



April Newsletter

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In This Issue

- President's Meanderings
- Looking for Reality
- Definition
- Magnetic Susceptibility
- Programs for the future
- Note from the Editor
- Field Trips
- Why I became a Rock Hound
- Mar. meeting minutes
- Article #6 Dave Woolley

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:

Many years ago Route 29 in Nelson County experienced a catastrophic failure in the North Bound Lane, just north of the Rock Fish River crossing. This was in a tall, soil and rock fill section next to a creek, occupying part of the creek's valley. A car fell into the hole. Soon after, I was called in to do a Soil Survey for the design of the pavement of the proposed detour around the failure, not an evaluation of the failure itself. To design a new pavement VDOT typically looks 5 or 10 feet into the ground below the proposed Finish Grade of a new road by drilling and sampling. Soft soil, firm soil, or will we have to blast rock? These conditions require different construction techniques and different pavement designs. Well up the hill from the failure site, I drilled about 25 to 30 feet, to five feet below the proposed Finish Grade of the permanent detour. From just below the surface I had to core "rock" rather than sample soil. Rock was a Hornblendite. Hornblendite is about 90% or more Hornblende crystals. This particular Hornblendite was unique in that the Hornblende crystal-contacts were weak, like some Dunnites that I have previously described. I could crumble many near-surface weathered cores by crushing them with my fingers. Could this rock-turning-to-sand, have been a part of the bottom of the fill section that caused the road failure? I do not know. The new road is safely well-entrenched some 20 to 25 feet within fresh rock.

Keep looking!

Looking for Reality

Based on an article by Mark Colen published in "Rock & Gem", September 1984.
Modified by Dave Woolley:

Let's take a look-see at looking, and then see what we can see about seeing. This article is about the reality of mineral identification and gem cutting. The state of your own vision is the first consideration. If you are like me and wait until people offer to fill in your application

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for a guide dog before you have your vision checked, maybe it's time to do that, now.

Enhanced vision and good lighting are the two strongest tools we have in rock identification and gem cutting. In this ongoing battle of finishing the perfect gem or of finding possible multiple cleave planes in tiny crystal fragments, magnification is the key. The larger we can make crystals appear, the more details show, and the more likely we can identify the minerals and thereafter, the rock. Field Geologists with a 'trained eye' carry a pocket single-eye magnifier or "hand lens".

I prefer the "visor" type of magnification because stereo-vision and seeing in three dimensions provide hundreds of times more information than mono-vision. In the field, a hand lens may be the only practical pocket-carried magnifier, but you will often see me carry my "Opti Visor" brand visor to club meetings for mineral identifications. Feel free to borrow it and try it out. Many "Opti Visors" have an additional swinging lens for higher power mono-magnification. Other brands of visors have additional swing down double lenses for higher stereo-magnification. Many otherwise uninteresting rocks may end up in your collection as you *identify* and discover the beauty of previously overlooked crystals.

Gem cutters often use a stereo-vision visor. The more vision we have, the less the results of gem cutting depend on "serendipity" (if it turns out 'OK'), or the "dark forces" (if it turns out 'Not OK'). The next time you attend a meeting of rock hounds and gem enthusiast look around and notice the large number of people with gray hair, wrinkles and what seem to be careworn features. Many of them, members who you thought were in the "golden years" of retirement or semi-retirement, are really in their twenties and thirties,

but are showing the ravages of the never-ending war with those "powers of darkness". Enhanced vision prolongs life! Be prepared for a shock if you have been gem cutting with just your normal vision. The first time you examine under magnification what you think is your well-cut gem, you may be in for an ego-shattering experience. But you will also find that by using stereo magnification you will do a better job at shaping, fine-sanding, and polishing. Your finished gems will be noticeably improved.

Definitions: The Igneous Rock Types: Basaltic, Granitic, Intermediate, and Alkali

Regardless of whether an Igneous Rock slowly crystalizes underground or is flash frozen above ground, the magma (or lava - above ground) is usually one of two sources, or sometimes a combination of both of these sources. Both primary sources are a part of the scum that formed on the surface as early planet Earth cooled from a molten sphere. As gravity segregated the heavy stuff from the lighter stuff, Iron and Nickel plus heavier elements like Platinum and Gold moved towards the center. The lighter elements, predominately Silicon, Aluminum, Sodium, Calcium, and Potassium floated to the top in two distinct layers:

The Plates, the migrating fragments of the earths near surface, support the lightest scum. The plates are composed of a *Plagioclase* Feldspar family member – the *Calcium to Sodium* Aluminum Silicates - plus some Iron and Manganese rich Silicate minerals like Olivine and Pyroxene of Basalt.

Granite includes a *Plagioclase* Feldspar plus an *Orthoclase* Feldspar family member - a *Potassium* Aluminum Silicate – **totaling two Feldspar minerals**, plus Quartz and perhaps a bit of Mica. The lighter Granitic material, the continents, literally float or are supported by the underlying Plates of the denser Basalt. Some rare volcanoes, such as one being observed in New Zealand is changing from Basaltic lava to Granitic lava as the plume of molten material merges from a Basalt plate sources to a nearby continental Granite sources.

Igneous Rock is Basaltic or Granitic, or an in-between mixture of both. The Intermediate rock include Gabbro, Diabase, Diorite, Granodiorite, Andesite, and many others. Intermediate rock approaching Basalt in composition tend to be darker in color; Intermediate rock approaching Granite tend to be lighter in color.

A fourth rare and bizarre group of Igneous Rock is the increasingly silica deficient and Quartz poor Alkali rock, like Nepheline Syenite, Carbonatite, and others. Only about 200 outcrops and one active volcano are known worldwide.

Basalt Magma is very fluid allowing the first crystalizing minerals to *settle* out. Thus, we have Dunnite, composed mostly of Olivine crystals, plus rare Chromium, Nickle, and Platinum rich layers near the bottom of some Basalts. Granite Magma is very viscus or sticky: Quartz, the Feldspars, and a minor amount of an Iron mineral, Biotite or Hornblende, tend to *suspend* in very uniform textures as those crystals grow and are stuck within thick Magma. Particle sizes tend to depend on whether minerals had a chance to crystalize over a period of time, slowly cooled, or whether they were flash frozen during and after their ascent towards the surface. Obsidian is flash frozen Granite lava.

Diabase Dikes, those often miles long and yards wide, fracture volcano traces that occur throughout Virginia's Piedmont and under the Coastal Plane sediments, were active when the plates containing Europe and Africa first started moving eastwards from the North American Plate. As the Atlantic Ocean opened up, Virginia had a short period of time when the eastern edge of the American continent was stretched to the breaking point: Fissure Volcanoes where everywhere. The magma was sourced from near the Plate/Continent boundary; the Intermediate composition of Diabase is a mixture of Basaltic and Granitic fluid, closer to Basalt in composition: Calcium rich Plagioclase Feldspar crystals, (most commonly Labradorite to Anorthite) are in a matrix of finer Pyroxene crystals plus minor Olivine, Magnetite, Ilmenite and little or no Quartz.

Granite Pegmatites, which also are common in the Virginia Piedmont are composed of crystalized Granitic fluids, water, and gases that entered erratic and unpredictable fractures in the overlying and surrounding rock or "Country Rock" adjacent to bodies of molten Granitic fluids. Most Granite Pegmatites contain *large crystals* of the two Feldspar families - Orthoclase and Plagioclase, Quartz, and Mica of the Granite. Rare Granite Pegmatites host exotic minerals crystalized from the gases and rare elements that otherwise would occur sparingly throughout the Granite Magma. These tend to concentrate locally as the process of crystallization 'uses up' the more common elements of the typical Granite minerals. If a fracture forms near these concentrated fluids - rare elements, water, and gases - may enter and form an Exotic Pegmatite containing unusual minerals, like at the Rutherford and Morefield Pegmatites of Amelia, Virginia. The term "Pegmatite" refers to an Igneous crystal-filled fracture that may be sourced from any Magma, like Basalt Pegmatites, Intermediate Pegmatites, Granite Pegmatites, and the Alkali Pegmatites. These all are great sources for collecting larger crystal samples and potentially exotic minerals.

The Feldspars:

The Plagioclase Feldspar family ranges from Albite (Sodium rich), Oligoclase, Andesine, Labradorite, Bytownite, to Anorthite (Calcium rich) endmembers, where sodium and calcium atoms can substitute for each other in the mineral's crystal lattice structure. Plagioclase in hand samples is identified by parallel striations, caused by twinning, on one of its two cleavage planes.

The Orthoclase feldspar family members, (the Potassium Feldspars), are Polymorphs like andalusite, sillimanite, and kyanite: Sanidine that crystalizes at high temperatures, Microcline intermediate temperatures, Adularia that crystalizes at lower temperatures. An additional Orthoclase mineral is the intergrowth with Albite called Perthite. All Feldspars have two cleavage planes that meet at nearly right angles to each other.

Magnetic Susceptibility:

With the availability of "Super Magnets", magnets of dangerous strengths made of *Neodymium*, Magnetic Susceptibility is becoming a useful tool in gem and mineral identification.

Everyone probably remembers magnetism from high school science properly called Ferromagnetism. By taking almost any magnet and rubbing it over a nail or small piece of iron, magnetism can be induced into the new material – a new magnet created. With the "North" and "South" poles we learned that opposites attract and like poles repel each other. Magnetic minerals like magnetite can be shown to exhibit North and South poles by approaching with a compass and watching the movement of the needle. Stronger magnetite samples will pick up iron filings or even small nails.

Two other weak magnetic forces are now demonstrable with "Super Magnets": Paramagnetism and Diamagnetism. With Paramagnetism either a North or a South Pole of a Super Magnet field will always *attract*, temporarily creating a magnetic field in the sample. With Diamagnetism a sample will have no movement or it will be *repelled* with a temporarily induced magnetism.

These phenomena are best shown *and used as a test* by floating a sample of unknown gem or mineral on a small piece of Styrofoam floating on water in a paper cup. By holding a Super Magnet nearby, some materials may be attracted and some repelled, many have no effect.

Strength-tests are rated as weak, moderate, strong, 'drags' or 'picks up', as a sample is pulled across a sheet of paper. The excellent work done in this field is found by Googling the premier researcher, Kirk Feral, or "magnetic susceptibility in gemstones". His exquisitely illustrated web site is the place to learn. He lists 10 practical uses:

- 1) Gem Parcels - separating out similar appearing but confusing gems; Spessartine separated magnetically from Hessonite Garnet, and Rhodolite Garnet vs Rubellite Tourmaline for examples.
- 2) Rough Stones - new easy field and lab identification procedures.
- 3) High Refractive Index Gems – gems of refractive indices beyond the range of Refractometers.
- 4) Look-alike Gems – blue Aquamarine separated magnetically from blue Topaz, and Sphene from Sphalerite for examples.
- 5) Synthetic and Imitation Gems – new magnetic testing procedures for some of each.
- 6) Faceted Doublets – one side may have a magnetic property and not the other.
- 7) Treated Gems – a new look into the world of treated gems, ("Fraudulent Gems", if the treatment is not disclosed).
- 8) Country of Origin – documented different sources of the same gem may respond differently to magnetic fields.
- 9) Gems in Jewelry – no dismantling of the jewelry for testing the gem.
- 10) Magnetic Inclusions

Program for the coming months

We have a new meeting place for our upcoming meetings. We have moved from Fairview to The Miller Center on Grove Street, the meeting room is the community room in the basement. This is a direct access from the parking lot.

April will be “Mineral Identification Techniques” given by members of our club.

May – Show and Sell – An evening where members and the public may acquire examples of hand crafted jewelry, works of stone art, private mineral specimens by way of sellers (who can rent a table) or from materials of the GMSL stock of rough materials for cutting and other mineral specimens. This is an event where members of the club can rent a table and sell some of their creations or specimens that they have collected.

June – Rock Climbing in Virginia; presented by Michael and Kate Staton. The Statons, GMSL members, have participated in a number of rock climbing adventures in Virginia, Kentucky and Tennessee. Expect to see an introduction to rock climbing as well as travel logs to some famous and some less famous Virginia climbing locations.

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,

I should be in town for the April meeting but will travel in late April for work again. I should be gone for the month of May but back for June. This time I hope to do some rock collecting as I am in the state of Washington. I just hope that they give me enough time to do some looking around as I am excited to be in a state that I have not collected in.

Please send me your short story stevegordon@comcast.net

Field Trip Opportunities



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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An Official Field Trip of the Northeast Georgia Mineral Society (Cornelia, GA) (HOST)

An Official Field Trip of the (enter your associated club's name here!)

Saturday, May 18, 2019
10:00 AM Eastern Time
Chunky Gal Mountain
Clay County, NC

TRIP: Chunky Gal Mountain -- people always wonder about that name. Legend has it that it was named for a young Native American woman who fell in love with a young man from another tribe. Some stories say she prevailed by defying the odds and crossing the mountain to be with her beloved, while other stories say she never saw him again. Hopefully it was the happy ending. It is certainly a happy place for rockhounds.

COLLECTING: Green smaragdite is abundant and can be found in small chunks to large boulders. It is a variety of the amphibole mineral actinolite and gets its emerald green color from a touch of chromium. Some of the smaragdite has tiny bits of pink to red corundum in it.

BRING: Rock hammer, chisel, short handled sledge, a UV light for verifying corundum, gloves, safety glasses, hiking boots, 5 gallon bucket, and paper for wrapping specimens. You should also bring sunscreen, insect repellent, hat, water, and snacks.

Very Important – Please read carefully: According to National Forest rules, “Materials must be removed using small hand tools without mechanical means or motorized equipment. Removing mineral materials with a pick, shovel, sluice box or similar large tools can cause significant impacts to resources is considered mechanical so therefore not allowed.”

For more information about these rules, see the following website: www.fs.usda.gov/detail/nfsnc/recreation/?cid=stelprdb5420144.

TERRAIN: Wooded areas are steep and rocky and may be difficult for people with mobility issues. There may be poison ivy, snakes, ticks, mosquitoes, and other wildlife in the area. Parking may be limited, so carpooling is highly recommended.

FEE: None.

2019 Super Diggg
Saturday April 27th
<http://SuperDiggg.com>

Super Diggg™

Greetings again, Glowhounds!

Once again... I'm so excited this year, I just have to say it again:

There's an unbelievable amount of stuff on site to be collected this year -- especially in the Premium "Mill Site" area... it's a "collector's paradise." Here is a photo of the original "goody pile" -- it has been broken down and spread out across the entire fenced-in area just for our Diggg. There are tons and tons in that pile! The last great hope of collecting Parker Shaft Minerals from Franklin, NJ!!



(You can get a list of all the rare minerals KNOWN to be in the Franklin area by clicking the link on our web page --<http://bit.ly/2o0sdur>). And remember, there is no other place on Earth where some of these minerals can be found.

The complete schedule for the day can be found at the link just above the Tripmaster Letters on the TRIP INFO page of our website at <http://SuperDiggg.com> The Franklin Mineral Museum will have a tour every hour starting at 10:00 am, with a maximum of 35 people per tour. The last tour will be at 3:00 pm. The tour lasts about an hour. Times for the tour(s) of the Trotter Property with our "guest geologist" have not yet been set.

A summary of the insurance requirements has been prepared, which should help to clarify this topic. You can access it at <http://bit.ly/2ogKnG9> (Refer also to the FAQ document -- see below).

Needless to say, any area where rocks can fall on your head requires vigilance and good safety practices. Please make a point to review the five 'tabs' at the left of <http://www.amfed.org/safetytips.htm> so you can be sure to have a safe and comfortable event.

If you have not yet registered, time is running short. On-line registration CLOSES at 1:01 a.m. EDT on Tuesday, April 23rd. (After that, you will have to wait on the non-express check-in line at the site on Saturday morning, filling out the forms by hand and paying with \$30 cash). Use the registration link at our website at <http://SuperDiggg.com>

If you have ANY questions not answered by info on the website, visit our FAQ (Frequently Asked Questions) page at <http://bit.ly/2nOZKXT>

If that doesn't help, then email me at:

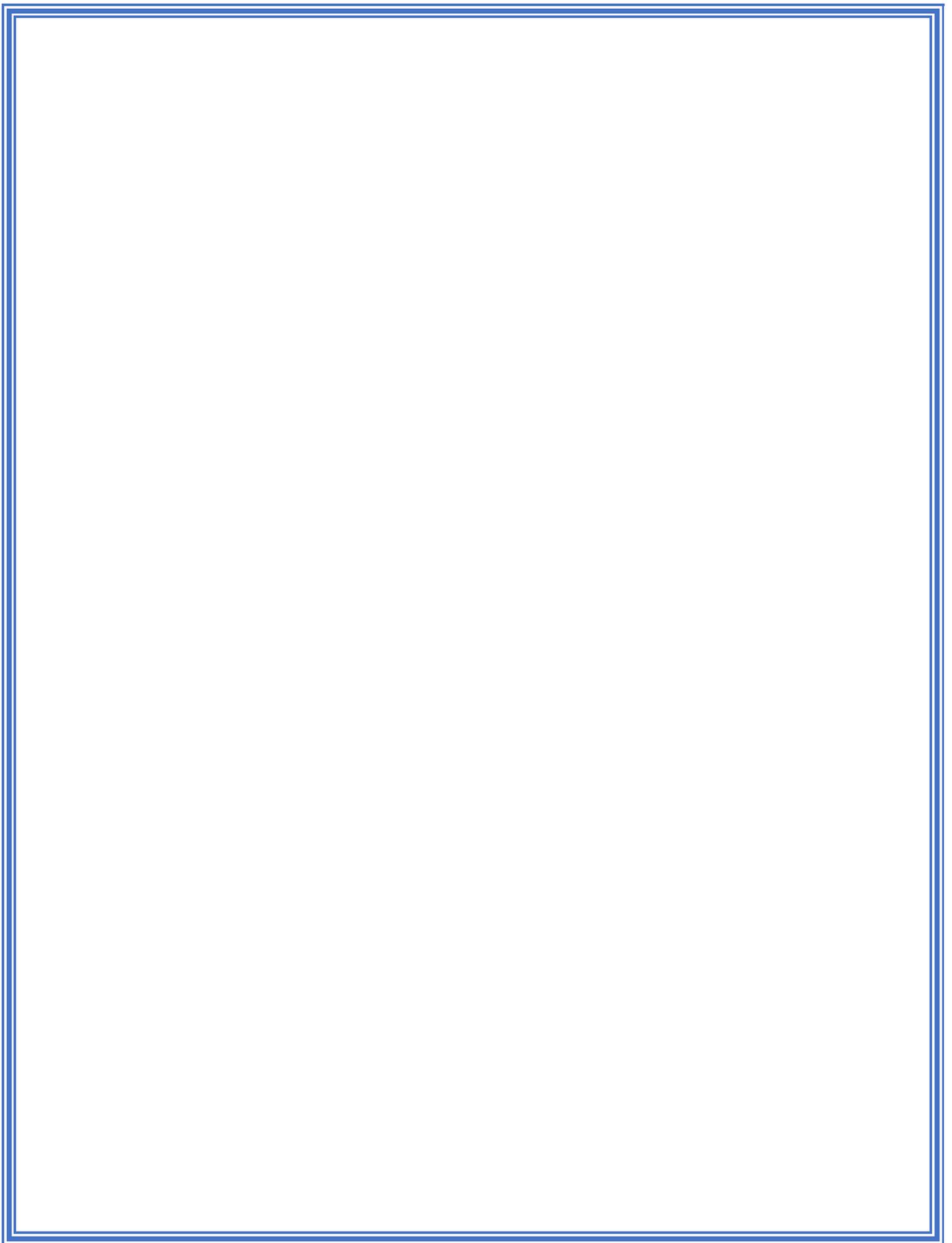
TripMaster@SuperDig.com

and be sure to include your telephone number since I have "unlimited calling" and will be glad to call you back. I enjoy very much talking with our collectors, and I want to be sure you have the best possible experience with us at the Super Diggg on April 27th. (By the way, we do not share your private info with anyone other than the registration crew).

Watch for more TripMaster Letters as we approach the magic day.

Jeff Winkler

TripMaster - NJ Super Diggg™ .



Why I became a Rock Hound

By Gabby Routon

I've been obsessed with dragons for longer than I can remember and I've loved dinosaurs ever since I was little. I love them mainly because my mom collected dragon figurines and other paraphernalia. I'd watch every dinosaur documentary I could. I love fossils because I have a piece of that animal in my hands, proof that it existed. I'm a sucker for anything glittery and shiny. Exactly like a dragon! So it's only natural I'd be interested in geology. Gorgeous crystals and minerals, so many unique shapes and colors! Vibrant reds and blues! Soft, pastel aqua and milky, jade! The feeling one gets when on the hunt for hidden treasures and secrets of the prehistoric past... I can't get enough! I guess that's part of why I love geology.



March Meeting Minutes

Gem & Mineral Society of Lynchburg Meeting – March 20, 2018 @ 7:00 PM

Attendance: 35 members

Meeting called to order by Dave Woolley, President

On Time Drawing Winners: Mary McIntire, Susan Brogan, River Hutchinson, Lydia Kalyna, Bob McIntire, Steve Gordon, Kate Staton, Kim Blair, Clint Ferguson, Alice Hansen, Michael Staton, Kyrina Johnson, Ann Maurice, Johnnie Knight, Rodger Linkenhoker.

50/50 Drawing – Clint Ferguson won \$8

Hospitality:

Eric, Pam and Gabby hosted tonight's meeting, Linda & Thom Noble will host the April meeting.

New Business:

Dave Woolley – President

All other club meetings will be held in the Parks and Recreation building on the first floor in the community room. April meeting will be on Mineral Identification.

There is a sign-up sheet available for anyone wishing to host a social gathering at their home. Workshops will still take place on the second Saturday of each month at Dave Callahan's.

Announcements:

Thanks to Bob and Mary McIntire brought free rocks for give away.

Steve Gordon wants articles from club members on "Why I Became a Rockhound" to publish in monthly Newsletters.

Treasurer's Report- Linda Noble gave the report on current balance of \$11,816.53.

Program: Dave Young gave a nice presentation on collecting rocks in the Virginia area.

Thanks to Warren Darling for bringing rocks for Silent Auction- total collected \$29.

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

Article for this month part # 6 Faceting by Dave Woolley by Dave Woolley

You too can become part of the story of Faceting part #6



28. "Lee Lapidary". A Mast type faceting machine. One of the last Removable Hand piece - Mast Type Machines that uses a **Yoke** to support the hand piece. There are no numbers are on this Radial Adjuster, which is also the pin selecting the gear's numbered notch. Set the Radial Adjustment once *after* a Transfer if needed for each individual gem being cut and forget it. Reset to "Zero" before you start cutting the next gem. Note the Protractor, **Protractor Pointer**, and Protractor Lock that makes an Angle and Depth of Cut Control. The Protractor Lock stops the cutting at the chosen Angle. The Mast has a Slide Base to keep the stone in the "work area" of the lap.



29. “Exacta Faceting Machine” by Franz Eisele, a Mast Type Faceting Machine. This may be one of the last simple Mast designs that has no number-keeping for reproducing the mast height of the Coarse Facets for Fine-Grinding and Polishing. After setting the coarse height by touching the stone to a non-rotating Lap, the *initial* Height Setting is re-located on a slowly rotating Lap for the Fine-Grinding and Polishing by making shallow trial cuts.

The robust Mast Slide Base has three adjustments (of the six dark spots) to allow Mast Pivot Bearing to Spindle Bearing Alignments. Most faceting machines have Alignment Adjustments below the Deck to align the Spindle Bearing to the Pivot Bearing of the Hand piece; they require turning the machine on its side for adjusting.

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:

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