

Next MSA Meeting

Our Next Meeting is on
 Friday, April 8th at 7 pm
 at the Arizona Mining & Mineral Museum

The State Mine and Mineral resources Director, Doug Sawyer, will offer a PowerPoint presentation about, "The Current State And Future Of Mining Endeavors In The State Of Arizona."

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Need to contact the newsletter editor?

Write to Deanna Smith
 P.O. Box 14405, Phoenix, AZ 85063
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Next MSA Field Trip

March 19 MSA Field Trip to Date Creek for Quartz Crystals.

Trip Leader : Gilbert Flores.

Meeting Time/Place: Take U.S. 60 to Wickenburg & meet at the Mc Donald's at 9:00 a.m. It will take 1-1/2 hours from the West valley and 2 to 2-1/4 hours from the East valley.

Got Questions? Contact Gilbert at :
 phone (800) 264-5101
 email Gilbert.Flores@encompassins.com

Check out pages 4 and 5 for more trips.

American Lands Access/Rights Associations

More and more places are being closed for use by gem, mineral and fossil amateur enthusiasts. Join others in getting your viewpoint across to Congress and other government agencies to keep your access to public lands. Join ALAA or ALRA today.

American Lands Access Association

P.O. Box 87543, Vancouver, Washington, 98687-0543. Phone (360) 892-2438, Email: jonspe@pacifier.com

American Lands Rights Association

30218 N.E. 82nd Ave, P.O. Box 400, Battle Ground, WA 98604. Email : altr@pacifier.com

Need to contact the Board?

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President's Message
By Shirley Fiske

I had a great time in Tucson, although I spent too much money. I found a Los Lamentos wulfenite that "called" to me, and I had to answer its call. As a result, I guess I'll have to keep working to pay for it. It does look good in my cabinet.

I hope each of you were able to get down to the show and find that special specimen to fill a hole in your collection. Tucson is a lot of fun, but not for the faint of heart. Next year the theme will be minerals of Canada. It should be interesting, and I'm already looking forward to it.

Closer to home, now that the weather has settled down to its usual sunny self, it should be a great opportunity for club members to get out and participate in upcoming field trips. For many people, these collecting expeditions are the primary reason for being in the club. Especially now, even if you don't find a world-class specimen, getting out of the valley with your trusty rockpick in one hand and pocket camera in the other makes for a special weekend. I hope you are able to make at least one of the upcoming trips featured elsewhere in this newsletter. Of course, you are welcome to bring in any bragging rocks to our monthly meetings. I know I speak for all the club members when I say that anything you think is good enough to be carried in your backpack for miles is good enough for us to take a look at.



Hint: When storing gem material outdoors, be careful. Many colorful pink and purple minerals are faded by intense sunlight. These include amethyst, lepidolite, rose quartz and fluorite. Fossil specimens may be destroyed by wetting, freezing and thawing. Common opal can craze, crack and fall apart.

via Rockytier 10/04 via the Roadrunner 1/05

3rd Annual Sinkankas Symposium
"BERYL"

Date: Saturday, April 23, 2005

Place: GIA Headquarters, 5345 Armada Drive,
Carlsbad, CA

Hosts: San Diego Mineral & Gem Society & GIA

Schedule:

8 a.m. - Park, get badge, enjoy continental breakfast, coffee or tea.

9 a.m. - Symposium starts on time.

Noon - Lunch

1 p.m. - Symposium resumes.

5 p.m. - Shake hands and say farewell.

Topics: Suitable for novices as well as experts.

Speakers: TBD, but everyone who spoke last year is eager to return this year!

Displays: Specimens, books, hand-painted illustrations, etc.

*** Pre-registration and pre-payment are required ***

Fees: \$55 per person for SDMG members, past participants, early registration, GIA students. \$75 per person for late registration.

Early registration deadline (last day to pay \$55):
March 30, 2005. Absolute last day to register (and pay \$75): Monday, April 18.

Please make all checks to SDMG and mail with your name, address, phone number, and email address to: Anne Schafer, 8473 Hydra Lane, San Diego, CA 92126-1854. Attendance limited to 125 people. A sell-out is anticipated, so register early. For more info, contact symposium organizer Roger Merk at (619) 281-1032 or email merksjade@cox.net.

Meeting Minutes Board Meeting
January 29, 2005
 by Lois Splendoria, Secretary

The meeting was called to order by president Shirley Fiske. In attendance were Sally Fiske, Bob Holm, Lynne Dyer, Gilbert Flores, and Lois Splendoria. Shirley said that Terry Dyer is currently listed as a board member and asked Lynne if he could attend our next meeting.

Disposition of the club's Certificates of Deposit – Sally said the next CD comes due in March at Arizona Federal Credit Union and the MSA could reinvest the money in some other way. Discussion followed on investing possibilities. Shirley asked Gilbert Flores to look into the Desert Schools Credit Union and for Sally to check with the Arizona Federal Credit Union and to work together in their research. This will be discussed at the March board meeting.

Education and Outreach Committee – This committee will replace the Scholarship Committee. Gilbert suggested Paul Flores as a good member for this committee and that 3 people should constitute the committee.

Club Library – Lynne Dyer pointed out that some new members may not know that the MSA library exists. Gilbert suggested that the library needs some good topographical maps. The board will look into getting a better lock on the library cabinet in the Museum storage room and possibly obtaining a different library cabinet or an additional one on top of the existing cabinet.

Web Site – Gil said some progress has been made with the web site. The MSA has the password to the server owned by C & R Productions.

Preliminary Show Report – Sally presented a preliminary report of Expense and Income for the

show. Discussion took place about the possible expenses incurred. The information tent was either \$100 or \$200, and Cecilia had approximately \$55 in expenses. Following are the daily totals for the both the 25 cent wheel and the dollar wheel:

Day/Date	Dollar Wheel	25 Cent Wheel
Friday, January 14	\$89.00	\$111.00
Saturday, January 15	\$333.25	\$200.31
Sunday, January 16	\$197.00	\$141.25
Grand Total – Both Wheels		\$1,071.81
Minus \$60 to buy minerals/Adjusted Total		\$1,031.81

Lynne suggested signs at each wheel saying that the money is for the Education and Outreach Fund. Shirley asked Gilbert to have W. R. Russ give the MSA all of show expenses before the next board meeting.

February 19 Prospector's Day at the Museum – Shirley received a note from Sue Celestian, suggesting the MSA do another activity for this event besides the wheel. Another organization will have mineral wheels. It was decided to have an info table, sell sugar crystal lollipops, and give away free wrapped candy. Shirley said we'd need club flyers. Bob Holm volunteered to help with this event.

Regarding ideas for future speakers, Shirley said that Dick Zimmermann has a presentation on pegmatites. Sally knows a speaker from the BLM, and Gilbert said he would be interested in having a speaker from there.

2006 Rockfest – Gil said he has some ideas for publicity for next year's show. Sally suggested sending Tom Parks, a member of the Leaverites club who helped with the show teardown, a thank-you note.

Since there was no more business, it was moved, seconded, and passed to adjourn.

Coalition Field Trip To Saddle Mountain on Saturday, March 26, 2005

Trip Leader – Ed Nichols of the Mineralogical Society of Arizona. Phone # (480) 636-1251

Meeting Place –

- 1) For those coming from the Phoenix area, you can meet at the Arizona Mining & Mineral Museum at 15th Avenue and Washington in downtown Phoenix between 7-7:30 a.m.. We will be caravanning to the main meeting place, which is the Tonopah truck stop.

- 2) For those who simply want to meet us at the Tonopah truck stop, be there no later than 9 a.m.

High clearance or 4WD vehicle recommended.

The well marked turnoff at Tonopah is about 60 miles west of Phoenix. About 1 ½ miles to the junction of Wintersburg Road & Saddle Mountain Road. Road junctions here right to Salome Road & left to Ach Chin Farms area.

Saddle Mountain is an old and well-known fire agate location. It is all or at least for the most part, BLM land. Material at Saddle Mountain varies from fire agate, desert roses and some mine dumps, and some rare geodes in this general area. There are some dangerous vertical shafts in this area.

What to bring: Usual rockhounding tools, water, food. Camping gear if you plan to camp overnight. The trip leader plans to stay overnight at the location.

"You might be a rockhound if"

- The first thing you pack for your vacation is a chisel and a hammer.
- Your company asks you not to bring any more rocks to the office until they have time to reinforce the floor

TUSKS!

Ice Age Mammoths and Mastodons



Mesa Southwest Museum March 5 - July 17, 2005

Explore the prehistoric world of giant mammoths and mastodons, as well as many of the Ice Age creatures that lived among them, including giant armadillos and beaver, along with earlier relatives like the "shovel-tuskers" and Gompothers.

"**Tusks!**" also examines the climate changes during that time, as well as early interaction between these creatures and humans, and the causes of their extinction.

Featured prominently in the exhibit will be a full-mounted display of a mastodon, complimenting the museum's existing mammoth skeleton.

Rocky Mountain Federation Annual Convention & Show June 17-19, 2005

The Colorado Springs Mineralogical Society is hosting the Rocky Mountain Federation's Show at its 41st annual Pikes Peak Gem & Mineral Show held at Phil Long Expo Center, 1515 Auto Mall Loop in Colorado Springs. It will also include the Rocky Mountain Micromineral Symposium. For more info call (719) 632-9686 or email csmsshow@cs.com or visit website csms.us.

***Activity Calendar -
Shows and Trips (and a Symposium)***

March 19 - MSA Field Trip to Date Creek for Quartz Crystals. See page one for details.

March 18, 19, 20, 2005 Cottonwood

Annual Verde Valley Gem and Mineral Show
Mingus Union High School, 1801 E. Fir Ave
Sponsored by: Mingus Gem and Mineral Club
Hours: Fri. & Sat. 9 to 5 p.m., Sun. 10 to 4 p.m.
Admission: Friday - \$1, Sat. and Sun. - \$3:00, 3 day pass \$5.00, children under 12 free

March 26 - MSA Field Trip to Saddle Mountain -
See page 4 for details.

March 30-April 4th Yuma County Fair

Yuma Gem & Mineral Society exhibits in fair. March 30th – April 2005. Contact Wes Riley, 10657 S. Ave. 9E # L1, Yuma, AZ 85367, 928-305-6299

April 16 - Arizona Mineral Symposium -
see page 6 for more details.

April 16 - MSA Field Trip to Bagdad Mine for Copper Minerals

2 hours from the West valley and 2 to 2-1/2 hours from the East valley. Take US 60 through Wickenburg to Bagdad turnoff. Meet at the mine entrance, 9:00 a.m Phelps Dodge is offering us the opportunity to tour the open pit, the ball mill and to collect. Bring pick, sledge and chisels just in case we get to really bust rocks. LIMITED TO THE FIRST 22 PEOPLE TO SIGN UP. If we have a large response, we will then get a bus, then all are welcome.

Contact Gilbert Flores to sign up at phone (800) 264-5101 or email him at Gilbert.Flores@encompassins.com

Tucson Happenings at the University of Arizona Mineral Museum:

Silver Clouds/Turquoise Sky. Feb 5th-May 31st.

The Flandrau Science Center with the University of Arizona Mineral Museum are proud to present an exhibit of turquoise and silver, a complementary mineral and metal that have come to symbolize Arizona and its history. Early Native Americans have appreciated turquoise as a gemstone as far back as 1000 B.C.E., and with time it has only grown in popularity. Most know the important role that copper has played in the history of Arizona, often called the Copper State, but few realize that it was really the lure of silver that brought many of the early settlers. The display will feature fine natural specimens of silver and turquoise from around the world, as well as carved turquoise and worked silver. Some of the many contributors that have helped to make this exhibit possible include: Bill Larson, Gene Meieran, Phelps Dodge Mining Company, Les and Paula Presmyk, University of Arizona Foundation, and Dave Wilber.

Arizona' s Copper Mines: Past and Present [February 5 - December 31, 2005]

The University of Arizona Mineral Museum will feature displays of many of the beautiful minerals that come from the large copper mines found throughout Arizona that have been great producers in Arizona' s past and present. These include:

- Bagdad Mine - Miami, Gila County
- Bisbee Mines - Bisbee, Cochise County
- Miami-Inspiration District - Miami, Gila County
- Morenci Mines - Morenci, Greenlee County
- New Cornelia Mine - Ajo, Pima County
- Old Dominion Mine - Globe, Gila County

Contributors include: the Bisbee Mining and Historical Museum, Robert J. Kamilli, Phelps Dodge Mining Company, Les and Paula Presmyk, Eloise Tobelmann, and Gene Wright

Minerals of Arizona Thirteenth Annual Symposium

Dedicated to Richard A. Bideaux

Saturday, April 16, 2005 8 a.m. to 5 p.m.
at the Arizona Mining and Mineral Museum at
15th Avenue and Washington in Phoenix.

Registration Information:

The \$35 (Foundation members pay \$30) registration
fee includes:

- * Registration costs
- * Program Abstracts
- * Wonderful Lunch
- * Refreshments at coffee hour and breaks

**The registration fee must be sent before April 8,
2005** so that the lunch and refreshments can be
ordered. Send a check payable to the :
Arizona Mineral & Mining Museum Foundation
P.O. Box 41834, Mesa, AZ 85274

For additional info call the Museum at (602) 255-
3795. We are also working on a field trip for
Sunday, April 17. Registrants will be notified
when more info is available.

Tentative Program

8:00 - 9:00 Coffee Hour, Book Sale
9:00 - 9:10 Welcoming Remarks
9:10 - 9:40 Richard Bideaux, An Arizona
Mineralogist - Jim McGlasson
9:40 -10:10 Richard Bideaux's Mineral Collection -
Anna Dometrovic
10:10-10:45 Rhodochrosite and other manganese
minerals in Arizona - Les Presmyk and Ray Grant
10:45-11:15 Break, Silent Auction, Book Sale
11:15-11:50 Minerals of the Midnight Owl Mine,
White Picacho district, Arizona - Richard
Zimmerman
11:50-12:20 Minerals of the 79 Mine, Gila
County, Arizona- John Callahan and Ray Grant

12:20-2:00 Lunch, Mineral Silent Auction,
Book Sale, Poster Session
2:00 - 2:30 Virtual tour of the 79 Mine - Harvey
Jong
2:30 - 3:00 Red Beryl from the Wah Wah
Mountains, Utah - Evan Jones
3:00 - 3:30 Break, Silent Auction, Book Sale
3:30 - 4:00 "Old Reliable" the Bingham
Canyon Copper Mine, Utah - Phil Richardson
4:00 - 4:30 Minerals of the Ophir District, Utah,
highlighting the Hidden Treasure Mine - Joe Marty
4:30 Concluding Remarks



Petrified Wood in Short Order

Researchers at the Richland Lab, a research center in
Yakima, Washington, operated by the U.S. Dept of
Energy, found a way to achieve in days what it takes
Mother Nature millions of years - converting wood to
mineral.

Petrified wood has a large, hard surface and a porous
inside, make it ideal to soak up or separate substances
as a catalyst in other processes.

Natural petrified wood occurs when trees are buried
without oxygen, then leach their wood components
and soak up the soil's minerals.

To create petrified wood, the researchers bought pine
and poplar boards at a lumber yard. They gave a half-
inch cube of wood an acid bath, then soaked it in a
silica solution for days. The wood was air-dried,
cooked in an argon gas filled furnace at high
temperature, then cooled to room temperature. The
result was a new silicon carbide that exactly
replicates petrified wood.

-Condensed from Yahoo News by Dale Moore via the Sooner
Rockologist 2/05

The Mother Lode - Part 7: California Mining Methods in 1858

By Tom Horton

Gold Nuggets Lying on the Surface: The gold nuggets that John Marshall and his workmen found in the shallows along the South Fork of the American River were lying visible in the shallow water at the edge of and on the surface of the shores of the South Fork of the American River adjacent to the new sawmill that John Sutter was having constructed.

Placer Mining: This was the result of shoveling sand at the shores and bottoms of rivers and streams and sloshing it around with some water. The very high specific gravity of gold caused it to sink to the bottom of the mixture, and it was the last material that remained in the pan.

Cradles: This method was an improvement over the gold pan, since it allowed more gravel to be worked in the same time period. Gold bearing gravel was shoveled into the upper part of the cradle, large rocks and pebbles were removed by hand and the resultant mixture allowed to pass through a crude filter into the lower part of the cradle. Here cross bed riffles simulated the action of a flowing river or stream. Much of the gold settled out behind the downstream edge of the riffle because of its specific gravity. Much of the finer gold flakes and the very fine grained flower gold exited with the gravel mixture passing through and was lost. The cradle also had supports mounted on its bottom to allow its being

“rocked” from side to side. Because of this, it was sometimes called a “rocker”. Recovery was about 20 percent, the rest exiting the cradle with the output water/gravel mixture.

Long Toms: These were an improvement over the cradle in that both the up-filter and down-filter portions of the device were longer in length, allowing more suspected gold bearing gravels to be shoveled into the up-filter portion and more riffles for gold separation in the down-filter portion of the device. Lengths of carpeting were sometimes used in the bed of the down-filter portion of the device to ensnare some of the finer gold particles. Much gold still exited the down-filter portion of the device with the exiting gravel/water slurry. Better recovery than cradles, but still only about 40 or so percent.

Picture of a monitor



Sluices: These were longer length down-filter slurry runs with more cross bed riffles. Oftentimes, sluices and Long Toms were connected together in the effort to entrap more gold nuggets and particles. Mercury was used to “bait” the downstream edges of the riffles, where it

amalgamated with the finer particles of gold in the gravel slurries passing through the machine. Still, some of the gold washed through the device and exited with the exiting slurry, but not as much as with Long Toms. Better recovery than Long Toms, but

still significant loss in the output slurry. The longer the Sluice, the better the recovery, especially when mercury was used.

River Diversions: Elaborate wooden structures were constructed to create a river bypass. These redirected rivers or streams, allowing teams of miners to work the exposed river bottoms. These structures could only be constructed and worked at the end of summer, when the river or stream flows subsided to a "reasonable" level. As the rains began in the fall, the flow in the streams and rivers increased to the extent that they destroyed and carried away the bypass structures. A 23 mile long portion of the Feather River was diverted in this manner.

Quartz/Gold Hard Rock: This kind of mining involved tunneling down into a gold bearing quartz vein that had been discovered on the ground's surface. Some of the mines developed using this method, notably the Empire Mine outside and beneath Grass Valley, were quite extensive. Primitive timber bracing was initially employed, followed by the use of square set timbering after its invention and use at Virginia City's mines.

Coyote Holes: These were two to four miner holes dug into the tops and sides of deep accumulations of gold bearing gravels resulting from the flows of "ancient rivers". Unlike quartz/hard rock mines, whose hard rock walls, ceilings and floors offered at least some support for the tunnels, coyote holes were dug into fairly fragile strata. Cave-ins were frequent. Holes were relatively shallow. Buckets of suspected gold bearing gravels were collected and transported (by hand mostly) to one of the many streams and rivers in the area to be processed using one of the above methods. The use of bracing timbers was relatively rare. The risk of cave-ins and the lack of ventilation in the tunnels limited this kind of mining.

Hydraulicking: This kind of mining multiplied several times the productivity of the individual miner

resulting in extensive miner lay-offs in the late 1850s. The laid off miners flowed into the various service and transportation industries spawned by gold mining, allowing these enterprises to hire badly needed employees. It involved bringing the stream or river to the mining area, rather than the other way around as with the above methods. This type of mining was done in the ancient river bed gold bearing gravels prevalent in the areas around Nevada City and elsewhere. Dams were constructed upstream of mining areas to form lakes of water to be used by the mining operation. Elaborate networks of wooden flumes and aqueducts were constructed to transport the water. In the beginning, hoses were made of 4-ply cotton (reinforced with iron rings), and later iron pipe was used to transport water from the flume network supply system to 8 and 10 inch iron water "cannons" (I.e. 'monitors'), where its force was used to wash gravels from the ancient river beds into lengthy sluice systems. Enclosing the water supply system allowed relatively enormous pressures to be built up in the water exiting the monitors. Some of these devices could project a stream of water some 400 feet into the air and could demolish a three foot thick brick wall at a range of 50 feet.

To be continued ...

Crystal Repair Tip

If you have been looking for a cement to repair quartz crystals, try **Crystal Clear** by **Duro**. It comes in a small red plastic syringe. It has the same refractive index as glass, is crystal clear and is cured with UV light. Somewhat thick (only a very small amount is needed) the cement dries in a few seconds under bright sunlight. On broken quartz crystal, the repair almost disappears.

From Council Reporter 3/02 via the Sooner Rockologist

Disorderly Opal

By Dr. Bill Cordua

Minerals are crystalline solids, having regular long-range arrangements of their atoms repeating predictably in three dimensions. But there are a few substances, called 'mineraloids', which have mineral-like occurrences, properties and consistency of composition but not a long-range crystalline structure. One of these is opal.

Opal, is a hydrated form of silica with variable amounts of included water. It is often described as amorphous (literally 'without form'). Recent studies, have clarified opal's atomic nature, subdividing it into categories such as 'opal-CT' that read like an alphabet soup. Recent articles, such as one on the origin of thunder eggs from Colorado (Kile, 2002), use these terms, so it is worth-while finding out what they mean.

Opal's lack of long-range atomic structure is verified by its response to x-rays. When x-rays pass through a mineral, they are affected by that mineral's internal atomic structure. When the x-rays emerge, they make a pattern that is recorded on film or graph paper and reveals the mineral's internal symmetry. In opal, the pattern that emerges is diffuse and not very regular. But 'not very regular' is not the same as 'random'. Some opals do show a short-range arrangement of their atoms. This allows subdivision of opals into categories based on the type and extent of this order/disorder. The pattern in opal apparently consists of small spheres or chains of linked Si and O atoms. These structures are surrounded by more silica in a gel-like matrix. The arrangement of the spheres is similar to that of some high temperature forms of SiO₂ - namely cristobalite and tridymite. The type of material found in the opal is the key to the alphabet soup.

Opal A is opal that is truly amorphous, having little if any arrangement of atoms. Much gem opal is of this

variety. Opal AG is the least structured, being all amorphous gel (= AG. Get it?). Opal AN has a vague network structure in the gel. A lot of hyalite opal, thought to form as vapor condensate, is of this type. Opal CT has intermixed tridymite and cristobalite structure along with unstructured gel. It gives broad x-ray patterns, so at least is 'aspiring' to true crystallinity. Lots of common opal and some gem opal is of this variety. Within this is Opal CTm (massive structure), opal CTp (platy structure) and opal CTl (fibrous structure). In case you are wondering where the 'l' came from, (or what the 'l' is going on) this fibrous structured opal has been termed 'lussatite'.

Opal C has a pattern dominated by a diffuse structure resembling cristobalite. Agate at the base of Uruguay amethyst geodes has some of this, so many of you have specimens of this.

Over time opal becomes less disorderly. Its structure is not one that will last, as the atoms are more stable when arranged in a real crystal structure. Burial with moderate temperatures and pressures speed the breakdown process. Eventually opal passes from Opal A to Opal CT to fine-grained quartz or chalcedony. Much chert was probably common opal at one time or another. This nomenclature allows mineralogists who study opal to focus their attention of various types. Each type of opal has its own conditions of formation, and its orderly to disorderly pattern is often a window to those geological conditions.

Graetsch, H., 1994, 'Structural characteristics of opaline silica and microcrystalline silica materials' in *Silica: Physical Behavior, Geochemistry and Materials Applications*, edited by P. Heaney, et. al., *Reviews in mineralogy*, vol. 29, Mineralogical Society of America, p. 209-232.

Kyle, Dan, 2002, 'Occurrence and genesis of Thunder eggs containing plume and moss agate from Del Norte area, Saguache County, Colorado', *Rocks and Minerals*, vol. 77, #, p. 252- 268.

Reprinted from Leaverite News newsletter of the St. Croix Rockhounds