



Goldrush Ledger

Charlotte Gem & Mineral Club Newsletter

November 2019

Prez Sez.....

Hope everyone is having a great fall! Club officer election nominations were posted at the October meeting. Elections will take place at the beginning of our November meeting.

There has been an ongoing interest in re-opening the workshop for classes on cabochon, faceting, and jewelry-making. We are in the process of looking for an affordable site that will suit our needs. More information at the November meeting.

Our kids club, the Charlotte Junior Rockhounds, will be taking a break from regular meetings for a while. Attendance has not been strong this fall, so we'll resume when interest picks up again. Our club will continue to respond to requests from local schools, scout groups, homeschoolers and the Science Olympiad program as we have in the past. Thanks to Mary Fisher and her helpers for their ongoing dedication to these children's programs!

At our October meeting, Greg Van Hoet gave an awesome presentation on photography with gemstones. Thanks Greg!

Our November meeting is our annual Club Auction, a fundraiser for the club. We'll have many interesting specimens and slabs for sale. If you have any items to donate for the auction please let Brad or me know. **Please note that the November 21 meeting begins a little bit early: the Preview begins at 5:30 pm, and the Auction starts at 6:30 pm.**

Mark your calendars for our year-end party on Friday December 6.

Hope to see you at the next meeting!

Kim Gwyn
Club President

You might be a rockhound if...

*-- You often spit on rocks
to show off the
wonderful colors!*



In This Issue

- Recent finds!
- Digs and Shows
- More on Faceting!



2019 CGMC Officers & Board

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Rare Blue Gemstones found in Canada

Article credits: science.ubc.ca/news, GeologyIn.com



Vivid blue spinel with white carbonate in calc-silicate rock, Kimmirut area (Philippe Belley) and a cobalt-blue spinel gemstone, Kimmirut area. Credit: B.S. Wilson

Researchers from the University of British Columbia published the first scientific study of cobalt-blue spinel in Canada, a mineral that produces fine gemstones that range from red and pink to violet and blue.

Philippe Belley, recent UBC PhD graduate, and UBC mineralogist Lee Groat have published the first scientific study of cobalt-blue spinel in Canada, a mineral that is largely unknown to the general public but produces rare gems that are coveted by collectors and connoisseurs worldwide. The team has also analyzed Beluga sapphires which were used in the Queen's sapphire jubilee brooch and an occurrence of lapis lazuli.

The geology of Baffin Island has been a veritable gem field of scientific discovery for the researchers. "Baffin Island is geologically similar to the Himalayas, where some of the world's finest gems have been found," said Belley. "Canada hasn't been widely recognized as a source for fine, colored gemstones but our research suggests that we have all the right ingredients."

Next Club Meeting

Thursday, November 21, 2019

Auction preview at 5:30 PM

AUCTION BEGINS at 6:30 PM

Tyvola Senior Center
2225 Tyvola Road, Charlotte



Charlotte Junior Rockhounds

Children's Club for Rocks!

The Junior Rockhounds program will be taking a break at least until January.

If you're interested in having your kids participate in meetings January through April, last Saturday of the month, please send an email to Mary Fisher at CharlotteJuniorRockhounds@gmail.com to get on the communication list.

Upcoming Field Trips

Dixie Mineral Council Field Trips

Note: DMC Field Trips are for club members of DMC-affiliated clubs and their families only. Liability issues mean that these trips cannot be attended by the general public unless otherwise noted. Because this dig is not open to the public, full details are not published in our newsletter. As a benefit of membership, our club is a DMC-affiliated club and CGMC members who are current on their 2019 dues may attend.

November 23 Pendleton District Gem & Mineral Society (Seneca, SC)

Site in South Carolina for Amethyst, Beryl, Aquamarine, Epidote

December Emerald City Rock and Gem Club (Greenwood, SC)

Different site in South Carolina for Amethyst, Beryl, and Aquamarine

For more information about these digs, please contact charlottegem@yahoo.com.

Upcoming Gem Shows

Columbia, SC Gem Show

November 22-24—Columbia Gem and Mineral Society. Jamil Temple (206 Jamil Road, Columbia SC) Open Friday, Saturday and Sunday. In 2019, there will be more than twenty-five dealers and they will have an enormous variety of materials from rough and cut gemstones, beads, fossils, finished jewelry, wire wrapping, lapidary supplies, and excellent mineral specimens. We will have dealers that carry amber, jade, gold, all precious gemstones, and several jewelers who can complete special orders, and much, much more.

The club will have geodes, a salted gem mine, and grab bags for sale.

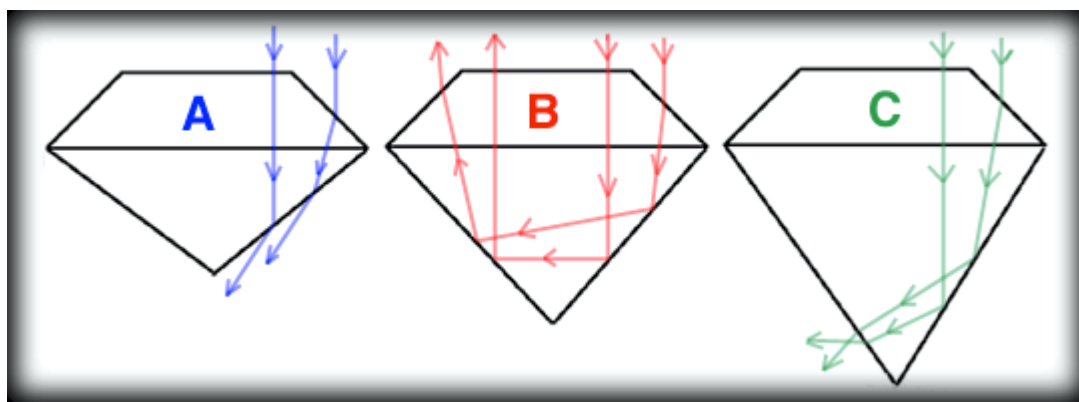
Faceting Series —Continued

This series is a collection of information from Ron Gibbs, a longtime Charlotte Gem and Mineral Club member who passed away in 2013. His contributions internationally to the world of gem and mineral collecting, and to our club in particular, will not soon be forgotten.

Source: Ron's website, www.theimage.com

Faceting Basics

Obligatory Faceting Diagram

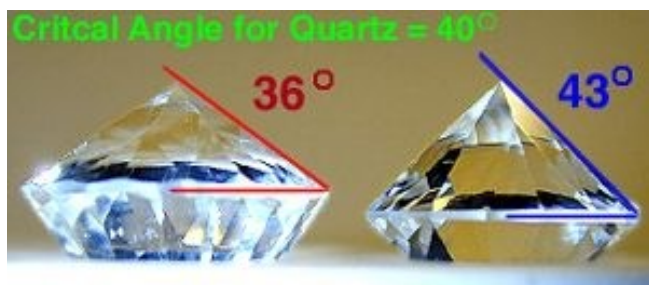


Anyone that ever writes about or publishes information on faceting is required to have this diagram. Go ahead find a book that doesn't have something very similar. Ok, so what does it mean? The diagram displays three stone profiles, and explains what happens when you cut a stone to far from the recommended facet angles. It is based on the Index of Refraction, and the far simpler law of reflection. Law of reflection, when a light strikes a flat surface the angle of incidence (the one ray going toward it) will be reflected at the same angle.

Now, realizing that when light strikes a surface some will be reflected and some will be refracted. (Discussed previously.) The diagram above shows a stone cut below the CRITICAL ANGLE for a material. (A) - the light entering the stone is refracted, but because the critical angle is not properly cut at the bottom of the stone, the light paths refracted back out of the stone.

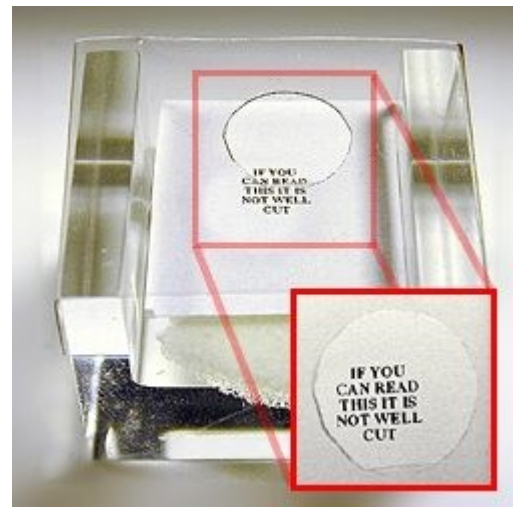
In (b) we cut above the critical angle and near the recommended angle for the material. Thus, the light entering the stone is first refracted, but then it is reflected by the bottom of the stone, and then reflected a second time, before exiting through the top of the stone. All in all a very desirable thing. This produces a lively stone.

In the third case (C), we have cut well above the critical angle, so we are safe as far as refraction is concerned, but upon hitting the bottom of the stone, the angle of reflection forces the light to hit the second side of the point and be refracted out again.



So what does this look like in the real world? Here are two pieces of quartz with a critical angle of 40°, and the one on the left was cut with a 36° angle, and the one on the right was cut with a 43° angle.

The two cuts have the same number and placement of facets, although the left one does have a larger table. (Flat top.)



Look at the results. The left gemstone has a functional hole (called a "fish eye") right through the center. The right stone does not.

Light passes through the center of the left stone to such a degree that you can actually see text behind it and even read it. Unfortunately this is not all that uncommon in commercially cut stones.

The gemstone photo at the upper left was created using my gemstone holder for photography (see Ron's other article on photography), and I placed a small sample of text just below the stone. See the insert above.

When a stone is centered in this holder you should not be able to see any text through the base. Unfortunately many commercial stones do display text through the base.

There are at least two reasons for this, first commercial (native) cutters often work on very rudimentary machines, nothing like the ones we use in the hobby industry. They use something called "jam-peg" faceting machines and do the work by eye not by machine setting.





Secondly, they are taught to cut the rough in a way to produce stones with maximum weight and not maximum light return. The combination of "jam-peg" machine and "largest possible stone" results in many stones with oval shapes, not just in circumference but also across in cross section. They cut many facets well above the critical angle as they cut down from the girdle, but are forced to finish the stone with facets that are almost flat across the very bottom. Hence the stones produce the "fisheye" effect.

See the finished blue topaz at the left, and look at the bottom geometry above. A rounded bottom that produces no reflections in its center. Hence we can see the text in the middle of the stone. This stone has little life except around the edges.



Another stone, citrine, has been cut the same way. There is reasonable light return around the edges as they are cut with reasonable angles, but at the center, the stone is again lifeless. Notice the similarity in cut of the blue topaz above, and this citrine. I sometimes call this the typical "pineapple cut" as it reminds me of a pineapple skin.

Unfortunately it is not only the less organized "pineapple cuts" that produce problems. Sometime the faceters have access to better equipment, and can produce more interesting and better designs. Unfortunately they still may try to make a heavier stone and cut the bottom facets too shallow.



Look at the citrine to the left, a round stone. It has better cutting quality than the ones above, but the stone was "padded" in weight by cutting angles too steep at the girdle, and failing to leave enough rough to cut correct mains. The result, another "fisheye" more suitable to reading glasses than jewelry. To be charitable, maybe the idea was leave a see through 8-pointed star at the bottom, but if so then why not frost it to make it really stand out.

Take heart, there are some good commercial faceters out there. The blue topaz to the right was purchased as a commercial stone and shows proper angles and a nice design. The text is located below it too, but it cannot be read. A lively, pretty stone.

Now for the good news. Most of these native cut stones are at the bottom tier of pricing, and are usually not too expensive. They make good preforms for those of us who like to hobby facet. They provide a clear look into the material, and are not that much more in cost than some of the better rough. Keep your eyes open for these "fisheyes" and use them as starting points to your own creations.

If you are lucky enough to find them in round shapes (not often in my experience) you can re-cut with minimal loss. More often than not they are lazy ovals or large tear drop shapes. Even so, recutting to a round stone or one with better angles might only be a 20-30% loss instead of 50% plus.

