The Rockhound

Official Publication of the Gem & Mineral Society of the Palm Beaches, Inc.

www.gemandmineralsociety.org

October/November/December 2020 Volume 54 Issue 2

President's Message

Greetings, Rockhounds!

What a year it has been! It began quietly enough, with all the typical plans made for a new year…and then things…well…happened. We've adapted, dealt with cancellations, adjusted to a mostly on-line presence, and pared down club functions in the interest of keeping everyone healthy. Now, finally, we look forward to 2021 – as vaccines roll out hopefully we can look forward to gathering in person again, and getting back to all our regular club activities. I'm not sure exactly what the "new normal" will be – as the way the world operates has been profoundly affected – but we'll figure it out!

That being said, however, it is also time for me to step down and deliver the leadership of the club into the capable hands of Arlene Lazzaro. Arlene needs no introduction, as she has been an active member of our club for many years…but check out this edition's Member Highlight for some fun facts!

"Thank You!" to the board members and committeepersons I have worked with in this second go 'round as president, and especially those who've been there through both my tours of duty. You all are the true driving force behind this club, and the ones who keep it together – you are all rock stars!

To all the club members, thank you for the ongoing support of the club. It hasn't been the best year, but things are moving in the right direction. Soon enough, we'll be out there again – I look forward to seeing everyone, when it is safe to do so, at meetings, the shop, and on field trips!

Farewell!

— Laura Simmons, President

In This Issue

2021 Membership Renewal

Dues for 2021 are HALF PRICE due to the COVID-19 pandemic.

$10 Individual

$15 Family

$5 Junior

RENEW ONLINE HERE

The **Rockhound**
Official publication of the Gem & Mineral Society of the Palm Beaches, Inc.

October Birthstones: Opal and Tourmaline

Opal

The name “opal” originates from the Greek word opallios, which meant “to see a change in color.” The Roman scholar Pliny used the word opalus when he wrote about this gemstone’s kaleidoscopic “play” of rainbow colors that could simulate shades of any stone.

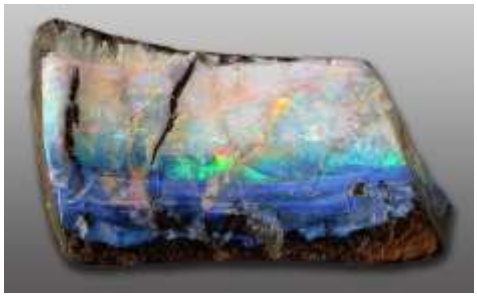


Figure 1: Hannes Grobe [CC BY-SA 2.5 (https://creativecommons.org/licenses/by-sa/2.5)]

Opal’s characteristic “play-of-color” was explained in the 1960s, when scientists discovered that it’s composed of microscopic silica spheres that diffract light to display various colors of the rainbow. These flashy gemstones are called “precious opals;” those without play-of-color are “common opals.”

Dozens of opal varieties exist, but only a few (like Fire Opal and Boulder Opal) are universally recognized. Opals are often referred to by their background “body color”—black or white.

Figure 2: Dpulitzer [CC BY-SA 3.0 (https://creativecommons.org/licenses/by-sa/3.0)]

Opal’s classic country of origin is Australia. Seasonal rains soaked the parched Outback, carrying silica deposits underground into cracks between layers of rock. When the water evaporated, these deposits formed opal. Sometimes, silica seeped into spaces around wood, seashells and skeletons, resulting in opalized fossils.

Since opal was discovered in Australia around 1850, the country has produced 95 percent of the world’s supply. Opal is also mined in Mexico, Brazil, Honduras, Ethiopia, the Czech Republic and parts of the U.S., including Nevada and Idaho.

Figure 3: Dpulitzer [CC BY-SA 3.0 (https://creativecommons.org/licenses/by-sa/3.0)]

The water content of opal gems can range from three to 21 percent—usually between 6 and 10 in gem-quality material. This, combined with hardness of only 5.5 to 6 on the Mohs scale, makes opal a delicate gemstone that can crack or “craze” under extreme temperature, dehydration, or direct light.

Wearing opal jewelry is well worth the extra care, though. For centuries, people have associated this precious gemstone with good luck. Though some modern superstitions claim that opals can be bad luck to anyone not born in October, this birthstone remains a popular choice.

Tourmaline

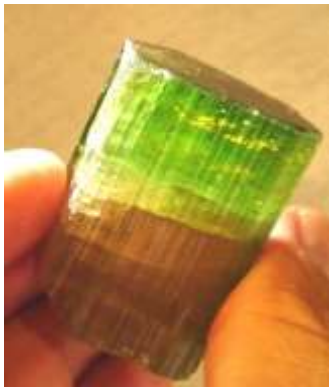


Figure 4: Rob Lavinsky, iRocks.com – CC-BY-SA-3.0 [CC BY-SA 3.0 (https://creativecommons.org/licenses/by-sa/3.0)]

The name "tourmaline" comes from the Sinhalese words tura mali, which mean "stone of mixed colors." As its name implies, tourmaline stands apart from other gemstones with its broad spectrum of colors in every shade of the rainbow.

Tourmaline is not one mineral, but a fairly complex group of minerals with different

October Birthstones: Opal and Tourmaline (cont.)

chemical compositions and physical properties. Certain trace elements produce distinct colors, and many resulting varieties have their own names: Black tourmaline, known as "schorl" is rich in iron, which causes dark shades from deep brown to bluish-black. This variety makes up 95 percent of all tourmaline, though most of it isn't gemstone-quality.

Figure 5: Rob Lavinsky, iRocks.com – CC-BY-SA-3.0 [CC BY-SA 3.0 (https://creativecommons.org/licenses/by-sa/3.0)]

Dravite or brown tourmaline is rich in magnesium, which causes colors ranging from brown to yellow. It's named for the Drave District of Carinthina (now Slovenia) where this stone is found.

Elbaite offers the widest range of gem-quality tourmaline colors, due to lithium traces combined with other coloring elements.

Rubellite or red tourmaline is caused by manganese, but if the color becomes less vibrant under different light sources, it may be called pink tourmaline.

Indicolite or blue tourmaline can appear purplish blue or bluish green, depending on the amount of iron and titanium.

Verdelite or green tourmaline can resemble emerald, but if its color is caused by chrome and vanadium, it's called a chrome tourmaline.

Paraíba tourmaline is a vividly colored purplish or greenish blue variety found in Paraíba, Brazil. It's the most recently discovered, and because of its desirably intense colors, it's one of the most valuable. The element copper is what is responsible for its vivid colors. Copper-bearing tourmaline is also found in other parts of the world such as Mozambique and Nigeria, but only copper-bearing tourmaline from Paraíba, Brazil is called "Paraíba tourmaline."

Achroite or colorless tourmaline is rare.

Parti-colored tourmaline displays more than one color, due to chemical fluctuations during crystallization. A common color combination is green and pink. These are often cut in slices to reveal a red center surrounded by a green rim, earning the name "watermelon tourmaline."

Tourmaline is mined in Brazil, Sri Lanka, Nigeria, Mozambique, Madagascar, Afghanistan, Pakistan and the U.S.—primarily Maine and California.

Tourmaline is desirable because of its sheer range of color options. Combined with a good hardness of 7 to 7.5 on the Mohs scale, tourmaline makes very wearable birthstone jewelry.

One of this gemstone's most impressive traits is its ability to become electrically charged through heat (pyroelectricity) and through pressure (piezoelectricity). When charged, tourmaline can act as a magnet by oscillating, and by attracting or repelling particles of dust.

Ancient magicians used black tourmaline as a talisman to protect against negative energy and evil forces. Today, many still believe that it can shield against radiation, pollutants, toxins, and negative thoughts.

Figure 6: Rob Lavinsky, iRocks.com – CC-BY-SA-3.0 [CC BY-SA 3.0 (https://creativecommons.org/licenses/by-sa/3.0)]

— Information from americangemsociety.org
Compiled by Richard Tracey and Laura Phillips

November Birthstones: Citrine and Topaz

November has two birthstones, citrine and topaz. In ancient times all yellow gems were called topaz. In reality citrine and topaz are different minerals. Citrine is a type of quartz and topaz is an aluminosilicate. More modern methods of course discern the difference between the two minerals and now we know that topaz comes in many colors besides yellow to brown.

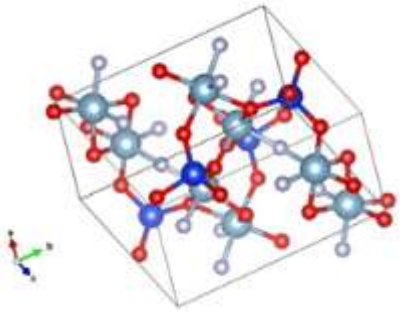
Citrine

Citrine is quartz which is discolored by traces of iron (Ferric or Iron III) which gives it the yellow to brown color. Most citrine on the market is prepared by heating other varieties of quartz, most commonly amethyst. There are also crystals called ametrine which are part amethyst and part citrine.

Citrine, like other quartz crystals, has a hardness of 7 on the Mohs scale which makes it durable for use in everyday jewelry. The availability of Citrine makes it one of the most popular and affordable gems on the market.

Topaz

Topaz gets its name from the ancient Greeks who called it Topazios, the name for an island in the Red Sea. The stones mined on the island of Topazios (now called St. John's Island) were probably not topaz. In the 19th century prized pinkish orange topaz was mined in the Russian Ural Mountains. This topaz was called imperial topaz and was all owned by the Russian Czar. In history all topaz was yellow to brown but topaz actually exists in many colors from colorless to pink to red to blue. The traditional November gemstone was orange topaz



Topaz is an aluminosilicate mineral containing fluorine. It has a hardness of 8 on the Mohs scale making it very durable for jewelry use. The chemical formula is: $Al_2SiO_4(F,OH)_2$. The structure is similar to that of corundum (ruby and sapphire). In it's pure state topaz is colorless but if a small amount of the aluminum is replaced by a transition metal ion then it will pick up color. Chromium III will make the Topaz pink to red. Iron of course gives the yellow -orange-brown colors.

Photo by: Rob Lavinsky, iRocks.com

References:

https://www.americangemsociety.org/page/novemberbirthstones

https://en.wikipedia.org/wiki/Quartz#Citrine

https://www.americangemsociety.org/page/novemberbirthstones

https://en.wikipedia.org/wiki/Topaz

https://www.gia.edu/topaz-description

-Article compiled by Richard Tracey

December Birthstones: Tanzanite, Zircon, & Turquoise

December has three birthstones: Tanzanite, Turquoise and Zircon. While the colors vary on these stones they are best known as the blue varieties. While zircon is the oldest gem on earth and tanzanite is one of the most recently discovered, turquoise is one of the first to be mined and used for jewelry.

TANZANITE

Tanzanite was discovered in the late 1960's in Tanzania. Tanzanite was first mined by Manuel d'Souza who initially thought he was mining sapphires. His main distributor was Tiffany & Co. Tanzanite is the mineral zoisite which is a calcium aluminum hydroxyl sorosilicate that contains an impurity of the element vanadium. Tiffany & Co. named the gem tanzanite for public appeal reasons. Tanzanite can be either trichroic or dichroic depending on whether or not it has been heat treated. The heat treatment can be natural or done by humans and eliminates any brown colors that may be present. Trichroic means showing three colors depending on the angle it is viewed at and dichroic means two colors.


Photo by Rob Lavinsky, iRocks.com

TURQUOISE

Turquoise is probably best known to us as being from the Southwest and associated with the Native Americans but has been known since ancient times. King Tut's death mask was inlaid with turquoise. There is an interesting website by a company called T. SKIES (http://tskies.com) which sells turquoise jewelry but all of the offerings are by Native Americans. The website offers bios of the artists as well as information on the mines where the material comes from.

Turquoise is a hydrated phosphate of copper and aluminum with the chemical formula CuAl6(PO4)4(OH) 8.4H2O. The copper gives turquoise it's blue color. The hardness is 5-6 on the mohs scale which gives it about the same hardness as window glass.

ZIRCON

Zircon gemstones occur in colors ranging from colorless to pink to brown to green and blue. The blue stones are the most coveted. Most zircon gemstones are mined in Southeast Asia, the middle East and Northeast Africa. In the early 1900's zircon was touted as a diamond substitute which gave zircon a bad name. Even today many people confuse zircon with cubic zirconia. Zircon is zirconium silicate and natural while cubic zirconia is zirconium dioxide and is man-made. Zircon is bi-refringent so it shows differences in color depending on the viewing angle.


Photo by Don Guennie
The World of Gems


Photo by Rob Lavinsky
iRocks.com

Most zircons are the size of grains of sand and can be found on many beaches. They, along with other heavy metal minerals are the dark to black grains that often can be found in layers if you dig a trench in the sand on the beach. Zircon is actually mined in Florida near the Jacksonville area – but only for the mineral not the gemstone.

References:

https://www.americangemsociety.org/page/birthstones

https://en.wikipedia.org/wiki/Tanzanite

https://en.wikipedia.org/wiki/Turquoise

https://geology.com/minerals/turquoise.shtml

https://en.wikipedia.org/wiki/Zircon

https://www.minerals.net/gemstone/zircon_gemstone.aspx

https://www.minerals.net/mineral/zircon.aspx

https://geology.com/minerals/zircon.shtml

https://www.gemselect.com/gem-info/zircon/zircon-info.php

-Article compiled by Richard Tracey

Member Highlight:

Arlene Lazzaro

This month our spotlight focuses on our new 2021 club President – Arlene Lazzaro. Arlene and her daughter Samantha need no introduction to most of our members. They have been active in the club for 15 or 16 years and are among our most talented jewelry artists.

Arlene might be best known to our members for the many classes she teaches at the shop, including a whole series on cold connections. She also won the display case competition at our annual show in 2018 and again in 2019. Her creativity is outstanding, and she credits her artistic eye to her training and experience in interior design. She has also been active behind the scenes, putting together refreshments for monthly meetings and serving on the club's Nominating Committee. She and Samantha both hope to get back to teaching classes at the shop as soon as the current pandemic is under control.

Arlene has lots of energy and great ideas for the club in the coming year. She's exploring the idea of having Zoom meetings and/or socially distanced meetings until we can gather again as we did before. She's hoping we can do more interactive, hands-on programs in our meetings when it's safe to do so. She would like to get more people involved in the club, arrange more field trips, and hold more classes with more instructors. Perhaps a Christmas in July could be arranged! Arlene encourages you to let her know what ideas you have for the club in 2021.

The GMSPB welcomes our new President, with all her talent, enthusiasm, and great ideas, and we look forward to working with her. Let's hope we can get this pandemic behind us soon so we can get back to being an active club with lots to offer our members. Rock On!

Club Purpose

To associate persons of the Palm Beach area of Florida who are interested in earth sciences, to work together as an organization in the gathering, cutting, displaying, and studying of rocks, shells, artifacts, and any kind of scientific objects of interest to the individual and the organization, to promote community interest in these objects.

SUNSHINE NEWS

Doing Well:
Marvin & Bernice Berkowitz
Mary Ricciardi

Get Well:
Michelle Renne'

All:
Stay healthy and safe during this pandemic!

Coming Soon

In the works—planning has just begun for an online auction in the next few months.

Do you have items to donate? Some ideas include stones, geodes, display specimens, slabs, settings, tools, findings, beads, gem trees, completed projects, gift certificates, and yes… even cash!

There is a Donation Box in the Shop where you can drop your donations.

Questions? Contact Arlene Lazzaro at polka.girl4@yahoo.com or Samantha Lazzaro at crystalgrace2006@yahoo.com.

OCTOBER
Kelly Azor
Richard Brayman
Linda Hersh
Daniel Jacobson
Ellen Jean
Al Martin
Arlene Lazzaro
Risa Truglio

NOVEMBER
Joanne Grimes
Clay Hecocks
Paul Juliano
Keith Klein
Lynda Koehler
Mark Kucera
Shakeera Maragh
Lee Miller
Matt Tinker
Larry Truglio

DECEMBER
Christine Campbell
Gale Langford
Martin Markowitz
Paul Perryman
Laura Phillips
Irene Platt
Josey Stamper
Jen Ursillo
Patricia Varnon

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Agate in Fossil: The Story of American Dinosaur "Gem" Bone

By Alan Meltzer, GMSPB Club Member

Admission: I LOVE "GEM" BONE! I'm fascinated by its stunning, brilliant aesthetic and its amazing story. As an agate collector I'm also drawn to the uniqueness of agate in fossil. There are fossils and there are agates, usually seen as distinct niches in the rock-related and lapidary world. Yet, there's an amazing intersection of the two on a charmed sliver of land out west, around the Four Corners area, called the Colorado Plateau.

The Colorado Plateau (see maps) is a mountainous region and the Morrison formation is a strata within it. The volcanic activity that created the Colorado Plateau also deposited rich reservoirs of silica in that section of the Morrison, setting the stage for one of the more remarkable transformations of Jurassic fossils into gem-grade material.

Let's discuss what "gem bone" is, how it's formed and look at some photos!

The colorful, hard dinosaur bone familiar to most folks in the lapidary world is trabecular bone. If you cut open a large bone, even in contemporary mammals, the inner part should have a honeycomb structure. The walls of the honeycomb are called "trabeculae". When an animal is alive those spaces are filled with marrow, consisting of fatty tissue, blood and other fluids but post mortem the marrow degenerates, dries out and voids are created. See photos below for examples of trabecular bone (Figures 1 and 2).

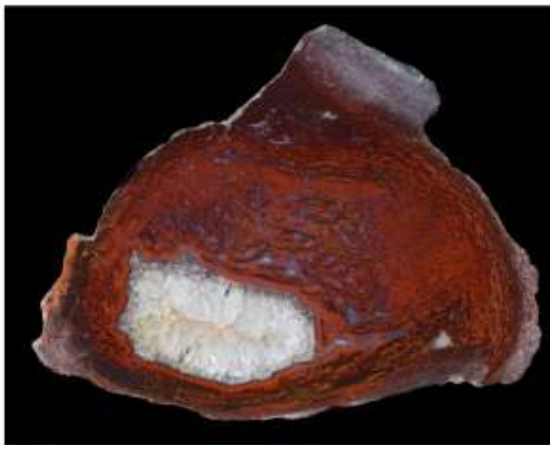


Figure 1

In the silica-rich Colorado Plateau, Jurassic dinosaur bones didn't always decompose quickly, the soft tissues decayed more quickly but some bones stayed whole long enough to be buried by flash floods or volcanic ash resulting in an anaerobic environment so further decomposition was slowed and the small bugs and bacteria couldn't get at them. How do those boring old honeycomb bones transform into Technicolor images of meticulously preserved bone anatomy frozen forever in

Agate in Fossil (continued)

Figure 2

stone? Let's talk about that. While oxygen couldn't get to the fossils, water could. Water percolated down through the sediments, carrying silica with it. The silica slowly deposited in the honeycomb voids, eventually filling them. This was a slow process not completely understood; agate genesis is an unsettled area of research. But we know that, bit-by-bit, silica in solution filled the voids in the honeycomb spaces of the trabecular bone, creating the durable, solid fossil that would resist 100 million years or more of geologic and climate stresses and which we find today. But what about the color? How did these fossils develop the brilliant, eye-popping colors in them?

The colors were simply the mineral contaminants in the nearby ground, picked up by the water and silica in solution on its way to the bone. Sometimes the bone is uniform in color, sometimes it's multicolored; the richness and variety of the minerals in the ground determined what would end up in the bone! So now we've discussed trabecular "gem" bone, the most common "gem" bone habit known to lapidarists and collectors, but it's not the only kind. As an agate collector I have a particular interest in banded agates in fossils; there are special, rare circumstances where stunning banded agates form in dinosaur bones too. All you need is a void and the right conditions (like on the Colorado Plateau) and voila, you have banded agates in bone! Let's explore that a bit more.

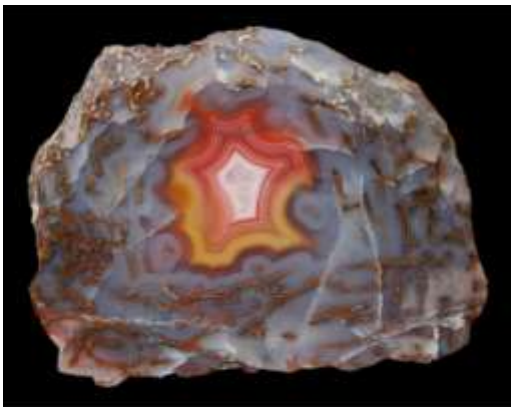


Figure 3

Figure 4

Sometimes trabecular bone partially decomposed, usually in the center where the bone is least dense and strong. The decomposition left large voids and those voids filled with combinations of banded agate, jasper, quartz and calcite. In fact, the most highly agatized dino bone was the most decomposed before silica was deposited. Decomposition created more opportunity for agate deposition! The banded agates in trabecular bone can be stunning and colorful but are usually irregularly shaped because the voids they filled were irregular. Images below (Figures 3, 4, and 5) are examples of banded agate in trabecular bone.

Agate in Fossil (continued)

But there's another, more interesting, habit in dino bone where agate forms: theropod cores. There were two categories of dinosaurs: sauropods and theropods. Theropods were predators, sauropods were prey. Sauropods outnumbered theropods because prey outnumbers predators in any sustainable ecosystem (that's why trabecular "gem" bone is the most common kind found). Sauropods, generally larger and slower, had solid bones. Theropods developed hollow, lighter bones to aid in the speed a predator needs. Theropods had "cortical" bone for strength. Cortical bone is denser and stronger than trabecular so it can also be hollow; this was a marvel of biomechanical engineering akin to contemporary structural steel tubing… denser but lighter and stronger than a solid bone.

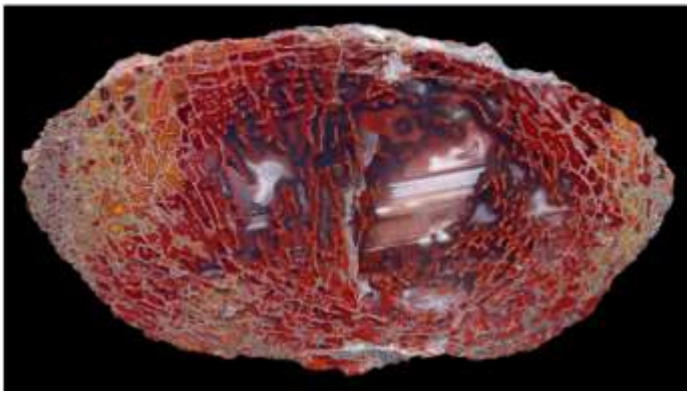


Figure 5

Figure 6

The hollow "cores" in the middle of these bones were the perfect vessels to fill with agate, quartz and calcite. Just like thundereggs and amygdaloidal agate formation, there was a void waiting for the right conditions of silica in solution to slowly deposit beautiful banded agate. These theropod "cores" have some of the most gorgeous banding of agate in dino bone. The agates in theropod cores are nearly perfectly round and have very smooth edges because those were the shapes of the voids it filled. These sturdy agate cores are sometimes found with the bone attached but often found without host bone because the softer bone weathered away long ago. The smoothness and shapes of the cores are telltale signs they're theropod agate cores. Near perfect roundness distinguishes these from most other agates found in that region. See photos (Figures 6 and 7) for examples of theropod cores.; note you don't see the "cells" because they are much smaller and tightly packed in cortical bone than in trabecular bone.

Figure 7

Lastly, there's another prized kind of agate in dino bone: "peacock" vertebras. Vertebras of some theropods, commonly allosauruses, had a semicircular pattern of voids and on rare occasion those voids filled with brightly colored

Agate in Fossil (continued)

agate reminiscent of peacock tails. While these are among the most coveted types of "gem" bone for collectors they are, theoretically, the most common; vertebras are the most common bone in the body. The photos (Figures 8 and 9) are examples of "peacock" vertebra.

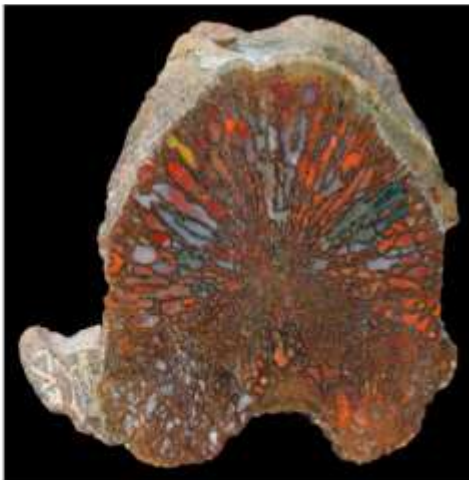


Figure 8

Gem grade dino bone has a small, strong collectors market but it's most widely known among lapidarists as a rare, high-end gemstone for jewelry. As with any gemstone the best of it is exceedingly rare and costly; top notch bone often sells by the gram but is rarely traded in open markets. The photos (Figures 10 and 11) are a couple of examples of high quality dino "gem" bone in jewelry.

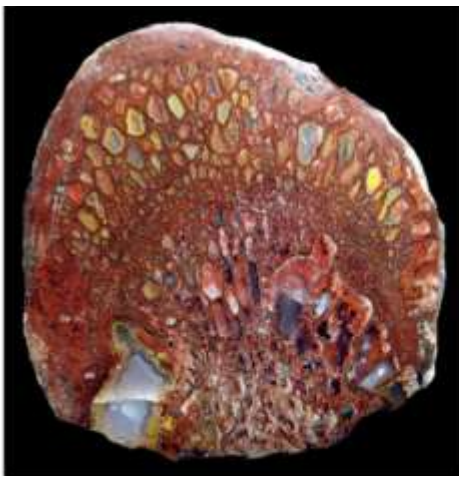


Figure 9

Access to the best material is gained through years of relationship building because very little new, quality material comes to market. The "easy pickin's" from 50 years ago is gone. Since 1978 it's been illegal to collect vertebrate fossils without permission on public lands (the vast majority of the Colorado Plateau is BLM land) so most "gem" bone comes from old collections.

Figure 10

Figure 11

All specimens are from the personal collection of author Alan Meltzer.

It's Time!

Yes, it's that time of year again... Time to renew your membership for 2021!

Because we know you didn't get your money's worth in 2020 due to the COVID-19 pandemic, your dues for 2021 are cut in half: $10 for an individual, $15 for a family, and $5 for a junior membership.

That said, the GMSPB lost almost all sources of revenue in 2020, yet we still have over $1,000/month in expenses. Those who don't mind paying the normal yearly dues are invited to make an equivalent donation. We are, in fact, dangerously low on funds. The option to add an additional donation of $5, $10, or $15 is on the website renewal page, below.

RENEW FOR 2021 HERE:

https://gmspb.org/11memberpay2018/

NOTE: Several Club members have expressed an interest in making larger donations. We are working on a way to do that! Stay tuned... we'll let you know in email when we have this figured out. Thank you for your dedication!

Brad's Bench Tips

Learn New Jewelry Tricks and Techniques
with Brad's Jewelry-Making Books
amazon.com/author/bradfordsmith

NO-MAR PLIERS

Pliers can often leave nicks and scratches on your work. If this is giving you a problem, first take a close look at the plier jaws. New tools can be a little rough. I typically relieve any sharp edges, sand away any tool marks, and give working areas a quick polish.

If that doesn't solve the problem, you probably need to cover the jaws. Plastic electrical tape provides a quick fix but can leave messy adhesive on the jaws, and dips don't seem to last very long.

A quick and easy solution is to slip a length of 1/8 dia vinyl tubing over each jaw. It works well and leaves no sticky residue. The tubing can be found in a store that sells aquarium supplies. Note that this will increase the size of the plier jaws a bit, but I haven't found that to be a problem.

From the "Bench Tips" book at
http://amzn.to/1Z6hQ06

Social-Distancing Friendly Family Trips

Is your family getting cabin fever? Need something to do over the holidays? If you just need to get out of the house for an afternoon or even a day or weekend, maybe the following Florida tips excerpted from GatorGirlRocks.com can give you some good ideas.

Florida is a terrific state for rockhounding. Florida has petrified wood, agatized coral, chert, calcite, kaolin, staurolite, and other rocks and minerals. Florida, however, is especially rich in fossils. The state is a fossil-hunter's paradise. Florida fossils range from 45 million-year-old "sand dollars" to bones and teeth from Ice-age sabertooth cats, which lived in Florida just 10,000 years ago. Bones from Ice-age mammoths and mastodons accumulate on stream beds. Shark teeth wash up on the beaches of southwestern Florida. Moreover, open-pit mineral mines and quarries statewide yield abundant fossil bones, teeth, and shells from both land and marine animals. Much of Florida's bedrock, which is largely limestone, is comprised of the shells of animals that lived in the shallow seas once covering the state. Fossil seashells abound in the banks of both panhandle and southern Florida rivers. The massive limestone deposits also create sinkholes. Florida also has at least four documented meteorites.

Florida Museum of Natural History
University of Florida - Gainesville, Florida
The Florida Museum of Natural History has an extensive fossil collection. Its Invertebrate Paleontology Collection, totaling over 4.3 million fossil specimens, constitutes one of the finest Cenozoic invertebrate collections in the U.S. The museum has the third largest paleobotanical fossil collection in the United States with approximately 300,000 specimens collected from 1,400 localities. In addition, the museum's Vertebrate Paleontology collection is one of the top five university collections of its kind, featuring rich samples of all classes, mainly from the Cenozoic Era, with more than 500,000 specimens.

Gillespie Museum of Minerals
Stetson University - DeLand, Florida
The Gillespie Museum of Minerals is Stetson University's Earth science museum. Its collection of 20,000 mineral, rock, and fossil specimens is one of the oldest and largest in the southeastern US. Exhibits and displays include geology, native Florida ecosystems and plant landscapes, minerals and mining, and fluorescent rocks.

Mulberry Phosphate Museum
Mulberry, Florida
The City of Mulberry is in the heart of the phosphate area of Florida. This area became known as the Bone Valley because of the bones and fossilized remains of prehistoric animals that are common to phosphate deposits. The Mulberry Phosphate Museum houses an outstanding collection of fossilized remains and educational exhibits about the phosphate industry.

Social-Distancing Friendly Family Trips (cont.)

South Florida Science Museum
West Palm Beach, Florida
The museum's 'Out of This World' exhibit displays a 232 pound meteorite, a moon rock brought back on an Apollo mission, and a Mars rock found in Nigeria in 1962. In addition, the museum exhibits Suzie, the Ice Age Mastodon, which is the only adult female mastodon on display in Florida. The mastodon was excavated near Okeechobee Boulevard in 1969.

Earth Wonders Geological Museum
Bunnell, Florida
Located in the office suite of the County Superintendent of Schools, the Earth Wonders Geological Museum houses an excellent collection of more than 1,500 specimens including rocks, minerals, fossils, rough and faceted gems, polished gemstone carvings, historical items, and a large display of fluorescent minerals. In addition, the museum has an excellent collection of Tampa Bay agatized coral. The little museum is located in the lobby of the Flagler County School Superintendent's suite on the third floor. Earth Wonders might be small, but it houses some pretty extraordinary exhibits.

Windley Key Fossil Reef Geological State Park
Windley Key near Islamorada, Florida
Formed of Key Largo limestone, fossilized coral, this land was sold to the Florida East Coast Railroad, which used the stone to build Henry Flagler's Overseas Railroad in the early 1900s. After the railroad was built, the quarry was used until the 1960s to produce exquisite pieces of decorative stone called Keystone. Today, visitors can walk along eight-foot-high quarry walls to see cross sections of the ancient coral and learn about the quarry and its operation - an important part of Florida's 20th century history. Samples of the quarry machinery have been preserved at the park.

Fossils - Shark Teeth
Venice, Florida
Fossils are common in this area. Fossils include: shark teeth, shells, etc. Collecting prehistoric sharks teeth has been a favorite pastime of visitors and residents of the Venice area for years. They may be black, brown, or gray, depending on the minerals in the soil in which they have been buried. They range in size from one eighth inch to three inches, and on rare occasions more. In addition to shark teeth fossils, other marine fossils also are found in this area. Because millions of years ago most of Florida was under water, many fossils are found inland as well as on the beaches. State law, however, prohibits digging without a permit.

Florida Fossil Permits are $5 per year. Information can be found at floridadep.gov.

Kids Corner: Epsom Salt "Frost"

Reprinted from Mini Miners Monthly, Vol. 12, No. 12, December 2020

Winter is starting to kick in here in New York State. It hasn't been really cold yet, but by December, we will all be wearing heavy sweaters and hats. So, it's soon the season for frost crystals on the windows! We found a recipe for making "frost crystals" using Epsom salt, hot water and a little dish detergent. Give it a try!

Materials: What You Need

1/3 cup Epsom salt (magnesium sulfate)
1/2 cup hot water (use hot water from your kitchen faucet)
Liquid dishwashing detergent

What to Do

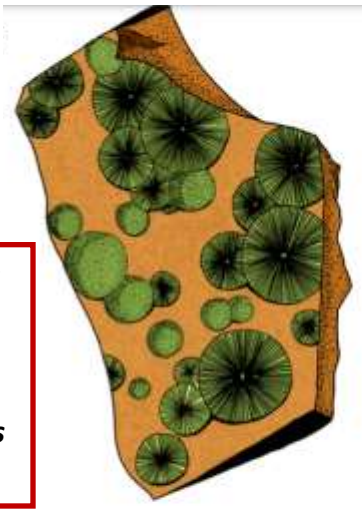
1. Dissolve the Epsom salt in the hot water. Put the Epsom salt in a glass bowl and pour the hot water onto the Epsom salt. Stir un til the Epsom salt completely dissolves. (If the salt doesn't completely dissolve, microwave the solution, but not for very long - about 20 seconds.) *CAUTION: Be very, very careful to handle the hot water with great care and do not spill it on your skin. Hot water can cause very serious burns.*

2. Add a few drops of liquid dishwashing detergent. (When you are done and want to wash your window clean again, the detergent will make the clean up a lot easier!)
3. Use a paper towel or rag to wipe a window with the solution. Crystals will form in 20 to 30 minutes.

Notice how the crystals form. You will see dendrites. You will also see crystals growing out (radiating) from a central point. They will look like other minerals you may have seen like hematite, pectolite (below left), and wavellite (below right). You can actually see dozens of radiating crystals growing right before your own eyes! Of course the crystal groups on your window will be flat.

You can see this experiment in action on YouTube at http://www.youtube.com/watch?v=e9Kntk47P6k (it might be easier to put "crystal frost window paint" in the YouTube search bar.)

This idea first came to our attention through About.com Chemistry.



Mini Miners Monthly is a publication by Diamond Dan Publications.

Check out Diamond Dan's new YouTube channel!

S h o p T a l k

The GMSPB Shop is <u>open</u> again, but on a <u>very limited basis</u>. Shop hours are available only to GMSPB members. Shop fees are $7 for up to three hours, and $10 for longer. Note that this represents an increase over previous years.

IMPORTANT! Members must complete a 6-class Certification Class before using the cabbing equipment. This class runs for six consecutive weeks for 3 hours each week to provide safety instructions and cabbing techniques. If you received training elsewhere, you will still need to demonstrate your proficiency before using shop equipment. For information on cabbing certification please call Lo Rain Dudley or Lee Miller (numbers listed below).

ALSO IMPORTANT! You must contact the Shop Steward listed below before you come to the Shop. No walk-ins, please. We will observe all COVID-19 precautions—only a few people will be allowed in the Shop at any given time. You will be required to arrive with:

- **A functional, well-fitting mask, worn over the nose and mouth at all times.**
- **Gloves.**
- **Plenty of hand sanitizer.**

The Shop times listed below are approximate and may be negotiated with the Shop Steward on duty at the time.

Open shop is available for lapidary, metal work, enameling, fused glass, classes and to use the library. You must be certified to use the kiln! For kiln certification and classes, please contact Samantha Lazzaro. At the present time, kiln use is limited to Monday Open Shop Hours.

You will be asked to sign a one-time liability waiver and be given a copy of the shop rules.

Always sign in and out of the log book and complete the information on the sign in sheet.

OPEN SHOP HOURS & STEWARDS

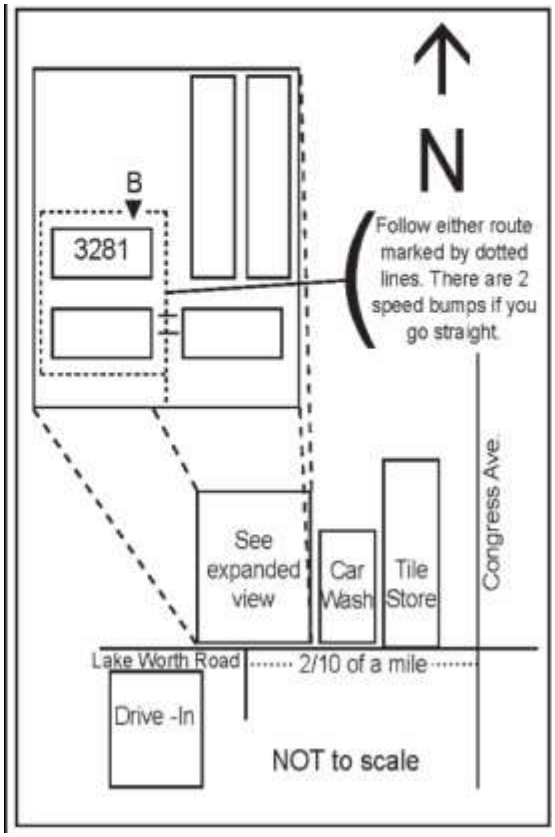
Mondays 10:30am - 5:00pm
Samantha Lazzaro, Shop Steward
631-764-6556

Wednesdays 12:00pm - 3:00pm
Lo Rain Dudley, Shop Steward
561-827-5793

Thursdays 12:00pm - 3:00pm
Dennis Rietwyk & Lee Miller, Shop Stewards
561-329-8872 (Lee)

Fridays 12:00pm - 3:00pm
Lo Rain Dudley, Shop Steward
561-827-5793

Saturdays 10:00 am-2:00 pm
Lee Miller, Shop Steward
561-329-8872



The street address of the shop is:
3281 Lake Worth Road, Suite B,
Lake Worth, FL 33461

AVAILABLE CLASSES

CLASS	INSTRUCTOR	COST	DATE/TIME/NOTES
◊ Introduction to Chainmail ◊ How to Use the Jumpringer ◊ Introduction to Metalsmithing ◊ Viking Wire Weave	Laura Simmons 407/234–0444	$30 + $10 materials fee $10 + $5 materials fee $50 + $30 materials (copper) or $60 materials (silver) $30 + $15 fee	Contact instructor to arrange.
Cabochon sessions Six 3-hr sessions	Susan Cairl 561/293-1298	$75 + $20 materials fee	Contact instructor to arrange.
Cold Connections Class Series: ◊ Explosion Pendant ◊ Fold Forming Bracelet w/Beveled Stone Setting ◊ Scrapbook Bracelet (rivets) ◊ Metal Etching & Air Chasing Bracelet ◊ 3D Pendant w/Druzy Stone Slice NEW!	Arlene Lazzaro 516/810-3495	$40 + $35 materials fee $40 + $35 materials fee $40 + $35 materials fee $40 + $40 materials fee $40 + $40 materials fee	Contact instructor to arrange.
Enameling	Samantha Lazzaro 561/372-2359	$40 + $50 materials fee	Contact instructor to arrange.
Flat Lap	Lee Miller 561/329-8872	$40 + $10 supplies fee	Contact instructor to arrange.
Gem Tree	Dianna Ray 561/707-6753	TBD	Contact instructor to arrange.
Metalsmithing: ◊ Alien Prong Ring	Arlene Lazzaro 516/810-3495	$40 + $15 materials fee	Contact instructor to arrange.
Wire Sculpture Class	Debi Kachman 561/568-8736	$30 + $20-50 materials fee (depending on metal) OR supply list can be provided	Contact instructor to arrange.

NOTE: These classes will not be scheduled until the shop reopens. In the meantime, please contact the instructors about classes you are interested in, so they will be ready to schedule classes when possible.

MEMBERSHIP DUES

Junior Membership—$10.00
(Under age 18)
Single Membership—$20.00
(Over age 18)
Family Membership—$30.00
(Includes 2 adults and children under age 18 in a single household)

Membership expires on December 31st each year and is due by the end of February of the new year.

To renew your membership, make your check or money order to:

Gem & Mineral Society of the Palm Beaches, Inc. and mail to:

Membership Coordinator
Gem & Mineral Society
P.O. Box 18095
West Palm Beach, FL 33416-8095

NAME TAGS

Available from:
Ace Marking Devices ($12.00)
3308 S. Dixie Hwy.
West Palm Beach, FL 33405
561/833-4073

SHOP FEES

Up to 3 hours shop time - $7
Over 3 hours shop time - $10

SEE CALENDAR FOR OPEN SHOPS

SHOP STEWARDS

Head Shop Steward:
Susan Cairl 561/293-1298

Laura Simmons 407/234-0444
Dennis Rietwyk 561/255-0292
Samantha Lazzaro 561/372-2359
Lee Miller 561/329-8872

Shop Phone:
561/585-2080

2020 OFFICERS

President*	Laura Simmons	407/234-0444
1st Vice President*	Dianna Ray	561/707-6753
2nd Vice President*	Barbara Ringhiser	561/379-4307
Secretary*	Clara Pflueger	201/566-6492
Treasurer*	Jenny Wright	561/634-1427

2020 DIRECTORS

Head Shop Steward*	Lee Miller	561/329-8872
Membership*	David Taylor	561/644-1888
Newsletter Editor*	Laura Phillips	561/523-3594
Member-at-Large*	Lo Rain Dudley	561/827-5793
Show Chairman*	Open	
Webmaster*	Richard Tracey	561/318-6891

COMMITTEE CHAIRPEOPLE

Hostess	Samantha Lazzaro	561/372-2359
Jr. Rockhound Program	Mitchell Turk	561/506-4655
Librarian	Shop Steward on Duty	
Programs	Barbara Ringhiser	561/379-4307
Raffle Coordinator	Laura Simmons	407/234-0444
Refreshments	Arlene Lazzaro	516/810-3495
Sunshine Committee	Jenny Wright	561/634-1427
Social Events	Open	
Webmaster	Richard Tracey	561/318-6891

*Denotes a Voting Member of the Executive Committee.

WEBSITE

www.gemandmineralsociety.org or **www.gmspb.org**

Club Email Addresses

membership@gmspb.org
newsletter@gmspb.org
president@gmspb.org
show@gmspb.org
vendorinfo@gmspb.org
webmaster@gmspb.org

Link to our **smile.amazon.com** account:
http://smile.amazon.com/ch/59-6196330

The Gem & Mineral Society of the Palm Beaches, Inc. is a 501 (c) (3) corporation and a member of the Eastern and Southeastern Federations of Mineral and Lapidary Societies, and is affiliated with the American Federation of Mineralogical Societies. Monthly meetings are held on the third Thursday of the month except for December, which is held on the second Thursday. Meetings start at 7:30 PM at the former Garden Club building (across from the Science Center), 4800 Dreher Trail North, West Palm Beach, FL 33405.

The opinions, beliefs and viewpoints expressed by the various authors in this newsletter do not necessarily reflect the opinions, beliefs and viewpoints of the Gem and Mineral Society of the Palm Beaches ("GMSPB"). GMSPB does not verify any claims made for accuracy, and is not responsible for the views expressed. Nothing contained herein constitutes any sort of professional advice, including but not limited to legal, medical, or financial advice. Any action you take based on information published in The Rockhound is strictly at your own risk.

Send comments or submissions to laurajeanphillips@gmail.com