

# ROCK TALK

Volume 17, Issue 2  
Nov. - Dec.

## 2022 - 2023 Officers & Directors

**President:**  
Mike Hollonbeck

**Vice President:**  
Mark Ascher

**Recording Secretary:**  
Linda Ross

**Treasurer:**  
Ellen Alexander

**Membership Secretary:**  
Marilyn Reynolds

**Director:**  
Victoria Fila

**Director:**  
Janette Simister

**Director:**  
Diane Braswell

**Past President:**  
Les Presmyk

**Parliamentarian:**  
Alrene Hibben

**Librarians:**  
Janette Simister & Kathy  
Heitzmann

**EXPLORE  
DISCOVER  
SHARE**

## TUCSON GEM & MINERAL SOCIETY

ROCK TALK is the official publication and is © 2022/2023 by the Tucson Gem and Mineral Society, Inc. to reproduce material contained herein for non-profit use only. All commercial and other use requires written permission from the Tucson Gem and Mineral Society, Inc.

# PRESIDENT'S PAGE

EXPLORE DISCOVER SHARE



Hello to you all,

I hope everyone is doing well and getting ready for the holiday season. We are finally getting some cooler weather as the winter months are upon us. I'm sure by now everyone is aware the Club is open for in-person meetings so, if you're able to join us, the doors are open and we welcome all of you. Due to the lack of volunteers this year the Board has postponed our October Family Fun Day until March, so please plan on signing up to help at one of the stations. We like to

have around 30 volunteers helping at this event. In the past this has been such a fun event and helps our community get to know there's a Mineral Club in town year-round.

Next thing the Board members have determined is that we will proceed with the TGMS Annual Mineral, Fossil, Jewelry, Art & Craft Sale in December and are still discussing the Annual Christmas Party, I know for some people this is the only holiday event for them. Both events have always been such a great time for fellowship and allows members to show off their goodies and make some extra Christmas shopping money. In our next Board meeting we will finalize these plans.

Currently field trips are being scheduled and, as a Club, we love to be together digging for treasures. Kerry Towe has been scheduling and working on putting these trips together to go prospecting. In life at some point we say enough, and in this season Kerry is almost there, so if you could partner or take over the Field Trip Coordinator position please contact him or the TGMS Office.

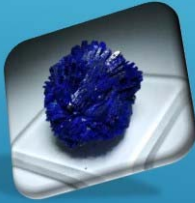
February 9 -12, 2023, the 68<sup>th</sup> Annual Tucson Gem and Mineral Show® is scheduled. As always, we need lots of volunteers to make this happen. When the announcement about volunteering is sent out to everyone, please sign up and join us as we celebrate "Silica - Agates and Opals and Quartz, OH MY!" Also, if you have somewhere to hang or would like to pass out flyers, contact the Office to pick some up.



Michael Hollonbeck  
TGMS President



# Mineral, Fossil, Jewelry, Art & Craft Sale



Presented by the  
TUCSON GEM AND MINERAL SOCIETY MEMBERS

THE PUBLIC IS INVITED!

SATURDAY, DECEMBER 3, 2022

10:00 a.m. - 3:00 p.m.

3727 E. BLACKLIDGE

2 blocks south of Ft. Lowell - 1/2 block east of Dodge

FREE GIVEAWAYS FOR THE CHILDREN!

FABULOUS HOLIDAY GIFT SHOPPING, FROM STOCKING STUFFERS TO  
WORLD CLASS MINERAL SPECIMENS, FOSSILS, JEWELRY, AND MUCH,  
MUCH MORE!

**TELL YOUR FRIENDS! TELL YOUR FAMILY!  
TELL EVERYONE YOU KNOW TO COME JOIN THE FUN!**

The Tucson Gem and Mineral Society Proudly Presents:

## THE 68TH ANNUAL TUCSON GEM & MINERAL SHOW®



Scan code for  
information on  
our Tucson Gem &  
Mineral Show®



# SILICA Agates & Opals & Quartz *Oh My!*

Tucson Convention Center  
February 9-12, 2023

for more information, visit: [www.tgms.org](http://www.tgms.org)



Exotic Opal Zandbergen, Peter Magnus gemstone, Jeff Smith photograph

**STOP BY THE TGMS OFFICE AND PICK UP SOME PUBLICITY MATERIAL AND  
HELP US GET THE WORD OUT ABOUT THIS WONDERFUL EVENT!**

## TCMS General Meeting - September 12, 2022

The General Meeting of the Tucson Gem and Mineral Society was called to order by President Mike Hollonbeck at 7:03 p.m. The meeting was held both in person and via Zoom. The President welcomed new guests, in person and online attendees to the meeting.

**PROGRAM:** Mark Ascher introduced Dr. Ananya Mallik, who presented "All That Glitters: Gems and Planetary Evolution". She is an Assistant Professor in Geo Sciences at the University of Arizona. Dr. Mallik used interesting slides to show how beautiful gem stones (rubies, sapphires, jade and diamonds), along with the study of plate tectonics, can illuminate information on depths of our Earth that are inaccessible by drilling. She also explained how petrology and plate tectonics can impact climate change.

**BREAK:** Marilyn Reynolds assisted with snacks.

### ANNOUNCEMENTS:

The President reported on the June Potluck hosted by Ortrud Schuh and the Potluck-Rock Swap held at the Clubhouse. Both events were very successful.

The Society is planning a Family Fun Day in October and a Mineral, Fossil, Jewelry, Art & Craft Sale in December. Announcements are forthcoming.

### OLD BUSINESS:

Approval of the May 2, 2022 General Meeting Minutes Published in the September/October 2022 Issue of Rock Talk: **MOTION:** To approve the May 2, 2022 General Meeting Minutes. Seconded and approved.

Educational Class: On September 15<sup>th</sup>, at 7:00 p.m. Bill Shelton will present "Zirconium and some minerals that are rich in Zirconium." Announcement has been sent to all members.

Micromount Meeting: On September 19, at 6:30 p.m. attendees will focus on micros that start with the letter "C". Announcement has been sent to all members.

Field Trips: Kerry Towe updated the membership on field trips in October, November and December. Members were advised to carpool due to distance and navigation concerns. Kerry is requesting that a member of the Club assume his role of organizing field trips. Announcements on field trips will be sent to all members.

Note: No sign-up sheets for activities will be available at the General Meetings; everyone is to sign up using the link that has been provided in the member announcements.

**DRAWING FOR DOOR PRIZES:** Mark Ascher conducted the drawing. Winners were Art Friedman, Larry Gilbert, Linda Hampton, Cathie Logan, Bob Melzer, Denis Menard, Linda Ross, Bob Royer and Zoe Zeszut.

The meeting was adjourned at 8:50 p.m.

Respectfully submitted,

Linda Ross  
Recording Secretary



## TGMS Board Meeting – August 9, 2022

**Board Members Present:** Mark Ascher, Victoria Fila, Mike Hollonbeck, Les Presmyk, Marilyn Reynolds, Linda Ross and Janette Simister

**Absent:** Ellen Alexander and Diane Braswell.

**Executive Manager:** Pat McClain

**Parliamentarian:** Alrene Hibben (not present)

**Call to Order:** The Board Meeting was called to order by President Mike Hollonbeck at 5:08 p.m. via Zoom.

**Minutes Approval: MOTION:** To approve the June 9, 2022, Board Meeting minutes as written. Seconded and approved, with one member abstaining.

**President's Remarks:** The President welcomed the Board members to the meeting. The Staff and the Show Committee are working on the 2023 Show.

### Old Business:

**Fellows Program:** The Board discussed the donation process and how the TGMS website will be utilized to accept donations and recognize the donors.

**Opening the Facility for Membership Activities:** The Board discussed re-opening the building to the membership for TGMS activities. The Board decided on resuming General Meetings with pre-packaged snacks. A Potluck Rock Swap is scheduled for Saturday August 27<sup>th</sup> and Family Fun Day is scheduled for October 15<sup>th</sup>. The Board agreed to encourage but not require face masks for facility activities. **MOTION:** To reopen the Clubhouse to full capacity for TGMS General Meetings. Masks will be encouraged but not required. Seconded and approved. TGMS will continue to offer General Meetings via Zoom.

### New Business:

**Mindat Donation:** The Board discussed donating to Mindat instead of hosting the silent auction at the 2023 Show. **MOTION:** TGMS will provide \$2,000 in annual support to Mindat for sponsoring one or more website pages on behalf of TGMS. Seconded and approved.

**January 2023 Meetings:** The Board discussed changing the January meeting from January 2<sup>nd</sup> (a holiday) to January 9<sup>th</sup>. The February meeting is typically held a week prior to the week of the Show thereby making the date January 30<sup>th</sup>. **MOTION:** To schedule the January General Meeting on January 9<sup>th</sup>, and the February General Meeting on January 30<sup>th</sup>. Seconded and Approved.

**Adjourn Meeting:** Meeting was adjourned at 6:15 p.m.

Respectfully submitted by:

Linda Ross  
Recording Secretary



## TGMS General Meeting - October 3, 2022

The General Meeting of the Tucson Gem and Mineral Society was called to order by President Mike Hollonbeck at 7:02 p.m. The meeting was held both in person and via Zoom. The President welcomed new guests, in person and online attendees to the meeting.

### ANNOUNCEMENTS:

Brad and Linda Ross are hosting an "Afternoon at the Museum" Potluck on October 29<sup>th</sup> from 1:00 to 4:00 pm for all members, and their friends and family. Vote on your favorite Costumed Dinosaur! Details and RSVP information will follow in a forthcoming announcement.

The Society is planning a Family Fun Day on October 30<sup>th</sup> from 12:00 to 4:00 p.m. Volunteers are needed to man stations. Announcement has been sent to the membership. Volunteers must sign up by this Sunday to staff the event. The Mineral, Fossil, Jewelry, Art & Craft Sale is scheduled for the first Saturday in December. Announcements are forthcoming.

On November 5<sup>th</sup> and 6<sup>th</sup>, The Mineralogical Society of Arizona will hold a show in Phoenix. Announcement is forthcoming.

**PROGRAM:** Mark Ascher introduced Dr. Susan Leib, who is the Curator of Collections at the UArizona Alfie Norville Gem and Mineral Museum. She presented "The UArizona Alfie Norville Gem and Mineral Museum: Chronicles of the Collection." She explained the development of the Museum from 1892 to the new location at the historic Pima County Courthouse. She led us on a photographic tour of the three galleries on the main level (Mineral Evolution, the Arizona Gallery, and the Gem Gallery). In the basement there is a classroom with equipment, a library, a meeting room and storage. The Museum is working on outreach projects and an inventory and catalog system to assist researchers. Dr. Leib answered a variety of questions from the audience.

**BREAK:** Victoria Fila assisted with snacks.

### OLD BUSINESS:

Educational Class: On October 11, at 6:30 p.m. Bill Shelton will present "Mineral Groups and How They May Have an impact on Mineral Collectors." Announcement has been sent to all members.

Micromount Meeting: On October 10, at 6:30 p.m. attendees will focus on micros that start with the letter "D". Announcement has been sent to all members.

Field Trips: Two field trips have been scheduled in October, one on the 15<sup>th</sup> to the Blanchard Mine in New Mexico and the second trip on the 22<sup>nd</sup> to Washington Camp/Duquesne. Announcements have been sent to all members.

Note: No sign-up sheets for activities will be available at the General Meetings; everyone is to sign up using the link that has been provided in the member announcements.

School Visits: School personnel can arrange visits through the TGMS office.

**DRAWING FOR DOOR PRIZES:** Mark Ascher conducted the drawing. Winners were Mark Carducci, Bob Lind, Christina Marikos, Bob O'Donnell, Doug Reif, Ortrud Schuh and David Smith.

The meeting was adjourned at 8:22 p.m.

Respectfully submitted,

Linda Ross  
Recording Secretary



If you are interested in placing a "Guest" Exhibit in the  
2023 Tucson Gem and Mineral Show®: <https://hub.tgms.org/guest-exhibit-application/>

## “Electric Opal” By Peter Megaw

You’ve seen this image of “Electric Opal” on our 2023 Show advertising posters (Figure 1), so I thought I would reprint a little background information on the stuff and why it has attracted so much attention.

**“Electric Opal”:** green daylight-luminescing hyalite opal from Zacatecas, Mexico

Peter K.M. Megaw, IMDEX Inc., Tucson AZ USA [pmegaw@imdex.com](mailto:pmegaw@imdex.com)

Weathered specimens of botryoidal opal rough exhibiting a distinctive color-change phenomenon, appearing near-colorless or pale-to-moderate yellow in incandescent light; changing to chartreuse green in indirect sunlight first appeared in 2013. Not surprisingly, reaction by specimen collectors to this luminescence phenomenon was immediate and very positive, so reconnaissance prospecting was undertaken to determine quality and quantity of material available. This found that strongly-colored specimen material was sparsely distributed but did turn up a number of specimens composed of transparent lustrous druplets and blobs that showed strong color change, some of which appeared facetable. The specimens and initial cut gems attracted considerable attention, so long-term exclusive access was secured. The site lies at the top of a steep 250m high mesa so mining was exclusively manual and lasted about a year until production dropped off and the project was abandoned.



Electric Opal Zacatecas Incandescent



The hyalite occurs in mid-Tertiary caldera-related rhyolitic rocks typical of the Sierra Madre Occidental Volcanic Province in the northwestern part of Zacatecas State, Mexico. Devitrification of these units liberated silica, uranium, iron and other constituents from the decomposing volcanic glass, which initially went into volcanic vapors emanating from the cooling pile and circulating heated groundwaters that emerged as hot-springs. Devitrification continued more slowly after the volcanic pile cooled off; releasing constituents into descending surface waters. Silica liberated at higher temperatures tended to precipitate as chalcedony or fine-grained quartz, whereas at lower temperatures opal was deposited. Uranium and other liberated elements were also redeposited, in

some cases as discrete species and in others within the framework structure of the chalcedony or opal. Several acicular uranium-containing minerals are found with and within the opal. Where encapsulated in opal, the uranium minerals are largely leached out leaving elongate tubes, some of which are marked by linear arrays of minute purple fluorite cubes that presumably crystallized on the elongate uranium minerals before they were covered and leached out. The most prominent uranium species were identified with X-ray diffraction and include meta-autunite ( $\text{Ca}(\text{UO}_2)_2(\text{PO}_4)_2 \cdot 6-8\text{H}_2\text{O}$ ), haiweeite ( $\text{Ca}(\text{UO}_2)_2[\text{Si}_5\text{O}_{12}(\text{OH})_2] \cdot 6\text{H}_2\text{O}$ ), uranophane ( $\text{Ca}(\text{UO}_2)_2(\text{HSiO}_4) \cdot 5\text{H}_2\text{O}$ ), meta-uranospinite ( $\text{Ca}(\text{UO}_2)_2(\text{AsO}_4)_2 \cdot 8\text{H}_2\text{O}$ ) and boltwoodite [ $(\text{K},\text{Na})(\text{UO}_2)(\text{SiO}_3\text{OH}) \cdot 1.5\text{H}_2\text{O}$ ].

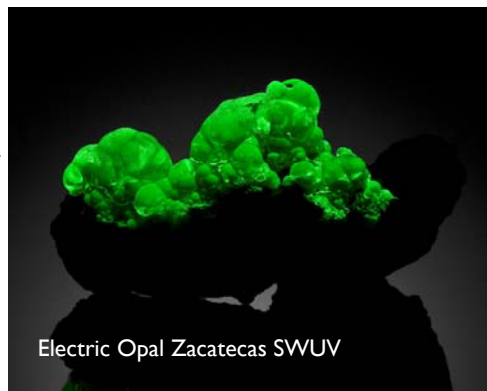
Electric Opal Zacatecas Shaded Sunlight



Marketed as Electric Opal™ in allusion to the color change phenomenon, free-standing lustrous botryoids make the most attractive specimens with individual druplets making stand-alone jewelry pieces. The material facets beautifully and the faceted, color-changing opals captured the immediate attention of the gemstone world. Research to characterize the material in detail was swiftly undertaken, led by Emmanuel Fritsch of

## “Electric Opal” By Peter Megaw ... CONTINUED!

France. This work showed them to be **Opal-AN**, the amorphous (A), glass-like opal variety consisting of hydrated silica molecules that are network-forming (N). Also known as *hyalite*, Opal-AN does not have a regular array of spheres or any specific microstructure, so it is always ‘common’ opal and does not exhibit play-of-color like the familiar Australian or Ethiopian opals. Electric opal’s luminescence is due to dispersed uranyl ions, and although it may locally contain up to 0.3% wt. %  $UO_2$  where uranium species are visible, detailed radiation measurements recorded very low levels of emitted radioactivity from the opal itself: most “granite” kitchen countertops are more radioactive than this hyalite opal.



Electric Opal Zacatecas SWUV



Electric Opal Zacatecas Faceted Stone Shaded Sunlight

The main interest in this hyalite is its daylight-induced luminescence and why it is observed in this opal and in almost no other opals or other minerals. Several phenomena compete and combine for the perception of a color from an object: transmitted light (body color), reflected light (gloss) and scattered light (‘haze’ in colorimetric terms), which is commonly seen in milky gems (e.g. white diamond, jade or opal) or the blue adularescence of moonstone - luminescence is also a scattering phenomenon. Like most hyalite, Electric Opal is highly glossy, ranges from colorless to pallid yellow-green in daylight and fluoresces violently chartreuse under UV. What makes it different appears to be luminescence stimulated by uranyl ions dispersed in the opal that cause excitation in both the UV and the visible range with a maximum emission at 524 nm – in the visible range. It appears that perception of the green daylight luminescence stems from how this light is scattered before encountering the eye. The studies also indicate the influence of several other key factors: 1) Transparency - cloudy botryoids on the same samples do not fluoresce in daylight, 2) Absence of any sort of luminescence quencher, such as  $Fe^{3+}$ , and 3) The uranyl ions must be present within a certain range of concentration - if there is not enough, the luminescence is too weak, and if there is too much, the molecules absorb one another’s emission through a process called *concentration quenching* or *self quenching*, which reduces the overall luminescence. In summary, it appears that this kind of daylight fluorescence is exceedingly rare because all of these conditions must be met for the phenomenon to occur.

### Further Reading

2015, Fritsch, E., Megaw, P.K.M., Spano, T.L., Chauvire, B., Rondeau, B., Gray, M., Hainschwang, T., and Refro, N., Green-luminescing Hyalite Opal from Zacatecas, Mexico: *Journal of Gemmology*, v. 34, p. 490-508.

2018 Megaw, P.K.M, Fritsch, E., Spano, T.L., and Gray, M., Geology and Mineralogy of Electric Opal™: Green Daylight-Luminescing Hyalite Opal from Zacatecas, Mexico, *Rocks & Minerals*, 93:5, 404-413.

**THE TUCSON GEM AND MINERAL SOCIETY WOULD LIKE TO THANK EVERYONE INVOLVED WITH THE DALLAS SYMPOSIUM FOR THEIR ONGOING SUPPORT. AS A BENEFICIARY OF THEIR ONLINE AUCTION, THESE FUNDS PROVIDE CONTINUING ASSISTANCE FOR EXHIBITS AT OUR TGMS SHOW.**

## Competition and other Exhibits, 2023 Tucson Show By Les Presmyk

“Silica - Agates and Opals and Quartz, Oh My!” is the theme for the 2023 Tucson Gem and Mineral Show®. For competition this means you can bring out just one or two or even three or four of your quartz, agate, jasper, opal or ??? specimens to compete in the Best of Theme competition. Or you can put in a competitive case that showcases your quartz collection, your personally collected specimens, or many other categories so there is almost no limit to the type of display you can enter. Last year there were several new members who exhibited competitively and they have already sent in their entries for 2023. Why don't you give it a try?



I would like to invite our TGMS members to put in a competitive exhibit in 2023. I have always thought that if I am going to put in an exhibit I might as well compete. It really does not take much more effort to place an exhibit in competition, mainly just a bit more attention to the labels and possibly showmanship. After all, the liners and risers all take the same effort. The selection and packing and traveling to the Show on set-up day, and then tearing down your exhibit on Sunday are all the same. You might convince yourself your specimens aren't good enough or maybe you don't have enough of one size to fill the exhibit. I have heard all of these excuses. But, it comes down to whether you are ready to compete. I understand it is not for everyone. Paula and I

have won our share of ribbons and trophies at various shows over the past five decades. We have also lost on a number of occasions. This is just part of competing.

In addition to the Tucson competition which provides numerous categories for type of displays, there are also the various collector groups, starting with Junior and Junior-Master and then the adult categories of Novice (first-time exhibitors), Advanced and Masters. If you are just starting out, Novice is the best category. If you have many years of competing behind you then the Advanced and Masters are more appropriate.



Tucson presents a group of special trophies honoring collectors, dealers and curators who have meant so much to the hobby.



The Desautels Trophy for the “Best Case of Rocks” in the Show (actually those cases entered for this trophy) honors Paul Desautels, former curator of minerals at the Smithsonian.

The Lidstrom Trophy goes to the best single specimen contained within a competitive case. Walt Lidstrom was a long-time dealer in our Show and helped many collectors, young and old, enhance their collections.

The Bideaux Trophy goes to the best Arizona specimen and honors an Arizona native, a TGMS member, and renowned mineralogist.

The Romero Trophy selects the best Mexican mineral from throughout the Show and is a tribute to Miguel Romero, who put together one of the finest collections of Mexican minerals ever assembled.

The Yedlin Trophy is presented for the best case of micromounts and honors Neal Yedlin.



## Competition and other Exhibits, 2023 Tucson Show ... CONTINUED

The long-standing gifts and awards of cash to our junior age exhibitors will continue. This will now be jointly sponsored by Dr. Rob Lavinsky of Arkenstone and Les and Paula Presmyk.

One final note. For the 2022 Show, Mark Hay, Rich and Doug Graeme and I organized a group of 18 Bisbee cases honoring Dick Graeme. This year Peter Megaw has suggested the TGMS members put together their own pod of cases dedicated to all things Silica. I have already sent in my Guest Exhibitor request to put in a case for this pod. If you do not wish to compete, then how about putting together a case of Quartz for the Show?



Colto Kalna - Junior Educational  
2022 TGMS  
Photo by Kenny Don

Brent Lockhard - Best of Show - 2022 TGMS  
Photo by Kenny Don



Phil Gregory - Desautels  
2022 TGMS  
Photo by Kenny Don



If you are interested in placing a "Competitive" Exhibit in the  
2023 Tucson Gem and Mineral Show®: <https://hub.tgms.org/competitor-exhibitor-agreement>

# ROCK TALK

Encouraging the interest and study in geology, mineralogy, lapidary and allied earth science.

**FROM:**

**T.G.M.S.  
3727 E. BLACKLIDGE DRIVE  
TUCSON, ARIZONA 85716**



**TO:**

**Tucson Gem and Mineral  
Society, Inc.**

**3727 E. Blacklidge Drive  
Tucson, AZ 85716**

**Phone: 520-322-5773  
Email: tgms@tgms.org**

ROCK TALK is the official publication and is © 2022/2023 by the Tucson Gem and Mineral Society, Inc. to reproduce material contained herein for non-profit use only. All commercial and other use requires written permission from the Tucson Gem and Mineral Society, Inc.

**PURPOSE:** To encourage interest and study in geology, mineralogy, lapidary, and allied earth sciences.

**Meetings:** Usually the first Monday of the month, starting at 7:00 p.m., except September (second Monday because of the Labor Day holiday), June-August (potlucks). The TGMS facility address is: 3727 East Blacklidge Drive, Tucson, Arizona 85716

**The Tucson Gem and Mineral Show @:**

The second full weekend in February, starting with Thursday.

**Affiliations:** American Federation of Mineralogical Societies, Inc. (AFMS), Rocky Mountain Federation of Mineralogical Societies (RMFMS), Visit Tucson, Tucson Metropolitan Chamber of Commerce (TMCC), Greater Oro Valley Chamber of Commerce

**ROCK TALK Editor:** P. R. McClain

**ROCK TALK Assistant Editor:** R. Marques

**ROCK TALK Reporters/Contributors:** Anna Domitrovic, Peter Megaw, Kerry Towe, Donn Cuson, Ellen Alexander, Bill Shelton, Les Presymk