Smoke Signals

Gem & Mineral Club **October/November 2015**

Club Activities –

Jewelry day is set for Saturday Nov 28 – Noon - 3 at the Davenport Public Library on Eastern Ave. Rm. A – located at the back of the Coffee Shop area. Come learn how to make a pendant and earrings using beads.

Please bring any supplies you may have: stone, bead, tools, etc. We will try to supply whatever you may not have in order to create your pieces.

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Show Thanks

A Special Thank you to all who volunteered to make our fall show a success. We would not have a show without people who donate material and time, Thank you very much!

Craig Moore
Club President.

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We would also like to give a special thank you to Deb Totemeier for her donation of rocks. This show's success is due in part to her generosity in materials to sell. We greatly appriciate it!

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Citrine
November's Birthstone

OPAL

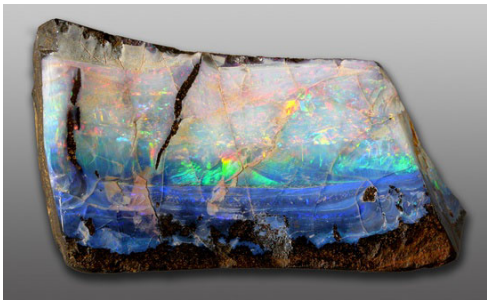
October's birthstones include opal, rose zircon, and tourmaline. Let's talk about opal. (We covered birthstones in 2011 – if you are new and/or impatient, request your preferred month back issue and I'll email it to you.)

Opal is considered a gemstone, although technically it's not a mineral (just as technically the tomato is a fruit). A mineral is an inorganic substance with a definite chemical composition and crystalline structure (more or less). Opals (and amber) have an amorphous structure. (Also, amber is organic.) One can be more or less technically rigorous depending on context.

Mindat defines opal succinctly: "Although it is still (2007) regarded as a valid mineral species for historical reasons, Opal is not a true mineral in the accepted sense of the word as it is either composed of Cristobalite and/or Tridymite or composed of amorphous silica." (Editor's note: as I was composing this article, Alfredo Petrov pointed out, "Trouble is opal is a lot of different things. I'd consider the truly amorphous type (hyalite) to be a real mineral. Opals "image problem", so to speak, among professional mineralogists is that it's amorphous, no crystallinity, and in general mineralogists don't like amorphous materials because they can't study them by x-ray (their most common tool) as they give no clear XRD pattern, and furthermore it is often difficult to determine whether an amorphous substance is a single compound or a mixture. Hyalite is obviously not a mixture, so it still deserves a "real mineral" species status among the opals."

We all know that there are several varieties of opal. The basic precious opals are named according to the color of the background material ("jelly"): white, black, grey, etc. Fire opal is the glassy orange stuff. There are actually many subtypes of opal, and you can check out one list of them (with photos and gemological data) on gemdat:

http://www.gemdat.org/gem-3004.html.



Opal (length: 6 cm). Australia photo by Hannes Grobe. Creative Commons license via Wikimedia Commons.

When shopping, remember that opals are often mounted and sold as doublets or triplets – thin slices of colorful opal gem topped (and sometimes backed) by quartz. Doublets and triplets are pretty enough, and suitable for some applications – just make sure that you know what you are looking at and/or paying for. The same is true for lab-created/synthetic opal.

Your editor's "field" is more the library than the mine, and one of the fun things we've discovered is the habit of looking at older reference books to see how our views (whether scientific or aesthetic) have changed.

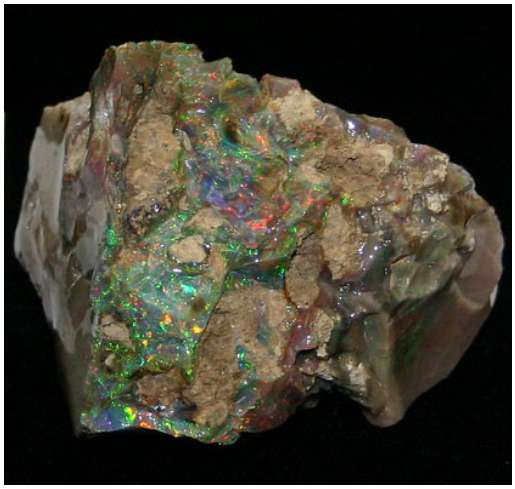


Photo by Chris Ralph via Wikimedia Commons. Nevada Opal. nevada-outback-gems.com

For example, the play of color in precious opal is explained today as being due to light diffracting among sub-microscopic spheres of silica in the gem. Antoinette Matlins explains it this way: "Opal is composed of hydrated silica spheres. The mini-rainbows seen in most opals result from light interference created by those spheres." (Colored Gemstones: The Antoinette Matlins Buying Guide, GemStone Press, 2002 Second Printing.) Walter Schumann, in Gemstones of the World, is more precise:

"The electron-microscope, using a magnification of 20,000, reveals the cause: tiny spheres (as small as 0.001 millimeter in diameter) of the mineral cristobalite layered in siliceous jelly cause the diffraction and interference patterns."

Common knowledge, you say? It seems to be now. But we haven't always had scanning electron microscopes. In The Story of the Gems: A Popular Handbook, by Herbert P. Whitlock (Lee Furman, NY: 1936), opal's magic is explained thusly: *"Opal* is one of the very few minerals that do not crystallize. It is a solidified jelly composed of silica with a small and somewhat variable proportion of water. In the precious varieties of opal, those which furnish the opal gem stones, this amorphous jelly-like mass in the process of hardening was traversed by a multitude of small cracks. It is the presence of these cracks, which were subsequently filled with a later deposit of opal that gives to this remarkable gem its singular play of color. The light that is returned to the eye, after being reflected from the surfaces of these exceedingly fine cracks, is subjected to interference and broken up into colors just as light reflected from any film, such as a soap bubble, is broken up by interfering waves of light. The thinner and more uniform the series of cracks, the finer and broader the flash of reflected color."

Fire Opal image from Wikimedia commons Photo by Elke Wetzig (Elya)

Another thing that varies is recommended care of gems, including opal. Recently, in a mineral club bulletin(!), I saw repeated the advice I got from another girl back in my college days, which was to use toothbrush and toothpaste on my jewelry. Horrified jewelers have since disabused me of that idea, of course (toothpaste contains abrasives, which can harm gold and softer stones). We also still see the advice to clean opals with oil and/or store them in oil. Matlin, at least, strongly advises otherwise, although she does agree with those who recommend immersion in water.

I've enjoyed seeing Ethiopian opals, especially, for sale by some of the dealers at local shows, but I haven't purchased any (yet). If any club members have, and are working with it, maybe you could share some photos.

The Danburite for Oct 2013 Vol 63 no 9

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Meanings & Powers of Gemstones

Brought to you by Eydee Schultz

SALT: Freshly mined ROCK salt, (used mostly for roads) brings clear and calm breathing, even through the dust 650 feet below ground, which was pretty surprising, when the tour guide brought our attention to our breathing.

HIMALAYAN RAW SALT: Created millions of years ago when oceans dried up, this pink salt emits negative ions. Especially when lit in a lamp by a low watt bulb, it purifies air of allergens, dust, smoke and bacteria. This CRYSTAL salt is one of the few MINERALS bound electrically not molecularly. Heated salt lamps create surface temperatures higher than room air, attracting H2O molecules. This creates slight humidity and electrically splits the positive and negative sodium and chloride ions. The larger amount of negative ions being created, collect the bad air particles by attaching themselves to the positively charged air pollutants. (Maybe it's in my head, but I swear I am sleeping better with the new bedroom lamp, I bought at the Rock Salt Mine.) This salt is also used as a natural deodorant and as a skin exfoliant. Next time you go to a rock, gem or mineral show and someone is selling these pink pretties... go ahead and buy!

Here is a look at another interesting rock.

LAVA STONE: This was solid rock that was heated to a high enough temperature to liquefy it. The stone is thus said to provide you with the strength, fire and power it contains. It is a stone of courage enabling an opportunity for stability through personal life's' changes.

Via November 2015, LOESS Bulletin Volume XXIX, No. 10

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Rockhound 101.0

First of a series by CIMS member Karen Leibold

So how and when does one become a rockhound? My story: Over the years I have worked as a health educator, assistant in an advertising agency, and as an antique dealer. Volunteering has exposed me to church office work, event management, fundraising, visual art, historical museum work, and other community groups. Not much rock related in that list! It does explain why I was ok with coordinating the recent MWF Convention in Des Moines. But why so much time focused on rocks these days? As an empty nester I found myself longing for interests that had been set aside while running a household and raising two daughters. Growing up included much exploration of a limestone bluff area along the Mississippi River, and trips to all parts of the U.S., particularly areas with mountains, lakes and streams. I assisted my grandfather with the rebuilding of the fireplace at the family cabin. This fireplace was built by my grandfather and his father in the 1910's. It had AMAZING rocks! So…. I have always been around cool rocks. My mom brought back a green & pink pebble from a family trip to Colorado one year – about 1972 -- and she splurged and had it set in 14k white gold! So… It must be genetic. My favorite classes at the U of Iowa were a design course, Silversmithing, and Geology 101 ("Rock Shop"). So… Joining the Des Moines Lapidary Society and then learning there was also the Central Iowa Mineral Society has been a wonderful way to return to all three.

The motivation for this series comes from my background as an educator, and as a rusty returnee to the organized world of geology. The questions asked most often about antiques, and rocks, are, "What is this?" Then, "Is this anything?" What were those tests we did in Rock Shop? What tools are helpful? How was this formed? Is it suitable for cutting? Is it rare?

The next topic in this series will focus on the physical characteristics of minerals, traits which are used to identify and describe minerals.

VIA News Nuggets Volume 65 Number 10
December, 2014

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Bench Tips by Brad Smith

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TAKE BETTER PHOTOS

Most digital cameras these days have the ability to take a good picture of your small jewelry items, but set-up is important. There are four major items to control - background, lighting, camera motion and focus control.

Lightly colored papers from an art store make reasonable starter backgrounds. Try experimenting with other products later like glass or colored plastics. Avoid fabrics because the weave can often be distracting at high magnification.

Outside lighting is the easiest. In fact for close-ups, flash never works well. Turn off your camera's flash. Choose a bright but overcast day or a lightly shaded area when the sun is full. For inside use, two gooseneck desk lamps can be used with 75 watt bulbs. Whatever you use, be sure to set the camera to match the type of lighting you use or else the color will be off.

You'll be shooting up close, so turn on the Macro mode. Now at this range, if the camera moves even a little bit during the shot, the picture will be blurry, so it's essential to use a tripod. Used ones are available inexpensively from eBay, yard sales or some camera shops. And even with a tripod, I put the camera on the self-timer mode so that any vibration from when you click the button settles down before the camera takes a picture.

In order to get the largest part of your jewelry in focus, you have to close the lens down to the minimum aperture (highest F-Stop number). This is done by taking the camera off of "Auto" mode and selecting Aperture Priority, usually denoted by "Av" and then setting the aperture to the largest number, which is F-8 on my camera. You'll probably have to get out the book or go back to the store to ask about this, but it's really worth it.

That's it. In recap, here are the camera settings I use:

Set the lens to Macro for a close-up shot.

Move the camera in close enough for the item to cover at least ¾ of the frame.

Look for adverse reflections from the jewelry surface.
Try to minimize reflections with changes of light position, camera angle or white background paper.

Carefully check for any fingerprints or dust that might be on the piece.

Make any final tweaks with light and arrangement.

Turn the camera's flash off.

Select "Av" for aperture priority mode.

Set the lens opening to the highest number for max depth of field.

Set the lighting to match what you're using (daylight, overcast, lightbulb, fluorescent, etc.).

Set the timer to delayed shooting, either 2 seconds or 10 seconds, to avoid camera movement. The delay also gives you time to hold up a piece of white paper to reduce any final reflections.

Take the shot.

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SOURCE FOR PLASTIC

We often use plastic in our studios, like for a single part die or for a template. So it's handy to have a small supply along with the rest of your sheet, wire, copper and bronze. But we seldom think to buy and stock any plastic.

The plastics store I go to has a scrap bin out back where they give away small pieces and scraps. I usually opt for the 3/8 and 1/2 inch thicknesses for use as forming dies, but there's always a variety of sizes and colors to choose from including thin sheets that are good for templates.

You can find a shop with Google or the Yellow Pages. Next time you go to your local shop, it's worth asking to see if they have a scrap bin.

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HOMEMADE WAX TOOLS

Save your used X-Acto or scalpel blades for utility work on the bench. They're wonderful for delicate wax work. Use a cutoff wheel or other type of grinding wheel to shape the blades to what you need. For instance, you can carve away excess metal on the

spine to make yourself some narrow carving knives that do a great job of detailing small pierced areas of your waxes.

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REMOVING A STONE FROM BEZEL SETTING

If you've forgotten to use dental floss and got your stone caught in a bezel, there's one thing you can try before starting to pry.

Find some sticky wax or beeswax. Roll it into a pencil-sized cylinder and stick the end onto the top of the stone. Mold it on well and yank.

But if the stone is really stuck, there are two other tricks - but each with risks and consequences. The first is to pry open the bezel with a sharp knife blade being very careful not to wrinkle or tear the bezel. If you try this, make sure to pry gently in several passes around the stone.

The last solution is to drill a small hole into the bezel setting from the back side so that you can push the stone out. Note that this does leave a hole, but in some cases you can use it to saw out a design under the stone.

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More Bench Tips by Brad Smith are at
facebook.com/BenchTips/
or see
Get all 101 of Brad's bench tips in "Bench Tips for Jewelry Making" on Amazon
http://amazon.com/dp/0988285800/

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Everglades Geology

by Mark Gladfelter

Via The Pica Pick, Edwards River Earth Science Club, January 2015

The geology of South Florida, together with a warm, wet, subtropical climate, provides conditions well-suited for a large marshland ecosystem. Layers of porous and permeable limestone create water-bearing rock and soil that affect the climate, weather, and hydrology of South Florida. The properties of the rock underneath the Everglades can be explained by the geologic history of the state.

The crust underneath Florida was at one point part of the African region of the supercontinent Gondwana.

About 300 million years ago, North America merged with Africa, connecting Florida with North America. Volcanic activity centered around the eastern side of Florida covered the prevalent sedimentary rock with igneous rock. Continental rifting began to separate North America from Gondwana about 180 million years ago. When Florida was part of Africa, it was initially above water, but during the cooler Jurassic Period, the Florida Platform became a shallow marine environment in which sedimentary rocks were deposited. Through the Cretaceous Period, most of Florida remained a tropical sea floor of varying depths. The peninsula has been covered by seawater at least seven times since the bedrock formed.

Fluctuating sea levels compressed numerous layers of calcium carbonate, sand, and shells. The resulting permeable limestone formations that developed between 25 million and 70 million years ago created the Floridan Aquifer, which serves as the main source of fresh water for the northern portion of Florida. However, this aquifer lies beneath thousands of feet of impermeable sedimentary rock from Lake Okeechobee to the southern tip of the peninsula.

The geologic formations that have the most influence on the Everglades are the Miami Limestone and the Fort Thompson Formation. The Miami Limestone forms the floor of the lower Everglades. The Miami Limestone is made up of ooids: tiny formations of egg-shaped concentric shells and calcium carbonate, formed around a single grain of sand. The Miami Limestone was formerly named the Miami Oolite, which is composed of ooids and fossilized bryozoan organisms.[16] The unique structure was some of the first material used in housing in early 20th-century South Florida.

The composition of this sedimentary formation affects the hydrology, plant life, and wildlife above it: the rock is especially porous and stores water during the dry season in the Everglades and its chemical

composition determines the vegetation prevalent in the region. The underlying bedrock or limestone of the Everglades basin affects the hydroperiod, or how long an area within the region stays flooded throughout the year. Longer hydroperiods are possible in areas that were submerged beneath seawater for longer periods of time, while the geology of Florida was forming.

More water is held within the porous ooids and limestone than older types of rock that spent more time above sea level. A hydroperiod of ten months or more fosters growth of sawgrass, whereas a shorter hydroperiod of six months or less promotes beds of periphyton, a growth of algae and other microscopic organisms. There are only two types of soil in the Everglades, peat and marl. Where there are longer hydroperiods, peat builds up over hundreds or thousands of years due to many generations of decaying plant matter. Where periphyton grows, the soil develops into marl, which is more calcitic in composition.

Today the Everglades, this "River of Grass" travels ever slowly southward. It may require months or years to reach its final destination, Florida Bay. This river travels so slowly that water is typically stored from one wet season to the next in the porous limestone substrate. The ebb and flow of water has shaped the land and every ecosystem in South Florida throughout the Everglades' estimated 5,000 years of existence.

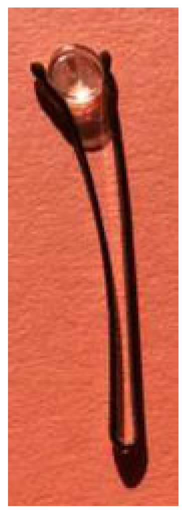
Via LOESS Bulletin March 2015, Volume XXIX, No. 3

Do-it-yourself Microscope for $3.50

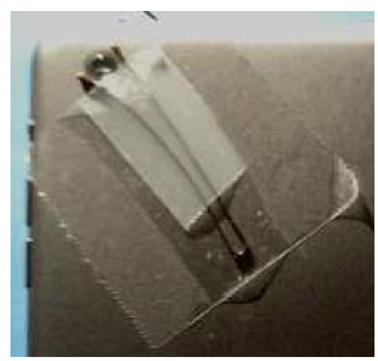
by Jill Duel

I ran across a video on YouTube on how to turn your iPhone camera into a microscope in just a few easy steps. I had some doubts that this MacGyver type device would work, but decided to try it out anyway.

All you need is a laser pointer (I found a cheap one at Dollar General in with the cat toys), a hairpin and a piece of tape. Take the laser pointer apart until you find a small, round lens at the end of the laser pointer. It may take some patience and a few tools to take the laser pointer apart. Place the lens at the open end of the hairpin and use a piece of tape to put the hairpin over your camera lens on your cellphone. Now you are ready to take some awesome pictures.



I have been using this setup on the camera on my iPad. You need a steady hand to get a good picture or you can prop the cellphone on something to use as a support. So far I've used it to take pictures of dates on coins, mint marks on sterling silverware, and of course, lots of rocks.



Photos by Jill Duel

Via Loess Bulletin Aug 2015, Volume XXIX, No. 8

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The purpose of this non-profit organization is to promote interest in collecting, studying and working with gems and minerals and fossils. Organized in 1955, the Black Hawk Club joined the Midwest Federation of Mineralogical & Geological Societies in 1959. It is also a member of the American Federation of Mineralogical Societies. Meetings are held on the third Wednesday of every month, September through May at 6:00P.M. in the Hauberg Civic Center, 1300 24th Street, Rock Island, IL. Picnics are held at various locations during June, July, and August. Annual Dues: Individual Membership: $15.00, Senior Couples: $12.00, Senior Individual: $10.00, Family: $20.00.

Newsletter Submissions:
Please send submissions for publication (announcements, photographs, notes, letters, articles, etc.) in the Smoke Signals newsletter to the Editor no later than the first day of the previous month. For example, August 1 for the September issue. Advance items are appreciated. Material may be e-mailed to Kellie Moore at kalsinean1@aol.com, or submitted via the U.S. Mail:

Kellie Moore
718 Franklin Ave
Davenport, IA 52806

If e-mailing an article, it may be included within the body of the e-mail message or sent as an attachment.

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Looking forward to receiving an article from you!

Editor: Kellie Moore 718 Franklin Ave, Davenport, IA 52806.

Disclaimer: The conclusions and opinions expressed in *Smoke Signals* are those of the authors and do not necessarily represent those of the Officers, Editor, or members of the club.

Visit us at:
www.blackhawkgemandmineralclub.com

Affiliations
Midwest Federation of Mineralogical & Geological Societies

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Black Hawk Gem and Mineral Club, Inc.

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