"CUTTING REMARKS"

The Official Publication of the Old Pueblo Lapidary Club 520-323-9154

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Please join us <u>July 9th</u> at 9:00am for the monthly meeting. There is an optional social hour that begins at 8:00am followed by an educational program at 9:00am, followed by the monthly meeting. Visitors are always welcome.

Membership Chairperson

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Articles or news to be included in the *Cutting Remarks* should be emailed to your Editor, Mike DeMeritt (**silverlininggemstones@gmail.com**), or feel free to call him at 520-203-8430. Submission deadline is the 20th of each month. Thanks!

See us online at: www.lapidaryclub.org

THE PREZ SEZ by John Poole

The year is half gone and it's been super hot, even for Arizona. As I mentioned before, our A/C in the workshops is working really well and most times we're not very busy. So, if you have had a project you have been thinking about now would be a good time to take it from the thinking stage would be nice! to the doing stage.

Some improvements have been installed a better sink in the cabbing lab and new Smith Torches at all the work benches in the silver shop.

Our shop monitors and stand-by monitors

have been doing a really good job of making sure our shops are open most of the scheduled times. Remem-

ber, they are volunteers! So, pick up and

clean up after yourselves; and a thank you

I'll see you on July 9th at 8 am for coffee and treats. Our program starts at 9 am, followed by a short business meeting. Remember, wear your OPLC badge and get a free raffle ticket with a purchase.

See you on July 9th, John

SILVER SOLDER MAKEUP AND MELTING POINTS										
	Component				Degrees					
Solder	Ag	Cu	Zn	CD	F	С				
ІТ	80	16	4		1490	809				
Hard	76	21	3		1425	773				
Medium	70	29	10		1390	747				
Easy	60	25	15		1325	711				
Easy Flo	50	15	15	20	1270	681				

Front Cover Pictures: Exceptional Ruby crystal from Mogok, Burma (now Myanmar). Highgrade natural red Coral will cut outstanding cabochons or look great as a specimen!

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PRIOR MONTH'S MEETING MINUTES... Twink Monrad, Secretary

The meeting was brought to order by President John Poole who thanked our speaker who gave a very informative presentation on the purchase and care of used and new lapidary equipment.

Margaret and Ben Reynolds furnished the refreshments and were thanked for the delicious fruit and baked goods.

Four new members/guests were introduced. Membership stands at 444 plus.

The minutes which appeared in Cutting Remarks for May were approved as published.

Our three evaporative coolers are going to need to be replaced and the Club will need to decide whether to do that or spend \$15,000 to \$20,000 on new air conditioning units which would also involve electrical work.

Treasurer's report: We are 23% into our budget. Mike DeMeritt will soon be placing a large order for parts and equipment needed to keep our shops running smoothly.

Silent Auction first Saturday in November: Tom McDevitt is pleased with minerals, rocks and equipment donations coming in. Wayne Klement had been corresponding with a fellow from Australia who mailed to the Club some opal samples which will be featured in the Silent Auction.

Field trips: Janell Cortright said several trips are being planned starting in the fall.

Ron Davidson Memorial Scholarship Fund: Bill Penrose is

looking into the correct and efficient way to handle this.

John Poole reminded us that all members are invited to sit in on the Board Meetings which are generally the Friday morning the week before our meeting week.

Election: The nominating committee chaired by Bill Penrose and assisted by Skip Barkley and Mike DeMeritt are asking for volunteers to run for office. We need a President, Vice President and two board members.

John Poole attended a meeting regarding the old downtown courthouse which is being refurbished over the next two years and will house several agencies and part of it will be a mineral museum. OPLC and other groups are being invited to take part in the project. Many questions will need to be answered. Members were asked to e mail County Director Chuck Huckleberry in support of the project.

AZ House bill 2176 regarding the selling of new and old ivory, some teeth and other items could affect jewelry makers and collectors so anyone wishing to comment can contact AZ lawmakers.

The door prize was won by Donna Brewer.

We adjourned at 10:45 AM.

Twink Monrad, Secretary



JULY GEMSTONE: RUBY



Faceted gem-grade ruby from Thailand

Not only are they born in the same month as our country, but those born in July have the distinction of having the gem corundum *Ruby* as their birthstone. Ruby is simply the red-colored version of corundum, typically colored by Chromium ions.

Corundum (chemical formula Al2O3) forms in the trigonal crystal class, often barrel-shaped, with several steep hexagonal bipyramids and {0001}, perhaps also {1120}; also tabular parallel to {0001}. Crystals are commonly rough with uneven faces; prism and pyramid faces sometimes striated to {0001}; striation also on {0001} parallel with prism faces. Twinning is common on {1011} and (0001}. They are usually lamellar, though may be granular. They possess no cleav-

age, and have a Moh's hardness of 9.0 (second only to diamond), and a density typically around 4.0. They have a vitreous luster, and are transparent to translucent. Corundum is normally pure Al2O3; the

color-giving ions, such as Cr (Ruby) or Fe and Ti (Sapphire), are present only in very small amounts, typically a few parts per million. The crystal structure can be best described as an almost hexagonal close packing of spheres of O atoms in which two-thirds of the octahedrally-coordinated interstices are occupied by Al and the remaining third is empty.

Corundum occurs in Si-poor igneous rocks such as syenites and nephaline-syenites, and

associated pegmatites, in contact zones between peridotites and surrounding rocks, and in metamorphic rocks such as gneisses, micaschists, and crystalline limestones. Because of its hardness and chemical resistance, it is also widespread in sand and gravel deposits.

The finest rubies come from the Mogok region in Myanmar (formerly Burma), where they are found in metamorphosed limestones, as well as in the overlying weathered zones. Most precious rubies derive from gravel deposits in Sri Lanka, Cambodia, and Thailand, but there are also deposits in Madagascar, Tanzania, Mozambique, and other African locations.

Ruby is a joy to cut and polish, and behaves much like any other corundum. I have heard many facetors complain of resistance to polishing with corundum, though I haven't experienced this myself. Many of these facetors suggest adding vinegar to your water drip. I do agree that corundum takes longer to polish (it does have a hardness of 9.0, after all...). If you are having problems, I recommend a lap sequence



Outstanding Ruby specimen, unknown locale

of 260-, 600-, and finally, 3000-grit as a pre-polish. Follow with 100K diamond on your favorite lap (I only use ceramic laps for polishing corundum - another area where I hear other facetors complain that ceramics are "difficult to use". My suggestion is, if it's difficult, start learning early!) Cabbers will want to use full-diamond wheels, final-polishing at 50K or 100K. In my experience, final polish works best on harder surfaces, such as leather, phenol, or wood, though will come up eventually on softer materials.

Written/Compiled by Mike DeMeritt, June 2013

July 2016 OPLC Speaker



We are in for another very unique presentation for our July 9, 2016 OPLC monthly meeting.

Chelsea Ellsworth Jones was the assistant curator at the Phoenix Art Museum in charge of the wonderful and rare exhibit "Cameos: Sculpture in Miniature", which we visited as an OPLC group in December of 2015. Chelsea will be coming down from Phoenix to talk to us and give us an in-depth look into the art of cameos over the ages and the story and research involved behind that special exhibit.

Chelsea completed her undergraduate degree in cultural Anthropology at Brigham Young University and her Master's Degree in Museum Studies at ASU. Currently she is working as a Historical Analyst for the Salt River Project's (SRP) Research Archives, responsible for caring for SRP's physical and digital historic collections that document the history of the company and the state of Arizona.

Chelsea may also share with us some of her current projects.

Looking forward to seeing you all, Helen Serras-Herman, OPLC Program chair

Natural vs. Enhanced – Lapidary Gem Materials, Part 2

By Helen Serras-Herman

In the first part of this article, we discussed the term "simulant" and "enhanced" according to the 'Enhancement Codes' set by the American Gem Trade Association (AGTA), and the Federal Trade Commission (FTC) Guides for the jewelry industry. The term "simulants" refers to natural or enhanced materials that simulate another natural gemstone. They vary from the imitation stones, which are mostly man-made materials (usually glass or plastic) imitating a natural gemstone.

We also compared some natural gem materials against their simulants, and discussed how important disclosure is, besides honesty, for the customer to know how to take care of the finished stones. Lapidaries, designers and metalsmiths need to be aware of the hardness, durability and longevity of these stones, as well as the final jewelry client or collector who should know how to clean and take care of these stones.

I also want to remind everyone, that according to the Federal Trade Commission (FTC) Guides for the jewelry industry, with the exception of normal fashioning (cutting and polishing) it is the seller's responsibility at all levels of commerce to clearly disclose to the buyer at the time of the sale whether the stone is natural or not. If you are using enhanced gem materials fashioned into cabochons, beads, carvings, eggs or spheres, or if you are treating your stones with oils, resins or Opticon® fracture filler, it is your responsibility to share that information with your buyer.

Drusy gems, natural vs. enhanced

The term "drusy" (also called druse, druzy, or drusies) describes very fine mineralization, clusters of tiny crystals that present a shimmering effect, sometimes described as the sparkling of sugar or snow. Drusy crystals may cover (or encrust) rock surfaces, veins or vugs. Drusy gemstones first appeared on the market about 20 years ago, first cut as simple rounds, ovals and freeforms, later as fantasy cuts leaves, stars, crosses, snowflakes or cloud shapes. The meteoritic rise of drusy gemstones among designers is owed to a very attractive and appealing feature to jewelry customers: the combination of a natural mineral surface and a wearable gem.

Drusy gems come in a wide variety of minerals, such as quartz (Brazil), pink cobalto-calcite (Congo), green uvarovite garnet (Russia), blue chalcedony (Turkey), rainbow pyrite (Russia), azurite (Arizona), vanadinite (Marocco), liebethenite (Congo), malachite (Arizona, Congo), psilomelane (New Mexico, Arizona), blue hemimorphite (China), chrysocolla with drusy quartz (drusy gem silica from Arizona). The background matrix, in which the crystals are embedded, varies from hard agate to softer- and more fragile- rhyolite, sandstone or limestone. Almost all non-quartz drusy gems are of natural color.



Pink Panther, HSH, pink drusy cobalto-calcite, Photo by M.J. Colella; Drusy gem silica, HSH



Natural drusy gemstones; Drusy quartz dyed (Keith Horst cabs) Photos HSH

Drusy quartz commonly lines the inside surfaces of agate geodes, which usually form in a ballshape with a very plain-looking outer skin surface. But when they are cracked or sliced open they reveal a multitude of mineralization, quartz crystals along with calcite or celestite, various crystal shapes and sizes, and a range of colors. Drusy quartz from geodes comes in natural colors of white, brown, rust, tan or even orange, and black.

Geodes are rarely completely filled out with mineralization. The majority of geodes are hollow inside, allowing mineral formations to create amazing scenes. For the mineral collector, the more complex and varied the projecting mineralization is inside the geodes, the more pleasing and desirable the specimen is. But, for the ones cut into drusy gemstones the more uniform the drusy quartz surfaces are, the more they are preferred and chosen for cutting. The even distribution of druse against the matrix background is also an important criterion for all types of drusy gemstones.

Drusy quartz surfaces, just like agates, are commonly dyed in a multitude of bright colors. During the last decade, technology has been developed to coat drusy quartzes with titanium or precious metals (gold, silver, platinum). This metal coating is permanent, and is often produced in spectacular iridescent colors that Mother Nature would envy. Thus, now drusy gemstones are labeled and divided into "natural drusies" or "coated drusies". The cabs are often cut with a highly polished outer layer, leaving the druse area in the midlle.

Titanium drusies are coated by two methods: Physical Vapor Deposition (PVD) and Chemical Vapor Deposition (CVD), as described by Schiller Gems (<u>http://www.indiamart.com/</u>schillergems/about-us.html). The technology used by Schiller Gems is capable of effectively and evenly coat any colors, shapes, sizes and styles up to 200x200 mm surface area of drusy stones. They offer a huge variety of coated drusy quartzes in assorted colors, bi-colored surfaces, shaped as crosses or 5-ray stars.

Bill Herer from Rare Earth Mining Company (<u>http://rareearthminingco.com/</u>), Greg Genovese from Heart of the Stones Studio (<u>http://www.heartofstonestudio.com/</u>), Keith Horst (A & K Gems and Minerals) and Mark Lasater from The Clam Shell (<u>http://www.theclamshell.net</u>) are among the pioneers of cutting and selling drusy gemstones.

To know whether drusies are coated or not is very important for their care. Even though the treatments are permanent, the coating can be scratched off or chipped off if the stone is dropped, and stones should not be buff-polished or re-polished. Cleaning drusies in an ultrasonic machine works great for the natural stones, but not for coated ones. It is best to follow the precautions and care advice given by the sellers.

Over the years I have enjoying cutting many drusy gemstones, and have applied on the drusy surfaces my signature engraved lines, with the best visual results in rainbow pyrite, cobalto-calcite and green uvarovite garnet.

When neon blue chrysocolla penetrates clear quartz or chalcedony, it is the rarest, most desirable and most valuable form of all quartzes, known in the trade as gem silica. Even more sought-after are the fine drusy or botryoidal gem silica formations. The most valuable gem silica comes from the Arizona copper mines- the famous Inspiration and Ray mines, near Globe.

Smithsonite is a zinc carbonate ZnCO₃, often confused with hemimorphite. It is typically found in botryoidal masses, which are often cut as attractive freeform cabs, in a variety of colors, with more predominant colors being grayish-blue, pink and yellow. Its hardness is only 4.5 on the Mohs scale, compared to the quartz or chalcedony gem silica which is 6.5-7.

Gem silica, smithsonite and hemimorphite are normally not color-enhanced, but may be enhanced with Opticon® fracture sealer, which should always be disclosed to the customer. All three gems have a similar look and may be confused or misidentified by casual identification. Don't assume anything; simply ask the seller.

Black drusy gems, natural vs. enhanced

Black drusy gemstones come in a variety of minerals:

Natural black drusy quartz is found inside agate geodes, as well as inside rare agatized coral tubes from Florida. Another black drusy material is psilomelane, a rich black metallic mineral, covered with quartz crystals. Both types include clear drusy quartz crystals which reflect the black background and look like black drusy. Psilomelane usually displays a "gun-metal" shimmer of very fine black and white alternating layers, and along with the black drusy it creates a dramatic textured look. Psilomelane is beautiful to look at, but terribly dirty to cut, as the black color stains everything. Black psilomelane from Arizona also forms with white botryoidal quartz, making it a stunning black-and-white combination.

White drusy quartz on agate from Brazil is often dyed black, and is the most common form of black drusy gems, also referred to as black onyx drusy.

Natural black calcite inside geodes from Keokuk, Iowa, has also been used as a black drusy gemstone.

Although I stated in Part 1 of the article, that we will not be discussing synthetic stones, there is one exception of a rarity that I would like to share with you. In 2010 I purchased a few pieces of black drusy synthetic sapphires, created by Chatham. It was an anomaly rather than a regular product. Being sapphires with a high refractive index, the drusy surfaces are highly reflective. Chatham is a leading source of high-quality lab grown gems, founded 75 years ago by Carroll Chatham. He was the first to grow emerald crystals, and his son Tom Chatham continues the fascination with crystal formation and the creation of a variety of lab-grown gems.

Lapis with pyrite vs. blue magnesite with copper inclusions

Lapis Lazuli is a striking rich blue opaque rock, composed of several minerals, lazurite being the predominant one and the main cause for its blue color. Lapis, in short, as it is commonly known, is also associated with calcite veins, pyrite crystals and smaller amounts of diopside, mica, hauyinte and hornblende. There is a fine line of balance for the amount of these minerals to be present to make lapis an attractive gem. Too much calcite makes it softer and lower grade or too much pyrite makes it dull and detracting from the blue body color. Lapis may also show a shade of violet.



Lapis, Fleur-de-lis, HSH; Dyed blue magnesite vs. natural lapis (Keith Horst cabs); Photos © HSH

There are only a few well known mining areas in the world producing fine Lapis, and they are all ancient deposits. The Russian lapis, often used in Faberge carvings, comes from the Lake

Baikal area, south of Irkutsk, in Siberia. The lapis from Chile comes from the Andean mountains region, near the city of Ovalle, north of Santiago, and is often referred to as 'Andean lapis'. Lapis Lazuli from Afghanistan, the finest quality of Lapis in the world, comes from the ancient historic mines of Sar-e-Sang in the Badakhshan province, located in the West Hindu Kush Mountains. These mines have been in operation for over 6,500 years.

Pale and mottled material, both Afghani and Chilean, is successfully marketed as 'Denim lapis'. Light-colored material may be dyed to a deeper blue color, or the white veins only may be dyed. Lapis should be handled with care, away from heat and chemicals, especially in the event that the stones, carvings or beads may be dyed.

Another material that I only recently saw, is re-constituted lapis, which is natural lapis crushed and mixed with resin, made into a block and slabbed. Some slabs even show pyrite inclusions.

Man-made crushed lapis for inlays, similar in color to material from Afghanistan, is mixed with pigments, and is available by Natural Expressions, Inc®, in Gilbert, AZ.

Magnesite, a soft and porous material that we discussed in the turquoise treatments, is also on the scene as a simulant for lapis. Magnesite is dyed blue, and with added metallic inclusions that simulate pyrite, it truly looks like natural lapis.

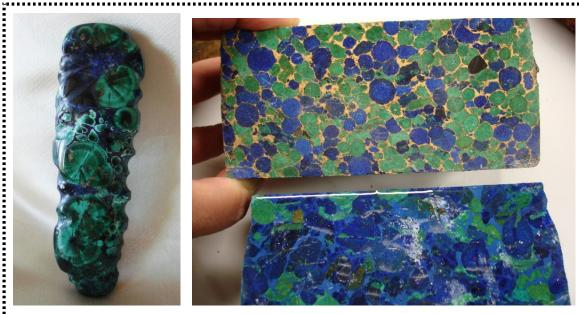
Magnesite from China is also available in yellow and orange colors, imitating Cherry Creek jasper (also known as Red Creek jasper) a multicolored material from mainland China. The dyed yellowish-orange magnesite also resembles the recently discovered "yellow feather jasper", a colorful jasper from Utah with distinct crisscrossed black dendritic patterns.

Genesis Polymer "Stone" is an imitation, or faux stone, created as a dry mix polymer-clay with metallic inclusions, and is sold in a white version imitating gold-in quartz, and a black version imitating gold or pyrite in black jade.

Azurite with malachite vs. azurite/malachite block

Azurite is a deep blue-colored copper mineral, with chemical formula $Cu_3(CO_3)_2(OH)_2$. Azurite crystals are formed as dark blue prismatic crystals, but more commonly azurite is found in a massive, nodule or stalactitic form. It is very soft, only 3.5-4 on the Mohs scale. Azurite mineral specimens from the legendary Bisbee and Morenci mines are the most sought after; they make great cabs and freeforms with a combination of drusy and polished surfaces.

Azurite is habitually found together with malachite, which is often a pseudomorph replacement of azurite. The two minerals make a stunning visual arrangement when cut together as a gemstone.



Carved azuzite-malachite. Bisbee, HSH; Azurite-malachite block with & without bronze infusion. Photos © HSH

A combination of azurite/malachite is offered as compressed blocks created by Colbaugh Processing, Inc. (<u>http://www.colbaugh.net/</u>). Small natural nodules of azurite and malachite are compressed with resin into blocks. These compressed blocks are also offered with bronze infusion, which creates a golden webbing pattern within the material.

Plastic resin imitation blocks are also available on the market; they are an inexpensive option for lapidary materials.

Rainbow Calsilica

Rainbow Calsilica is a manufactured material created and sold by Colbaugh Processing, Inc. Tests were undertaken on samples of this material by researcher Lori Kiefert at the SSEF Swiss Gemmological Institute lab in Basel in 2002. The Renishaw Raman 1000 analysis showed that the white grains are calcite, and that hematite is present in the red layers and celestine in the black areas. Also, that synthetic pigments and a paraffin-like wax have been used to stabilize the material. Their final report states that "the samples examined appear to have been made of pulverized carbonate rock that was mixed with pigments and stabilized with a polymer (*Gems & Gemology*, Winter 2002).



Rainbow calsilica man made vs. natural quartz with blue chrysocolla and red jasper veins. Rainbow calsilica cabs (Keith Horst cabs) Photos © HSH

In spite the fact that Rainbow Calsilica is manufactured, it is a very popular lapidary material, offered for sale in blocks and slabs, and as finished cabs and beads for the jewelry designers. I purchased a small amount over a decade ago and the material sold out fast.

Rainbow Calsilica imitates natural material found in or near copper mines in Arizona, material which is quartz with blue veins of chrysocolla and red veins of jasper running through. The combination of all colors is not found commonly in nature, so these natural pieces are highly prized.

As lapidaries, designers and collectors, we all look for new gem materials to incorporate into our artwork. The list of all-natural materials is shrinking daily, and the variety of enhanced lapidary materials existing on the market today is almost overwhelming. The better we understand these materials, the better we'll be able to sell them to our customers. Today's gem and jewelry consumers are educated, and they look up to us artists to educate them even more about the natural origin of the materials or the technological enhancements that made these gem materials more affordable, durable and attractive.



Helen Serras-Herman is an acclaimed gem sculptor and gemologist (FGA), with over 33 years of experience in unique gem sculpture and jewelry art. Her award-winning artwork has been exhibited world-wide and published in over 170 trade magazines and books. See her work at <u>www.gemartcenter.com</u> and her business Facebook page at Gem Art Center/Helen Serras-Herman

Do what you can, With what you have, Where you are.

-Theodore Roosevelt

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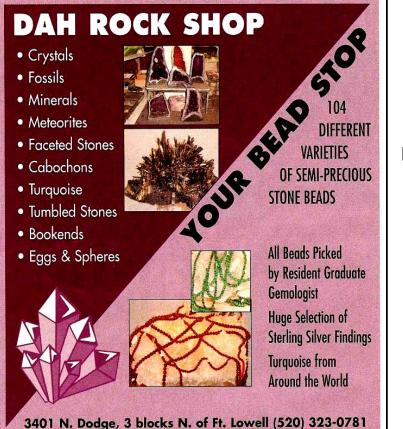
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Please don't forget to continue to bring in <u>YOUR</u> (or anyone else's for that matter) aluminum cans to the Club for recycling. Your contribution would be greatly appreciated to help add \$'s to the Club's treasury. **Thanks!**

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Monitor - Bill Penrose 544-7517

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Saturdays

10AM - 3PM Silversmithing Monitor - Terry Cox 296-4949

9:30AM - 2:30PM Cabbing* Monitor - Jeff Hanson

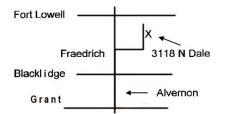
Sundays

10AM - 3PM Cabbing Monitor - Dennis Murphy 490-9188 10AM - 3PM Silversmithing Lab Monitor - Giac D'Aquisto 207-6219

* INSTRUCTION AS AVAILABLE

Old Pueblo Lapidary Club (Cutting Remarks - July 2016) 3118 N. Dale Tucson, AZ 85712 (520) 323-9154

OPLC Membership Application - Please Print									
Name1	Na		Date						
Local Address					· · · · · · · · · · · · · · · · · · ·				
City	State Zip Code		Phone number ()				
Email address			Summer Dates: From		То				
Summer Address									
City		State	Zip Code						
Type of membership: Single Member Couple (same address) Junior	\$35.00	\$27.00		\$15.00	Annual Renewals \$20.00 \$25.00 \$10.00				
Mail to: Membership Chairperson, Old Pueblo Lapidary Club, 3118 N. Dale, Tucson, AZ 85712									



The Business Meetings are held on the 2nd Saturday of each month. A pre-meeting social hour (except for the December meeting) is at 8:00 a.m., followed by an educational program, and ends with the monthly meeting. Visitors are most welcome.