

ROCK TALK

Volume 18, Issue 1
Sept. - Oct.

2023- 2024 Officers & Directors

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**EXPLORE
DISCOVER
SHARE**

TUCSON GEM & MINERAL SOCIETY

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PRESIDENT'S PAGE

EXPLORE DISCOVER SHARE



Hello to you all,

I would like to welcome everyone to a new fiscal year at the Tucson Gem & Mineral Society and hope you have had a great summer and been able to stay cool. Together as club members we will be moving forward and preparing for another great Show and Society season. I hope you find time to make it to the monthly meetings. We will continue to broadcast them on Zoom for those who choose the social media route. The Society will be expanding our community outreach programs so please volunteer for these activities as they come around.

This year we will be celebrating our 69th annual Show "Pegmatites – Crystals Big and Beautiful". The theme this year should bring in some fantastic displays and if you would like to participate or put in your own display, please contact the TGMS Office. I have mentioned before our Show couldn't happen without volunteers so, please find somewhere that you can help during the Show. Pegmatites are composed mostly of quartz, feldspar and mica, all having a similar silica composition to granite. Beryls, tourmalines, spodumenes are some of the finest minerals on earth and these beauties form in Pegmatites.

For me personally it is an important part of our club to make relationships and make new friends here, and to always welcome our new members. It is great and it makes me so happy to be able to see all of you in person. I never get tired of coming and seeing everyone and talking about minerals at the General Meetings. I look forward to every single meeting so I can see all the friendly faces. The club will start participating in school visits and other community outreach programs and will need volunteers so please, as these events come up at the meetings or on our Membership Hub, please make an effort to be a part of them and I hope that each of you will find a place to plug in.

I look forward to serving the Society as President again, and I will serve our club to the best of my ability for another season. Together it is amazing what a nonprofit organization can do with a little help from volunteers. I have a deep passion for the TGMS and will continue to serve/volunteer in any area I can and, if anyone ever has any suggestions, please feel free to contact me.

Hopefully you all had a chance to make it to a potluck over the summer, these are so fun to enjoy with great fellowship of other fellow members in person. Special thank you to those who opened their homes to us ... Ortrud & Wolfram Schuh and John Callahan and Kathy Steiner.

Michael Hollonbeck
President



TGMS General Meeting – May 1, 2023

The General Meeting of the Tucson Gem and Mineral Society was called to order by President Mike Hollonbeck at 7:00 p.m. He introduced new guests and welcomed all attendees (both online and in-person) to the meeting.

ANNOUNCEMENTS:

Members were reminded to take a ticket for the prize drawings.

Members were reminded to wear their name badges and welcome visitors and new members.

Members are to sign up for events online using the link in the announcements. Nonmembers can contact the office (by phone or email) to sign-up for classes.

PROGRAM: Mark Ascher introduced John A. Jaszczak, who presented “A Live-stream Peak Inside the A. E. Seaman Mineral Museum.” Mr. Jaszczak is the curator and director of the Museum, which is celebrating 120 years of collections and programs. He presented a brief history and overview of the museum and then conducted an engaging and interactive live-stream tour of minerals on display. The Museum features the minerals from Michigan’s Upper Peninsula, the Great Lakes Region, the Lake Superior Iron Mining Districts, and minerals from around the world. The audience then asked him to show his favorite minerals.

BREAK: A thank you to Ortrud Schuh for providing and serving the refreshments.

OLD BUSINESS:

Approval of the March 6, 2023, and April 3, 2023, General Meeting minutes as published in the May/June 2023 issue of Rock Talk: **MOTION:** To approve the March 6, 2023, General Meeting minutes. Seconded and approved. **MOTION:** To approve the April 3, 2023, General Meeting minutes. Seconded and approved.

Micromount Meeting: A Micromount Meeting will be held on Monday, May 8th, at 6:30 p.m. We will be looking at micros starting with the letter “J.” An announcement has been sent to members.

Field Trips: A field trip to the Dobell Ranch is scheduled for Saturday, May 13th. An announcement will be sent to the membership.

Educational Class: An Educational Class will be held on Monday, May 15th, at 6:30 p.m. Bill Shelton will lead a class on “Crystallography – Learning How to Apply Crystallography to Specimens.” This is the second class in a series of three classes. An announcement has been sent to all members.

NEW BUSINESS:

Summer Potlucks: If you would like to host a potluck during the summer, contact the office via the website. Potlucks may be hosted at your home or the TGMS Clubhouse. TGMS will provide a budget, paper products, and soft drinks.

Nominations for Board Members: The Nominating Committee has recommended and received acceptance for the following nominations for the Board officers and directors slate for the upcoming fiscal year 2023-2024: President - Mike Hollonbeck, Vice-President - Dave Korzendorfer, Treasurer - Ellen Alexander, Recording Secretary - Linda Ross, Membership Secretary - Suzanne Collier and Directors - Diane Braswell, Victoria Fila, and Kent Stauffer.

The Membership will be sent the list of nominees and given the opportunity to make more nominations, then the Membership will vote by email/mail. Membership will be notified of the results with an announcement.

TGMS Website: A membership hub, accessible only to members, is being developed to facilitate membership payment, the membership directory, and sign-ups for events and volunteer opportunities. Members should check the website for summer activities.

DRAWING FOR DOOR PRIZES: Mark Ascher conducted the drawing. Ortrud Schuh, as meeting hostess, made the first selection. The winners were: Bobo O’Donnell, Cathie Logan, Dave Evans, Zoe Zeszut, Mary Ann Penkova, Bob Melzer, John Ebner, Cindy Evans, Janette Simister, Jean Sarson, and Kat Dempsey.

The meeting was adjourned at 8:43 p.m.

Respectfully submitted,

Linda Ross,
Recording Secretary

Pegmatites – Big Juicy Gem and Mineral Factories

By Mark Marikos

As you may already know, the theme for our 2024 Tucson Gem and Mineral Show® is “Pegmatites: Crystals Big and Beautiful”. But you may be wondering, “*What are pegmatites, and why did we choose them as our Show Theme*”.

Unless you have taken at least one geology class, you may not know what a pegmatite is, and why pegmatites produce some of the most awesome mineral specimens in the world. So, I thought it might be helpful to explain what pegmatites are, how they form, and why that process produces such large and spectacular mineral crystals.

It all starts deep in the earth, generally in a region where two crustal plates are smashing together in what is called a subduction zone. When one of the plates is comprised of relatively thin, dense oceanic crust that is converging with a thicker, less dense continental crust plate, the ocean crust “slab” plunges beneath the continental crust and its underlying mantle rock.

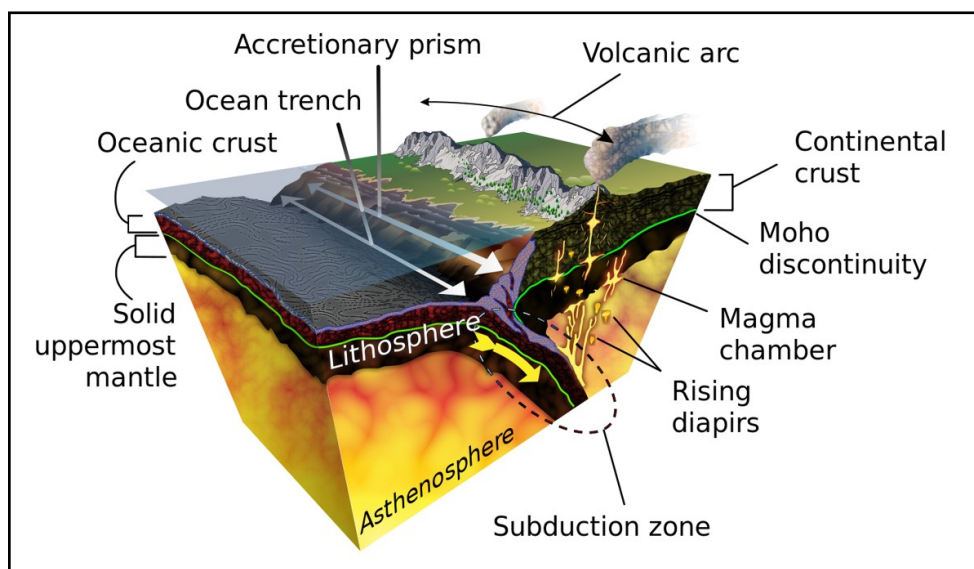


Figure 1: Diagram of typical subduction zone, showing oceanic crust and mantle lithosphere plunging beneath a continent Source: [Subduction-en.svg](#) from [Wikimedia Commons](#) by [K. D. Schroeder](#), [CC-BY-SA 4.0](#)

The ocean crust basalts and gabbros have been extensively altered by contact with ocean water and circulating hydrothermal waters. It is rich with water-bearing minerals (clays, chlorites, serpentine, etc.), and carbonate minerals like calcite and aragonite. The basalts and gabbros are overlain by water saturated oceanic sediments rich in clays and carbonate minerals. As these subducted rocks sink deeper into the mantle, they are heated and compressed causing them to release water and carbon dioxide.

At those conditions water and carbon dioxide behave very differently than they do near the surface. They become “supercritical fluids” that have the density and dissolving power of a liquid, but flow as freely as a gas.

So, they move easily between the mineral grains of the oceanic crust, the mantle into which it is being thrust, and the continental rocks overlying the subduction zone. As they migrate upward, they leach elements from the rocks through which they pass, and when they reach the igneous, metamorphic, and sedimentary rocks of the crust, they also bring the heat they absorbed from the mantle beneath it. The hot fluid makes the crustal rocks melt more easily to form magma.

Pegmatites – Big Juicy Gem and Mineral Factories ... CONTINUED



Figure 2: This is migmatite, a rock that is transitional between a metamorphic and igneous rock. The dark banded gneiss portions (“melanosomes”) are residual metamorphic rock that have begun to melt, releasing a granitic magma which collects in seams and cross-cutting fractures that form a collection network of light-colored “leucosomes” that allows the new magma to “drain” out of the rock. Because of its lower density it begins to rise.

This magma is generally of granite or granodiorite composition that eventually rises and crystallizes into minerals such as feldspar, quartz, micas, pyroxenes, and amphiboles. Under certain conditions, the magma may reach the surface and erupt as a volcano. But more often it “stalls out” before it reaches the surface and forms a large mass of igneous rock called a pluton.

It stalls when it has crystallized enough to make it too “stiff” to flow easily, and its density approaches the density of the surrounding rocks. But there is still a significant proportion of the original magma that has not crystallized. This residual liquid continues to move upward and is enriched in “incompatible” elements that do not easily “fit” into the silicate rock-forming minerals crystallizing in the pluton.

The fluid that accumulates at the top and margins of the pluton contains a higher percentage of water and other volatile compounds than the original magma and may carry large concentrations of normally rare elements. Because it is dominated by those volatile compounds, it may collect in relatively large water-filled voids above and to the sides of the pluton (see Figure 3).

Under the right conditions, it begins to crystallize inward from the walls of those “veins” and cavities, and because it contains a lower concentration of rock-forming silicates, fewer crystals “nucleate”, so the crystals have more room to grow than they would in the pluton. **That is a pegmatite.**

Pegmatites – Big Juicy Gem and Mineral Factories ... CONTINUED

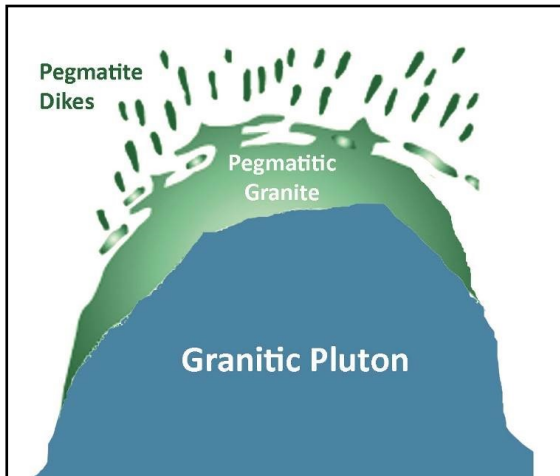


Figure 3: Fluid collecting near the top of a cooling granitic pluton fills and expands fractures and voids and eventually crystallizes pegmatite veins and pods in the top of the granite and the surrounding host-rock.

Modified after figure 2 in *Breaks, F.W., Selway, J.B. and Tindle, A.G., 2003, Fertile peraluminous granites and related rare-element mineralization in pegmatites, Superior Province, northwest and northeast Ontario: Operation Treasure Hunt; Ontario Geological Survey, Open File Report 6099, 179p.*

If you took a geology or earth science class, you probably learned that the slower a rock cools and crystallizes, the larger the grains grow. Let me burst that bubble. Much recent research indicates just the opposite for pegmatites. A normal pluton may take thousands to tens-of-thousands

of years to completely crystallize. It is now thought that a pegmatite may completely crystallize in years or months.

The reason that pegmatite crystals grow so large is that there are far fewer crystals that nucleate (start to grow) than in the same volume of magma, because the concentration of dissolved mineral matter is much lower. And the crystals have room to grow large, with well-defined faces, because they are crystallizing into a water-rich fluid filling the cavity or vein. Extreme examples include the 30+ foot-long spodumene crystals found in the Etta mine near Keystone, South Dakota in the Black Hills (<http://www.mineral-exploration.de/mepub/etta.html>).

The pegmatite-forming fluid is also greatly enriched in rarer elements like beryllium, phosphorus, boron, cesium, lithium, tantalum, niobium, zirconium, etc., so it also crystallizes large crystals of beryl, apatite, tourmaline, spodumene, zircon, muscovite, lepidolite, etc. that are often highly colored by the various metals that also became concentrated in the fluid.

The vivid colors contrast nicely with the lighter colored white, grey, or tan feldspars and quartz that they grow upon. The rapid crystallization also makes the fluid composition change rapidly, so that minerals like tourmaline, beryl, and micas may have strikingly beautiful zoning.

The pegmatite-forming processes, therefore, may produce large, well defined, and colorful crystals of uncommon minerals growing on a light-colored matrix of quartz and feldspar (which may also form large well-defined crystals of multiple habits) – creating spectacular mineral specimens, or large, clear, colorful crystals suitable for faceting top-quality gemstones.

And now you know why we chose Pegmatites as our theme for the 2024 Tucson Gem and Mineral Show®! Be prepared to see some awesome specimens in February.



Pegmatites – Crystals Big and Beautiful - By Peter Megaw



OK...so Labor Day and the heat (!!!) are behind us, leaving our Show only six months away! That means it's time to start getting excited...and thinking about exhibits. Our 2024 Theme is **Pegmatites - Crystals Big and Beautiful**, which, judging by the overwhelmingly positive response to Gene Meieran's amazing single crystal exhibits this year, is bound to be a real crowd pleaser-for the cognoscenti and general public as well. We already have museums lining up to show off their beryls, tourmalines, topaz and accessory species...like giant smoky quartz, feldspars (including amazonite) and micas. I'll be updating on specifics off and

on during the Fall once invitations come back...but you'll want to load up on socks between now and February!

Once again I am going to make a plea for TGMS members to exhibit at YOUR SHOW!

It would be great if there were enough to fill a pod (which could be as few as six cases) and I will volunteer to kick it off by promising a case of Mexican pegmatite minerals. We could even have a face-off case to put next to the YMC exhibit and call it OMC! But even if we can't pull that off (I know folks get really busy with their volunteer activities) please consider putting some pieces in the Best of Theme or Bideaux (best of Arizona) Competitive exhibits. These cases always seem to cry out for more specimens and all you have to do (or even *can* do) is put one or a few pieces in! Your emerald engagement ring might even win Best of Theme-Lapidary! And remember Bideaux is just Best Arizona, so it doesn't have to be a pegmatite mineral...although I know there are several TGMS members who have spent a lot of time successfully digging pegmatites within sight of Tucson. A case of those, spiced up with the story of how the localities were rediscovered, would be an attention getter for the local crowd especially. Contact Les Presmyk, our long-time Competitive Exhibits Chair, for more information on competing.

I am always looking for new exhibitors, so please refer friends, museums...or even acquaintances with good rocks to me as potential exhibitors. It's free and we'll do everything we can (without overloading the Case Linings volunteers) to make it a fun experience. It's amazing how often first-time exhibitors wind up asking "why didn't I do that sooner? I learned so much about my specimens".

Finally, whatever you do-*or don't*-feel like doing with exhibiting, **PLEASE VOLUNTEER for something**. Our Show relies on personal relationships and positive interactions with our participants and visitors. The more smiling faces they see the better their experience is...and the more enjoyable their experience is, the better time we have too! Not to mention that "many hands make light work" and Pat and Rose and our Show Committee Chairs need all the help they can get before, during...*and especially after*...the Show!

And...thanks to Pat's efforts to streamline our processes by getting everything on-line, you can ask to exhibit or volunteer with just a few clicks at www.tgms.org and the TGMS Hub!

2024 TGMS Show Committee Please Volunteer!



Exhibitor Move-in and Move-out Co-Chairs – John & Nancy Howard

Our volunteers work in conjunction with the Exhibits Chair, Peter Megaw, who arranges for many exhibits from museums, mineral dealers, and mineral collectors from all over the world.

Our duties include exhibitor registration on Wednesday and coordinating the move-in of the exhibitors in several ways. We answer questions; contact the Exhibitor Chair if indicated; help them find their cases; lock the cases when they are finished loading them; unlock them when needed; find a case repair person, if necessary; indicate where the case lining people are located; keep an eye open while they are engaged in placing their specimens in their cases; and any other way that an exhibitor might request help.

We begin by viewing empty cases and watch them slowly turn into beautiful displays of outstanding mineral specimens. It's fascinating to watch, and a great opportunity to participate in a successful show.

Then on Sunday, after the close of the Show, the process is repeated until all the cases are empty.

School Visits Program Co-Chairs - Bear & Hollie Pitts

The School Visits Program will need volunteers to help in the following three ways:

- 1) In early February, sorting and distributing coloring books to the registered classes.
- 2) On Friday, February 9th, assist with the annual "Herding of the Cats" ritual, getting the students and chaperones from the Grand Lobby down to the Exhibits, and, eventually, back to and through the Ballroom to re-join their busses under the porte-cochere.
- 3) Being available around the Exhibit cases to help the students appreciate what they see {this part greatly magnifies the benefit of our Exhibits to the students and knowledge of the members shared is a great way to participate}.



We are excited to have the opportunity to share our excitement for and interest in minerals and gems with the next generation. We hope they find the Tucson Gem and Mineral Show® inspiring!

Docents Program Chair - Ellen Alexander

New to the Society? Being a docent is a great way to learn about the Show. You learn a lot not only from the docent handbook that is filled with info about the Show and about the contents of the different exhibit cases, but also from the night-before-the-Show walkabout where you participate in an exclusive tour and learn about behind the scenes and also hear additional information from your fellow docents.

What does a docent do? Walks around and answers questions. No, you don't have to know a lot about minerals to do this. Everything you need is in the handbook. Docents range from newbies to full blown mineralogists. We have some who love it so much they sign up every year. Come join us in our 13th Docent Year and have some great fun!



2024 TGMS Show Committee Please Volunteer!

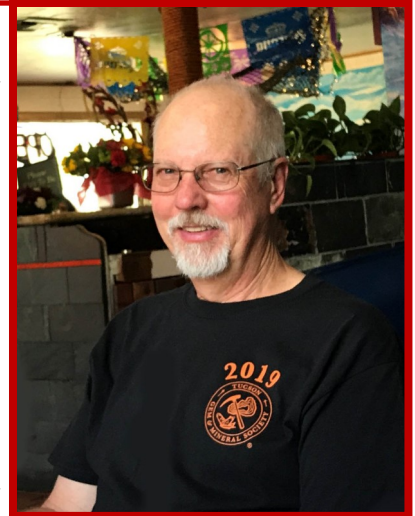
Case Linings Chair - Kent Stauffer

Working on case linings is an adventure and, if you have never volunteered for this activity, we invite you to come out and have some fun. It's not every day you get to work on a hockey rink!!! Yes, a hockey rink, except it has a rubber mat covering the ice. It can get a little chilly but, after the hot summer we had, you're probably ready for a break.

Case Linings volunteers wrap case inserts and foam risers with fabric to enhance the display cabinets for mineral collectors and museums. The hardest part of the job is the wrapping of corners and ensuring wrinkles have been removed. The work is very similar to wrapping presents. Almost everyone is qualified and, as we say, we have the one job that really "shows."

When we are finished, our display cases are ready for the Special & Guest Exhibitors to arrange their minerals, jewelry, fossils in the cases for the TGMS Show.

Please volunteer (ideally, we need about 14 individuals); it's work but very satisfying. When you walk through the Show and you hear people say how beautiful the displays are, you can take great pride in knowing that you had a part in making it all happen.



Information Booth Co-Chairs - Dave and Barb Korzendorfer (AKA The Ministers of Misinformation)

The Information Booth is on the Exhibit Hall level of the Tucson Convention Center.

As a volunteer at the Information Booth, you will be asked to answer general questions about the TGMS Show, such as "Where is XYZ Dealer?", "Which Dealers sell meteorites?" and the ever popular "Where is the bathroom?" We will have a notebook with the answers to many of these questions, and, when we don't know the answers, we make them up.

There are always multiple volunteers at the Information Booth for each shift to help you.

2024 TUCSON GEM AND MINERAL SHOW®

As a TGMS Member ... Login to the TGMS HUB and under the heading "Volunteer Opportunities" you will find the volunteer form for the 2024 TGMS Show.

You will find a large variety of areas where you can volunteer. Starting with Peter Megaw's article on page 6 with the entire Show Committee through page 10. You will find descriptions and photos of all the folks who are giving of their time to make our Show happen. Help them by volunteering ... IT'S FUN!

2024 TGMS Show Committee Please Volunteer!



Kate Verbeke
Products Sales
Herb Ross
Product Sales & Show
Poster Committee



Ortrud Schuh
Mineral Dealer Chair



Mike Braswell &
Sara Day
Exhibition Hall & Ballroom
Dealer Co-Chairs



Mark Ascher
Micromount
Symposium Chair

& Micromount
Room Co-Chair



Penny Savoie
Giveaway Booth Chair



Ron Gibbs
Micromount Room
Co- Chair



Connie Clark
Publishers and
Educational
Exhibitors Chair



Robert Crowell
Elaine Hughes
Cases Co-Chairs

2024 TGMS Show Committee Please Volunteer!



Victoria Fila
Junior Education Area
Chair



Bob O'Donnell
Publicity Co-Chair



Kenny Don
Official Photographer



Rose Marques
Show Office, Agate
Suite and Special
Projects



Mark Marikos
2024 TGMS Show Co-
Chair & Lectures Chair



Les Presmyk
Competitives Chair &
Special Projects



Pat McClain
TCC Liaison, Security
Chair, Publicity Chair
& Special Projects

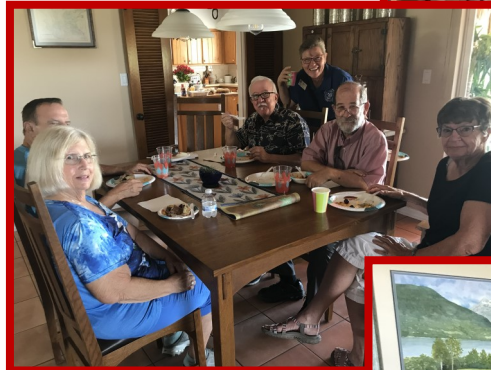


Linda Oliver
Floor Manager &
Special Projects



Alrene Hibben
Show Committee
Recording Secretary

TGMS Sumer Potlucks ... Everyone had a great time!



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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

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