



July Newsletter

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Meeting at Miller Center
301 Grove Street
Lynchburg, VA 24501
3rd Wed of the month
7:00 pm until 9:00 pm

Workshop is the 2nd Saturday
of the month.

President's Meanderings:

A VDOT Area Superintendent called to ask if a repair he had completed was OK. This was along Route 609, Campbell County adjacent to the working Mount Athos Quarry that was at the time extracting Arch Formation rock, an impure marble use as aggregate. A local tiny stream had been moved to the side of the valley, adjacent to the road to make room for the quarry. [This quarry is currently filled with water. The quarry operation advanced westward into an adjacent Quartzite formation for a short period of time and later operations moved ½ mile away to its present location in Catoctin Greenstone.] The Superintendent's repair consisted of a patch of concrete about the size of a dining room table in the bottom of the relocated creek. When I asked "What did you repair?", he stated that he had dropped 19 truckloads of shot rock into a hole before he poured the concrete patch. Wow! I suggested that he might have given me a call *before* he filled the hole. On a return trip a few days later, I noticed a slight change further down the road. I gave myself 15 minutes back in the office to decide what to do next. Then, I walked over to my boss, the VDOT District Engineer, and stated, "Shut this road down now! We will discuss the situation later." Thankfully he did. It was not a popular decision as county folks had to find another way to Lynchburg. The entire roadway collapsed into a sinkhole two week later. This became one of my favorite work sites worthy of a long story.

Here, along Lawyers Road in Lynchburg, and other locations in Campbell and Buckingham Counties, caverns and sinkholes continue to enlarge in Marble formations, some threatening roads. Marble and Limestone are chemically the same, essentially the mineral Calcite. Both are subject to chemical and physical weathering, cave formation, and sink hole development. VDOT took over an abandoned Railway bed for its 'Lawyers Road' in Campbell County when the Rail company moved its tracks out of the marble floored valley to the adjacent hill side on other formations. Smart move! A creek was also moved across the valley to make room for the quarry. During a visit to a monitored area along Lawyers Road, I noticed a crack in the shoulder of the road. I drove to the nearby VDOT office to order a road closure. Ten minutes later the side of the road collapsed into a 28foot hole. A geologist may be able to predict a potential problem; rarely can he predict the timing. I have identified such problems

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Eric Routon

Youth Out Reach
Jennifer Staton

several times; the actual collapses were totally random; they could have taken months or years. Do that short term-prediction-thing three times in a row and you become an “expert”. I’m not it was mostly luck on the timing. Consult a geologic map to find the marble formations in our area, if you are interested in sink holes.

Definitions: Sedimentary

by Dave Woolley:

Most Sedimentary rocks are defined by the majority particle size. Thus, we have:

Shale - clay and silt sized particles, sometimes labeled Mudstone, Claystone, or Siltstone. These are often deposited in quiet lakes and in-land seas. Shale tends to split on bedding planes and weather faster than the other types.

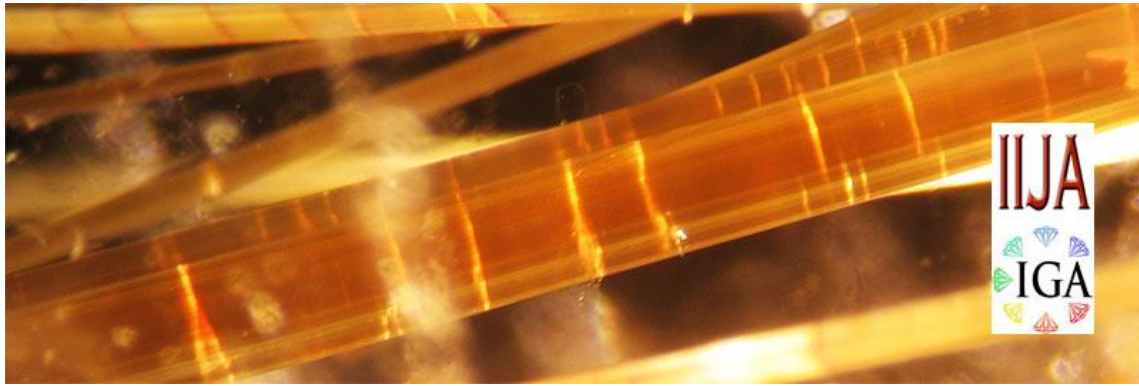
Sandstone – sand sized particles, often quartz sand, loosely cemented together. Some rare sandstones may be composed other minerals such as olivine or garnet. The cement maybe microcrystalline quartz, the iron oxides, limonite or hematite, gypsum, calcite, or other rarer minerals. Many quartz sandstones are “clean” mostly quartz sand particles; some are “dirty” having silts and clays mixed in. Most sandstones form after weathered rock particles have travelled a distance downstream that round the particles and turns the feldspars and micas to silts and clays which wash out to sea: sandstones are beach deposits.

Sandstones mostly of angular feldspar particles are called Arkose. Arkose is deposited next to high terrains such as next to a mountain or steep fault, or during weather extremes where the feldspar has not had enough time or distance traveled to weather. Sandstones of Metamorphic rock fragments are called Greywacke. Greywacke is formed from a rapid accumulation of fine grained somewhat un-weathered particles deposited from older metamorphic rocks.

Cobblestone – predominantly cobble sized particles.

Conglomerate – multiple sized particles sometimes including Boulder sized particles.

Limestone is composed of chemically or organically precipitated CaCO₃ - Calcite and Aragonite - often mixed with the sediments such as the clays, silts, sands, and etc. Corals, and seashells are the predominate organically precipitated Calcite and Aragonite.



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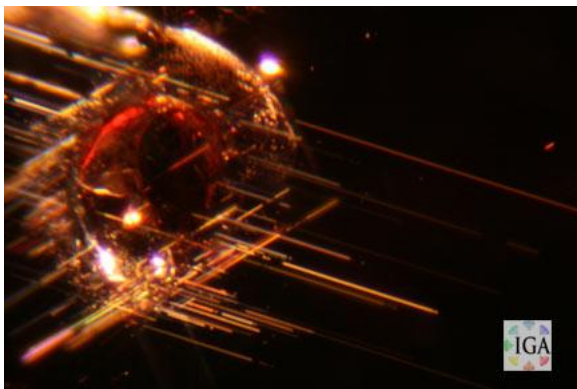
The Magic of Rutile

We are talking about magic revenue streams for the smart gemstone dealer!



It is technically known as titanium dioxide. The scientific formula is TiO_2 . If you have a painted white wall in your home, office or jewelry store you have closer ties to rutile than you may know. Titanium is a major component for the white color of paint and rutile is a major source for that titanium. Since we are not a paint school, however, this is a fun trivia fact but there is a more important formation of rutile that can create an important revenue stream for gemstone dealers. You can see it in the image at left.

Here you see a formation of rutile needles from our IJJA Student Reference Collection. Notice that the needles form as a radial spiral, not well seen in this image but clearer as we look at most images below. When these form as protogenetic or syngenetic inclusions in gemstones, amazing things happen.



Rutile can be present as long prismatic crystals inside gemstones creating a myriad of unique designs and properties. Some of the most notable are quartz, corundum and garnet. When the rutile needles are microscopic and form in layers inside corundum, they are responsible for asterism or the "star" in star sapphire and star ruby.

At left you see a microphotograph of rutile inclusions around an included crystal inside a larger host garnet. Forming at 60 degree angles this is a raw image of the formation that demonstrates the amazing features that rutile can form inside gemstones.



When the rutile needles are large they can create intricate formations inside a gemstone. The value of these gemstones can vary greatly depending on the size, color and intensity of the formations. Smaller quartz crystals with a few rutile needles is referred to as "rutilated quartz" with tumbled stones selling for \$4.00 to \$5.00. However, the larger gemstones with well-organized formations have been known to sell for thousands of dollars.

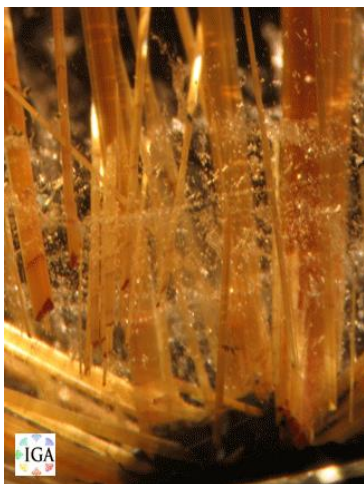


The beautiful rutilated quartz piece at left is from the IJJA Student Reference Collection and donated by Robert Connelly, GG, RGA, a long-time friend and mentor of our organization.



One of the most prized formation by collectors is the "Rutile Star" formation as seen at left. A well-formed star formation in the quartz crystal is considered very rare and have been seen on the market selling at hundreds to even thousands of US dollars based on the quality of the star and the host quartz crystal.

Before we end this study, we need to get a closer look at these with our Meiji Techno microscope in order to fully appreciate the beauty created by rutile needles.



At left is a slide show of the rutile stone you see above. We are starting at 10x magnification and going up to 90x using the standard magnification on our Meiji Techno GEMT2-BFDF. Here you get a step by step magnified view of the rutile needles and their intricate formation.

Whether they are creating a star in a sapphire, needle formations in garnet, a crystal star in quartz, or simple rutilated quartz, rutile can be the source for profitable revenue streams to the savvy gemstone dealer.

Profits are high with colored gemstones. Some areas are highly competitive due to the number of dealers vying for market share. The smart gemstone dealer will know to look for the unique and unusual to create their own place in the market.

Smart gemstone dealers will seriously consider the unique impact of rutile on the beauty of gemstones, and add this amazing material to your inventory.

If you have problems viewing the images, you can read this article on the IJJA website: The Magic of Rutile

Robert James FGA, GG
President, Insurance Institute of Jewelry Appraisal Inc.
a 501(c)3 Non-Profit Education Organization

Program for the coming months

July – Dr. Stephen Lenhart will show a “Geology of Virginia” video and will be available to answer questions after the showing. Dr. Lenhart recently retired from the Radford University Geology department.

Note from the Editor:

Hi All,

Well over half the year has gone by (and very quickly) as we are into July. I am still looking for someone to give me their story of “Why I became a Rock Hound”. I am not looking for a long story but something that lead you to like rocks.

Please send me your short story stevegordon@comcast.net

Field Trip Opportunities

The club has a field trip to Willis Mt. coming up on Saturday September 28th

I have not received a field trip from the SFMS DMC at the time of this mailing. I will send out a special e-mail when I receive it.



Dixie Mineral Council Field Trips
The Southeast Federation of Mineralogical Societies, Inc



The Friendly Federation - Founded in 1976 to serve
DMC Program of the SFMS Field Trip Committee
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SFMS DMC Field Trip Sharing Program Changes

The following changes were approved at the SFMS meeting in May and are now in effect. These changes are to improve DMC field trip experiences and to encourage more clubs to participate.

- 1. Only clubs that are members of the DMC may attend DMC field trips.** In the past, SFMS clubs that carried liability insurance were also allowed to attend DMC trips without hosting a DMC trip. Allowing non-member clubs to attend DMC field trips is not fair to the clubs that host trips, and does not encourage clubs to join the DMC. **Please do not provide DMC field trip information to any clubs that are not members of the DMC.**
- 2. Clubs that do not provide their scheduled hosting trip will be dropped from the DMC for 1 year and must meet all requirements to rejoin.** The suspension period under prior policy was 3 months. That period of time was too short and could be abused as a way to extend a club's hosting interval, or not provide a trip but still benefit from the program.
- 3. A DMC field trip cannot be held at a location where another club has already hosted a DMC trip in the calendar year.** This hosting rule is to improve the diversity of field trip locations. Exceptions may be granted depending on individual circumstances.
- 4. If the location is a commercial site, the hosting club should request a discount and exclusive access for the day of the trip.** It is acceptable if a discount cannot be negotiated, but a discount should be requested. Exclusive access should also be requested so that the general public and other clubs cannot collect on the same day. These terms make the trip more desirable as a DMC trip versus any other day.
- 5. The general public, clubs that are not members of the SFMS or AFMS, and clubs that are members of the SFMS but are not covered by liability insurance are not allowed to collect at the hosted location on the same date as the DMC trip.** The general public and clubs that are not in the SFMS or AFMS are not bound by the AFMS Code of Ethics. This rule is to help DMC field trip leads manage large groups and ensure the safety of all involved. Liability insurance is required for all SFMS field trips, so people who are not covered are not allowed to attend DMC field trips. Note: Because of this rule, easily accessible public locations are not suitable for DMC field trips, but exceptions may be granted depending on individual circumstances.
- 6. The field trip location should be large enough to accommodate at least one person**

per DMC member club. This rule for choosing a location to host a DMC trip is to ensure all DMC member clubs have a chance to participate.

7. A member club that has not renewed within 6 months of completing their hosted trip will be suspended from attending DMC field trips and will not receive DMC field trip notifications until they renew. Member clubs must renew immediately following completion of their hosted trip. This rule is to encourage prompt renewal. (Note: It is best to renew right away because you have a much better choice of months. The longer you wait, the fewer the choices.)

8. A member club that has not renewed within 1 year of completing its hosted trip will be dropped from DMC membership and cannot re-apply for membership for another year. There was no rule concerning non-renewal before.

Reminder: Member clubs must renew immediately following the completion of their hosted trip and submit a brief trip report to help encourage other clubs to join the DMC.

Thank you for your continued support of this program. Let's work together to make it even more fun and successful!

Lori Carter
DMC Coordinator

Why I became a Rock Hound

I did not receive an article for this month. Please share why you are into rocks. Give me a brief story that I can share with the club members.

June Meeting Minutes

Gem & Mineral Society of Lynchburg
Meeting – June 19, 2019 @ 7:00 PM

Attendance: 34 members
Meeting called to order by Dave Woolley, President

On Time Drawing Winners: Debbie Wade, Susan Brogan, Noel Woolley , Holly Tomlin, Bob McIntyre, Steve Gordon, Bryan White, Deborah Tyler, Nona Haskins, Rodger Linkenhoker, Mary McIntyre, Sydney Tomlin, Warren Darling, Thom Noble, Diane Wetternach, Maddie Williams, Kate Staton, David Brogan and Kim Blair.

50/50 Drawing – James Tomlin won \$3

Hospitality:

John and Nona Haskins hosted tonight's meeting, Rodger and Nancy Linkenhoker will host the July meeting.

New Business:

Dave Woolley – President

Club members needed to fill officer positions and get involved to help our club. If you have a suggestion of a speaker please contact Dave Woolley. Workshops continue to take place on the second Saturday of each month at Dave Callahan's.

Announcements:

Bill Livingston brought a new type of lamp for viewing fluorescent rock and will demo during break. Thom Noble was presented an EOTO (Each One Teach One) award from the Eastern Federation for the following article Linda submitted last year:

"I would like to submit my husband Thom Noble to be considered for the EOTO award. He has been the membership chairman for the Lynchburg Gem and Mineral Society for 7 years. He enjoys teaching cutting cabochons to our club members and is very passionate and dedicated in doing so. He will arrange his schedule to teach any club member interested in learning about cutting stones. I am very proud of him and admire his talent and patience for sharing his love of getting that mirror-high polish on a beautiful stone. He appreciates the opportunity to see the reactions of students showing off their creations". (See attached picture)

Thom spoke about a recent trip to William Holland School of Lapidary and examples of work done at the school by Thom & Linda Noble and Lydia Kalyna were on display.

July Meeting will be presented by Dr. Steve Lenhart.

Treasurer's Report- Linda Noble gave the report on current balance of \$12,013.46 and in balance with current bank statement. Records are available at each club meeting for review by club members.

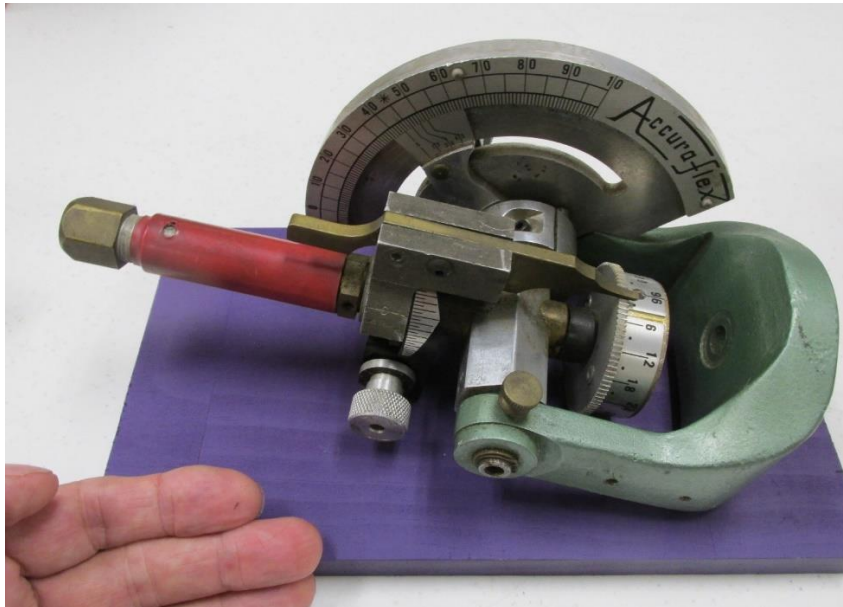
Program: Kate and Michael Staton gave an interesting program on Rock Climbing.

Thanks to Warren Darling for bringing items for Silent Auction which earned \$26.

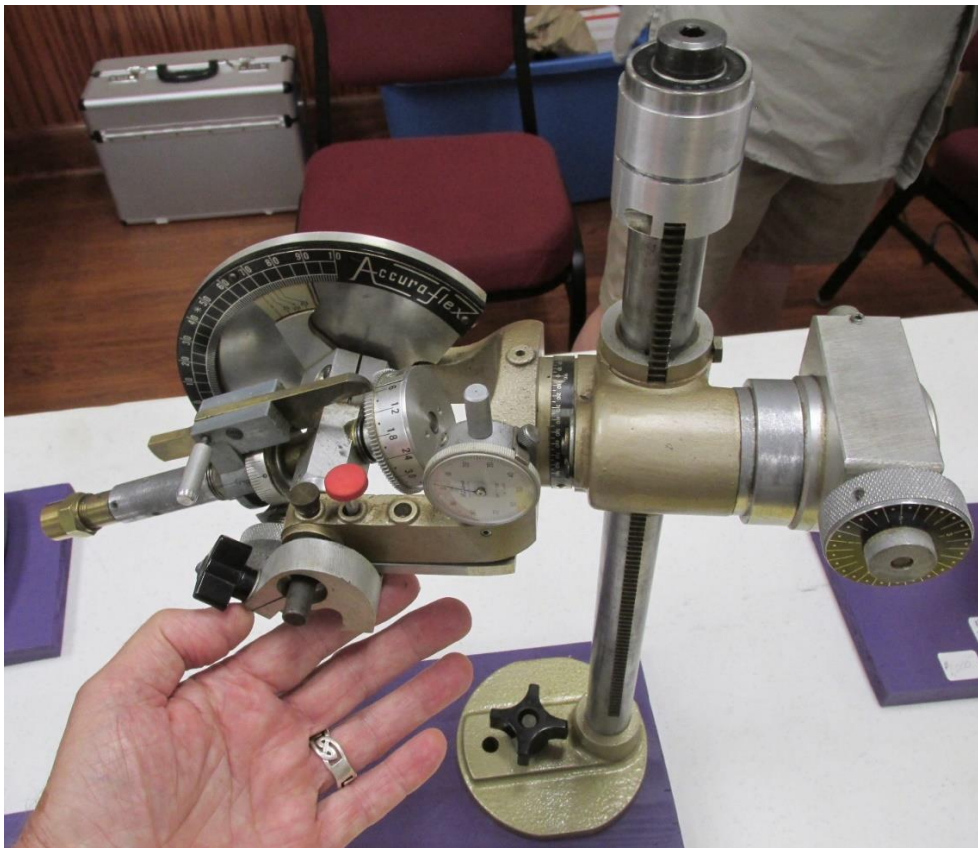
Thanks to Noel Woolley for her help with greeting, selling the 50/50 raffle tickets and collecting sign in sheet.



Thom Noble Each One Teach One Award



34. “Accuraflex”. A Mast Type Faceting Head. The Protractor Vernier scale reads to a quarter of a degree; estimates to a tenth of a degree are routine.



35. An improved “Accuraflex” Mast Assembly. Note the **Gear Driven Height Control** for both Coarse and Fine Height adjustments. This may be one of the first Tube on Mast designs that allow recording of a **Height Number**, an ease for re-locating the Height of Coarse Ground facets to Fine Grind and Polish. The **Roller-Bearings** on the Mast prevents Mast Bearing Wobble.

The Protractor Lock - black knob above my thumb, pushes against a lever - my index finger, connected to a ***Spring-Loaded Machinist's Dial Indicator*** to minimize the mast, faceting head Bending, and Bearing Wobble problems commonly grouped together and called "**Mast Flex**". Here, a modest amount of hand pressure compresses the Dial Indicator *Spring* as the final Meet Point Cutting is completed. 'Cut a little - look a little', to establish Meet Point Perfection. Cut the remaining facets in that group of facets to the same Dial Indicator reading. This method comes close to duplicating the same amount of Hand Pressure and Mast Flex to bring the remaining facets to nearly the same Meet Point Perfection. The actual number is unimportant, just note and reproduce the needle's position. The Dial Indicator is an early **Angle and Depth of Cut Indicator**. Movement of the pointer shows the speed of the cutting while approaching the desired Depth of Cut: slack hand pressure and slow down as you get close.

If you need to renew your club membership you can let me or Thom Noble know and we can email you the form. You can make checks out to GMSL.

Our Mailing address is:

**The Gem and Mineral Society of Lynchburg, VA, INC.
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Lynchburg, VA 24506-1975**