a matte finish to the twins was mostly removed and the surfaces left shiny. We forgot about putting them in the acid and went back after about four hours to find this surprising result. I don't think we would have had the nerve to leave them in that long if we had remembered sooner that they were in the HF. Some of the crystals had little cracks in them, and though the HF left the surface of the quartz crystals shiny, it did attack it a bit along the edges of the cracks and it left little white trails along the cracks. My advice is that unless the quartz you are trying to clean is really exceptional, don't try and clean it with HF. It just is not worth the cost and the risk to your health. The last quote I got from a chemical company for a gallon of HF was something over \$100 dollars. If you really need to use HF you can read various articles and comments on line. One of them is given here: http://www.minsocam.org/ammin/AM46/AM46_1498.pdf

Sodium Hydroxide

Alfredo Petrov has had success in cleaning coatings of scorodite from Japan law quartz twins from Kami, Bolivia. These were clusters of Japan law twins. He placed the quartz in a concentrated solution of sodium hydroxide. This turned the scorodite into goethite, which could then be removed with Waller solution, oxalic acid or hydrochloric acid. You probably don't want to leave the quartz in a strong lye (sodium hydroxide) solution for very long because quartz is slowly soluble in this reagent at room temperature. Strong solutions of sodium hydroxide are very corrosive and will basically dissolve your skin by turning the fat in your skin into soap. Wear plastic gloves when handling this material. You can neutralize lye solutions with vinegar or hydrochloric acid.

Hydrogen Peroxide

Sometimes, you can use hydrogen peroxide to remove certain black manganese minerals like todorokite from quartz crystals. Some people have reported success in removing organic materials such as lichen, clay minerals or fine grained minerals from quartz and other minerals with the use of hydrogen peroxide solutions. When the solution reacts with the manganese minerals it generates bubbles of oxygen gas. Reagent grade hydrogen peroxide can react violently with things like asphalt. Before using concentrated hydrogen peroxide be sure you really know what you are doing. We have had enough initial success in removing clay from Chinese azurite using a standard weak solution of hydrogen peroxide (hair bleach quality) that we are going to experiment more with this reagent. It is not clear just what hydrogen peroxide does in loosening impacted clay and other fine grained materials, but it has a salutatory effect. I have not had much experience using this reagent on quartz, so any help from those more knowledgeable than I will be welcomed. The results of using this reagent on manganese oxides can be very dramatic. You drop the specimen into the solution and when the bubbles clear away in a minute or two, the specimen is magically clean with all the black manganese oxide gone. I was once able in just a few minutes to clean many specimens of prehnite casts after laumontite that appeared to be hopelessly covered with black todorokite. It was like magic.

When working with chemicals like those above, you should not mix the different solutions together. This will sometimes produce unwelcome precipitates or react in ways that will be unwelcome or dangerous.

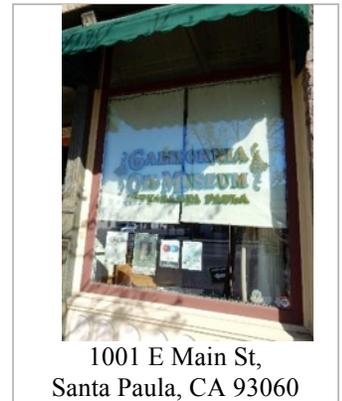
I have been called an expert now and then but just when I start to feel a little smug, an old friend reminds me that an “ex” is a has been and a “spurt” is a drip under pressure.

Rock Currier (Reviewed and proofread by George Holloway)

Editor’s Note: This is the last installment of this excellent article. My thanks again to Rock and the various photographers that allowed me to share this excellent article with you. Also, MSSC is not responsible for any mishaps, injuries or problems caused if you choose to use any of the above described methods to clean your specimens.

MSSC April Field Trip: The California Oil Museum and Area Seeps
 Trip Tour Guide: Steve Mulqueen By: Rudy Lopez

Saturday, March 28, 2015, Steve Mulqueen gave a tour of The California Oil Museum and Oil Seeps, in Santa Paula, California. The trip started with a private tour of the Museum, that included the private offices, a look at a sphere that is rotating by way of water pressure and took us onto private property to look at oil seeps. This was a full day of a look at the past and the present. The past was the tour of the Museum, with antique gas pumps, fossils, uses of oil other than fuel or lubrication, and oil rig set up. The present was a trip onto private property to see actual oil seeps. Some of the many pictures I took follow:



1001 E Main St,
 Santa Paula, CA 93060



The Main Desk



Fossils



Picture of the past



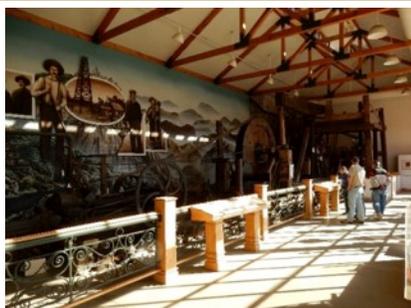
Geology



Early uses



Steve showing pumps and oil



A general view



Plaque showing date when founded



Exterior of the Oil Derrick Building



The rotating sphere



An oil seep



Taking a break



Steve Mulqueen talking about oil seeps



Self-paving road



Plaque dedicated to OIL WELL OJAI # 6. Prelude to California Oil Empire, September 11, 1965

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 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	
A ride	Catherine Govaller	San Bernardino, CA	

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 and the payment should be sent to the			
MSSC Treasurer 1855 Idlewood Road, Glendale, CA 91202			

WEST COAST ~ SPRING **GEM & MINERAL SHOW**

MAY 15 - 17, 2015

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**Holiday Inn - Orange County Airport
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Beads ★ Decorator Pieces ★ Meteorites

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Show Hours: Fri. & Sat. 10 - 6 ★ Sun. 10 - 5

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Cobaltian Calcite- Morocco
Photo by Joe Budd©

Calendar of Events:

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

MAY 2015

May 1 - 3: LA HABRA, CA

North Orange County Gem & Mineral Society

La Habra Community Center

101 W. La Habra Blvd.

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

Website: www.nocgms.com

May 2 - 3: ANAHEIM, CA

Searchers Gem & Mineral Society

Brookhurst Community Center

2271 W. Crescent Avenue

Hours: Sat 10 - 5; Sun 10 - 4

Website: www.searchersrocks.org

May 2 - 3: YUCAIPA, CA

Yucaipa Valley Gem & Mineral Society

New Location:

Adams St. & Yucaipa Blvd. - Tent in street

Hours: Sat 11 - 7, Sun. 12 - 4

Website: www.yvgms.org

May 9 - 10: ESCONDIDO, CA

Palomar Gem & Mineral Club

California Center for the Arts

340 N. Escondido Blvd.

Hours: Sat 10 - 5; Sun 10 - 4

Website: www.palomargem.org

JUNE 2015

June 6 - 7: GLENDORA, CA

Glendora Gems & Mineral Society

Goddard Middle School

857 East Sierra Madre

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

June 12 - 14: LODI, CA

California Federation of Mineralogical Societies

2015 SHOW & CONVENTION: "Rocks & Vines"

Hours: Friday & Saturday 10-5; Sunday 10-4

<http://www.cfmsinc.org/2015show/2015Show.html>

June 27 - 28: CULVER CITY, CA

Culver City Rock & Mineral Club

Veterans Memorial Auditorium

4117 Overland Blvd (Culver Blvd,
near the 405 & 10 Freeways)

Hours: Sat 10 - 6; Sun 10 - 5

Website: www.culvercityrocks.org

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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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1855 Idlewood Rd.,

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Website: www.mineralsocal.org **The Mineralogical Society of California, Inc.**

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MSSC Bulletin Editor
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To:



With Knowledge Comes Appreciation

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