



June Newsletter

6/2019

Volume 2019, Number 6

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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 The "Brick Yard":

Some towns like Amelia, Farmville, and Wintergreen, Virginia just exude interesting geology. Altavista in Campbell County is one of them. One day, while I was meandered afield of a bridge site of the Proposed Altavista Route 29 Bypass, I noticed some interesting minerals in the Route 711 ditch line. As a Virginia Department of Transportation (VDOT) Geologist I always checked out the area around my bridge projects in an effort to understand local geology. Logged in my collection are several Kyanite crystals and a piece of Sillimanite that I collected that day. Had I jumped the fence; I would have discovered the "Brick Yard".

Years later the owner of the property, Donald Dinwiddie, invited Geologists from the Division of Mines and Minerals and the University of Virginia to do a little rockhounding. He was a rock hound himself and was pleased to have Staurolite crystals collected from his property before the land was sold for a commercial site. Just as the sun was setting, W. F. (Bill) Giannini walked away from D. Alan Penick, Jr. and Dr. Richard (Dick) Mitchel. In a slight ditch leading to the fence, Bill found a single Kyanite blade. This discovery prompted the trio's return from Charlottesville the next day for further daylight exploration. The "Brick Yard" was discovered 20 feet from the road!

Andalusite, an Orthorhombic Crystal System mineral, typically crystalizes in brick-like shapes. Some of the world's largest Andalusite crystals plus Sillimanite after Andalusite, and Kyanite after Sillimanite after Andalusite Pseudomorphs were found. A Pseudomorph (false form) is a new mineral that occupies the same space and therefore has the same shape of the original mineral. Andalusite, Sillimanite and Kyanite are Paramorphs, minerals *sharing the same composition* but having different internal crystal structure. These three aluminum silicate minerals have the same chemical formula but arrange their elements differently in response to increase in the temperature and/or pressure. Other minerals at the site included Chlorite, Chloritoid, Corundum variety Sapphire, Garnet variety Almandine, Hematite, Magnetite, Muscovite, Paragonite, Quartz, Staurolite, and Tourmaline. Minerals formed by weathering included Florencite, Gibbsite, Kaolin, and Metahalloysite.

Members of the Roanoke and Lynchburg rock clubs were invited to collect. I arranged for a VDOT backhoe for the formal investigation that was written

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Eric Routon

Youth Out Reach
Jennifer Staton

up in “Virginia Minerals” Vol. 38, February 1992. We mostly missed the veins where we trenched because the resistant minerals that made residual near-surface accumulations had migrated downhill a short distance from the source veins. Bill Baltzley of Amelia Pegmatite mining fame investigated the site for a potential Andalusite gem mine, but gemmy fragments proved too small for significant gem cutting. John and Nona Haskins with David Callahan were the last to collect this site, with a backhoe, as a contractor was preparing the ground for the Walmart parking lot. They hit the vein. The best piece collected by Mitchell, perhaps the best ever found, I believe, is on display in the Smithsonian Museum’s “metamorphic mineral thermometer and pressure gauge” display, attributed to the gentleman who took the specimen there after Mitchell died. I believe this is the same piece that R. V. Dietrich pictured on the cover of “Minerals of Virginia, 1990 – An Update”. Tony Nikischer of Excalibur Minerals, David Young of Stones and Bones, and David Callahan **at his Roanoke Antique Mall, Booth #846** may have samples for sale; cub members may have samples for swapping.

Andalusite

by Dave Woolley:

2 Andalusites. Corundum (Sapphire) in Sillimanite. Kyanite Pseudomorph cluster after Sillimanite after Andalusite. “Gemmy” Andalusite. 2 Kyanite Pseudomorphs,





Definitions: The differences between the Pyroxene and Amphibole families

A reminder of what to look for to differentiate between the Pyroxene and the Amphibole families of minerals; each has two cleavage planes. Note: a broken crystal, partially exposed in a rock's surface and showing cleavage, needs to be rotated enough to go past the 90-degree mark, or the 56 or 124-degree marks to establish the identification. You are more likely to find two adjacent prism cleavages as in the side view, left below, than the four cleavages in the end view, right. While these photos may be ideal, your now 'practiced eyes' will begin to find cleavages to complete these identifications. Cleavage surfaces may parallel some of the crystal faces of Pyroxenes and Amphiboles: they aid identifications.

Pyroxene - side view

Amphibole – end view



These two mineral families are of the group of seven families that constitute most of the rocks on the planet: the Olivine, Pyroxene, Amphibole, Feldspar, Quartz, Mica, and Calcite families of minerals. Typically lighter colored than the Amphiboles and Pyroxenes, the same near 90-degree two-cleavage-plane-tests will confirm a Feldspar. The Plagioclase Feldspars, [Calcium to Sodium rich end members; Ca-Anorthite, Bytownite, Labradorite, Andesine, Oligoclase, and Na-Albite], will have striations (parallel lines) on one cleavage plane. Anorthite to Labradorite are typical of Basalts; Oligoclase and Albite are of Granites. The Potassium bearing Orthoclase feldspars, the high temperature Paramorph – Sanidine, mid temperature – Microcline, and low temperature Paramorph – Adularia, have no striations.

Two cleavage planes at nearly 90 Degrees - Feldspar

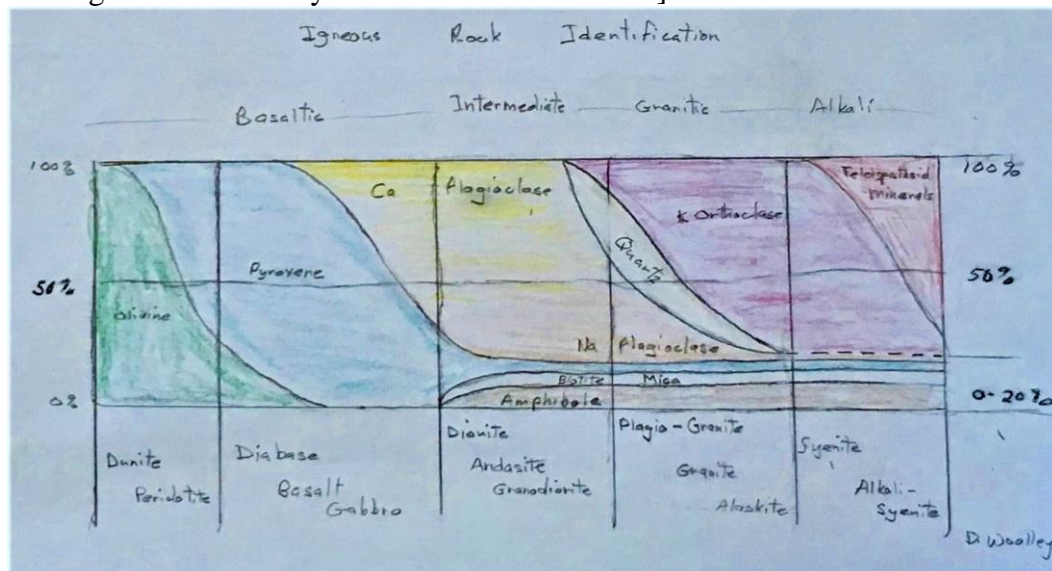


Striations on one cleavage plane of Plagioclase



Sodium - Albite and Potassium - Microcline sometimes compete for the elements common to both when they occur together in the same crystal; the combination-feldspar, Perthite. Many patchy, braded, or banded blue/green-and-white samples of the gem, "Amazonite", from the Amelia, Virginia Pegmatites are actually Perthite. Take a look at your samples of Amazonite!

Igneous Rock Identification. Slide an imaginary vertical line from the left side to the right. When the minerals in your rock sample appear under the imaginary line, you have a good idea as to what your Igneous rock type is. Starting at the left side, a rock containing about 100% Olivine is Dunite. Just to the right, add a little Pyroxene, and you have Peridotite; a bit more Pyroxene and you have Diabase (common in Virginia's Piedmont). Find a bit of Calcium Plagioclase in your sample and you have Basalt; no Olivine and you have Gabbro. The minerals, 0 – 20 % on the right side of the chart, may not be present at all, or in combinations up to about 20 % of the total rock. There are many more Igneous rock types than listed here, but this chart will get you into the ball park for identification of Igneous rock. [See samples of Igneous Rock in the LGMS rock collection at the Easter Island Store in Lynchburg. Ask to take them out of the display case to look for cleavages and to identify the minerals in the rocks.]



Olivine, Pyroxene, Amphibole and Biotite are Magnesium and Iron Silicate minerals. As the majority of the Magnesium and Iron is captured from magma forming the Basaltic rocks, Silica becomes more available for the Plagioclase and Quartz followed by Orthoclase **that begins crystalizing at cooler temperatures than Olivine**: they begin taking up the available Calcium, Sodium, Potassium (plus Aluminum) of the Intermediate and Granitic rock. Finally, the Silica content diminishes to the right so Quartz may not be present at all in the Alkali Igneous Rocks; the elements that normally would be in the Feldspars are now in the 'Silica deficient minerals', the Feldspathoid Minerals. Cancrinite, Sodalite, Nepheline and etc., are similar to the feldspars having Sodium or Potassium (plus Aluminum) but much less Silicon; at this point

most of the Calcium has been depleted. Several bizarre rock types are grouped under “Alkali” including Carbonatite, which may be rich in Rare Earth Elements. The Alkali rock are like the ‘end of all the geologic processes’ on earth, rare and very interesting. Some Igneous Rock varieties are fine-grained and need strong magnification or other methods to identify the minerals.

IJA and Meiji Techno Microscopes

Offers the only Limited Lifetime Warranty of any gemological microscope, including the GIA!



In 1988, 30 years ago, I purchased this GIA-Gem Instruments microscope you see at left.

In 2008, 20 years later, I used this same microscope to take the microphotograph you see in the banner at the top of this edition that blew open the Tibet andesine fiasco. You can see the Dixie cup immersion cell I used to take the image still on the base of the microscope at left. The image above proved that Tibet andesine was a costly fraud, and began the long road to exposing the reported expedition to a "Tibet andesine mine" to be a hoax.

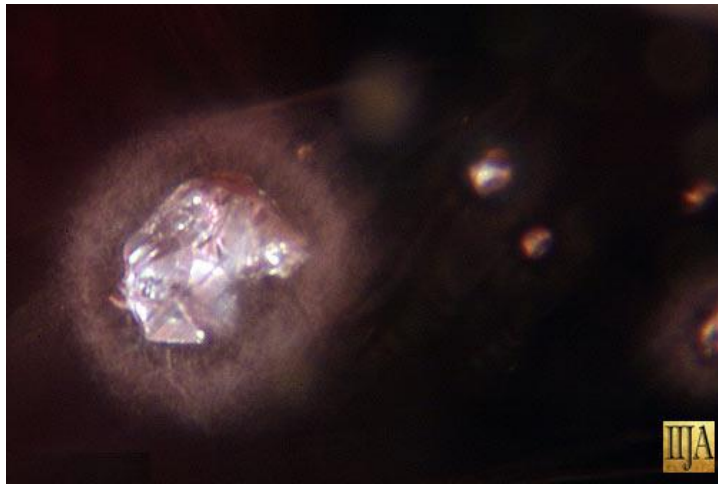
Many of the microphotographs you see in this newsletter are still taken with this....now 30-year-old microscope.

The GIA no longer sells this microscope.....but we do. **We are the gemology industry's authorized Meiji Techno Dealers.**

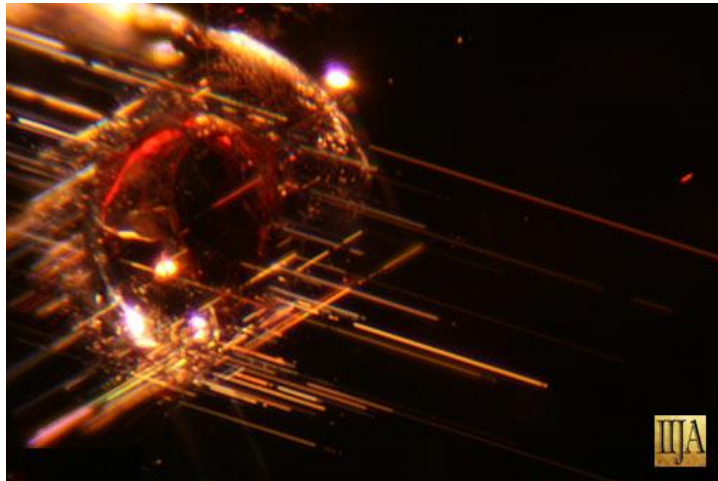
It's made by Meiji Techno and it's the finest quality microscope on the market for the following reasons:

- It has always been made by Meiji Techno of Japan. Famous microscope names like "Leica," "Bausch and Lomb" and others have been bought and resold many times over the years. It is a fact that you have to know what year these microscopes were made, to know which Chinese manufacturer to contact in hopes they still offer parts that fit. This is not the case with Meiji Techno Microscopes.
- I can get parts from Meiji Techno for what is now a 30-year-old microscope, within 48 hours to this day.
- The Meiji Techno optics are far superior to anything else on the market.
- It carries the only Limited Lifetime Warranty of any microscope.
- It has the widest field of vision of any gemological microscope on the market.
- It comes standard with magnification to 90x, higher than any GIA model.
- It is the last microscope you will ever have to buy.

Rather than give a long drawn out presentation, I will let the microphotographs do the selling of the Meiji Techno quality. All were taken using our Meiji Techno microscopes. Below is a view of included crystals in a spinel.



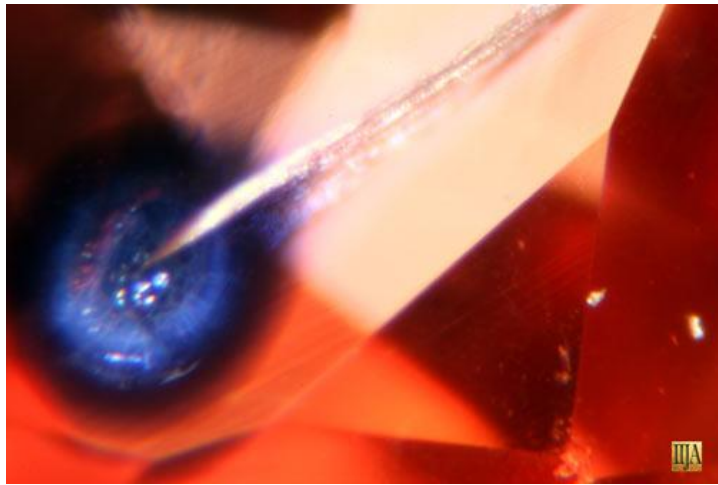
Below: A beautiful view of an included crystal in garnet with the intersecting needle inclusions.



A wide field of vision makes photography at lower magnifications far easier as seen in this parcel of Brazilian emeralds.



A 90x view of an included crystal in beryllium treated sapphire showing the concentration of the iron and titanium that reformed around this included crystal during heating, forming the diagnostic "blue halo".



A remarkable view of lily pad inclusions in natural peridot. Again at 90x the formation of the lily pad inclusion around the included crystal is seen in detail unmatched by any other microscope on the gemological market.

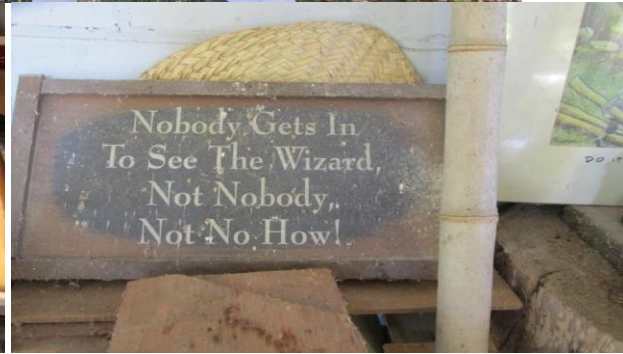


Today we have our Enwave Raman built on top of a Meiji Techno MX microscope and have upgraded our main image production to the Meiji Techno GEMT2-BFDF as seen below. A Limited Lifetime Warranty, finest optical quality, and fast availability of parts 30 years after purchase.....no one else can touch that.



When you are ready to buy the last microscope you will buy for the rest of your life, visit our website at the IJJA eBook Gemology store by clicking on the images below. We could sell cheaper Chinese made models like the other guys, but we are professional gemologists who look for quality as well as affordable price. That is why the IJJA (through our original YourGemologist.com website) has been the primary gemology industry Authorized Dealer for Meiji Techno for the past 17 years. Visit us and learn what quality microscopes are all about. **Meiji Techno microscopes start at just \$2355.00 from the IJJA.**

In Memory of Errett Callahan our friend



A group consisting of Tom Davis, Thom Noble, Linda Noble, Dave Callahan, Dave Woolley, Cindy Mitchell, Pam Klein, and Noel Woolley went to Errett Callahan's for a series of lessons on Flint Knapping. I'm sure the group would agree the classes were time well spent and a rewarding experience.

Errett Callahan, as well as being a gracious host, had a Master of Arts degree, a PhD degree and Honorary Doctorate in archeology/anthropology. In 1987, he began his Cliffside Workshops as a means to impart the knowledge he learned throughout the years about flint knapping and primitive technology to students and enthusiasts from around the world.

It was an Honor and a Privilege to have met and spend time with Errett.

Program for the coming months

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 have made it back from Washington State and will bring items to show in our trip around the state of Washington. Here are just a few pics of our trip.

Lots of rocks as we headed to Mt. Hood



Very cloudy at Mt. St. Helens:



It finally cleared up at Mt Rainer:



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 Western South Carolina Gem and Mineral Society
(Greenville, SC) (HOST)**

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

**Friday, July 19, 2019
9:00 am to 6:00 pm Eastern Time
Diamond Hill Quartz Mine
Abbeville, SC
Fee Site**

TRIP: The mine is on a dirt road that should not be a problem for any vehicles. Our club has been coming to the mine for over 30 years.

COLLECTING: The main mineral is quartz crystals in the form of amethyst, smoky, skeletal, clear, and milky. More rare minerals include beryl and cacoxenite.

BRING: Your choice of hammers, digging tools, screens, and gloves. Bring sunscreen, picnic lunch, snacks, and plenty to drink.

TERRAIN: Disturbed earth with some pits. Use reasonable precautions.

FEE: \$15 group rate if you state that you are with the Dixie Mineral Council group. \$10 for those 65 or over or between 13 to 17 years of age. \$5 for 12 years and under.

CHILDREN: Allowed with adult supervision.

PETS: Allowed on leashes

FACILITIES: Porta-potties and picnic tables. No running water other than the creek.

ADDITIONAL INFORMATION: Check the website at diamondhillmine.com

DIRECTIONS AND WHERE TO MEET:

Address: 50-99 Diamond Mine Rd., Abbeville, SC
34°16'13.5"N 82°34'28.8"W

From Interstate 85 travel south on SC 28 through Anderson, SC and follow it to SC 284. Turn right on SC 284. Drive to Diamond Mine Road. Turn onto Diamond Mine Road and look for a very dug up area with a lot of cars.

CONTACT: Tim Barton at (828)577-4505 or Bill Wetzels at wwetz14@gmail.com or (864)404-0025

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.

May Meeting Minutes

Gem & Mineral Society of Lynchburg
Meeting – May 15, 2019 @ 7:00 PM

Attendance: 34 members

Meeting called to order by Dave Woolley, President

On Time Drawing Winners: Joan Moore, Thom Noble, Natalie Darling, Cindy Mitchell, Sydney Tomlin.

50/50 Drawing – Rodger Linkenhoker won \$11

Hospitality:

Noel and Dave Woolley hosted tonight's meeting, John and Nona Haskins will host the June 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. 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:

Dave Callahan has contacted Mike Morris at Willis Mountain in regards to club hosting open house fieldtrip on September 28th. Requirements for all attendees will be steel toe shoes and current hard hats. Everyone will be expected to follow all quarry requirements to enable club to continue our visits. Joan Moore will help Dave Callahan with preparing for this event.

Charles Collins gave report of his visit to Excalibur Mineral Shop in Charlottesville.

Kim Blair thanked everyone for helping with last month's program of mineral identification which was very informative. Dave Woolley provided additional handouts on Moh's Scale of Hardness.

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

June Meeting will be guest speaker Michael and Kate Staton and their adventures in Rock Climbing

July Meeting will be presented by Dr. Steve Lenhart.

Treasurer's Report- Linda Noble gave the report on current balance of \$11,909.21. Records are available at each club meeting for review by club members.

Program: Show and Sell

Welcome new club member- Audra Daniel

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

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



32. “Graves Mark IV”. A Mast Type Faceting Machine. Simplicity! My two younger kids faceted their first Standard Round Brilliant gems with a Graves, at age 4. The Graves Protractor and Lock Block Vernier reads to a tenth of a degree. The Coarse Height Control is the black knob to the left; the Fine Height Control is just to the right. The Radial Adjuster nob is part of the Pawl below the Index Gear. Most faceting machine Protractors can be estimated to only a tenth of a degree, which is more than adequate for the coarse grinding stage. Typically, fine adjustments are made “by eye” during the fine grinding or the polishing step to achieve meet point perfection. Most faceters have to use the tenth of a degree estimate to re-find or approximate the angle of the *actual* cut angle for polishing. Then, they do a trial polish of a second or two of time. Inspection of that facet will often show a top or bottom corner where the polish has started: adjust the fine height control down or up slightly to get dead flat on the previously cut meet point facet. Try another facet or two test of that same group of facets to prove success; that way no one facet is over-cut incorrectly and the meet point perfection lost. If the polish starts on the left or right side, use the radial adjuster to get dead on the facet. If your machine has an electronic protractor that reads to a thousandth of a degree, write down the actual number after the *meet point facets* are ground and use that number to “find” each group of identical facets during the polishing.



33. “Graves” Mast Assembly. Imagine **Hand Pressure** at the Dop slightly bending and flexing all that stuff plus loading up the bearings after the Protractor Pointer hits the Protractor Lock. This *collective problem* has been labeled “Mast Flex”.

Hand Pressure is difficult to reproduce because most gem materials have variable hardness’s depending on the **Orientation of the Crystal**; some facets in a series of identical facets cut softly and fast, while others cut harder and slow. Without some kind of ingenious method, some soft facets of a “group of identical facets” are way too easily **Overcut**, which also *bends the Mast, slightly changing the Angle and the Depth of Cut*. This becomes a problem during polishing as the Fine Height Control has to be changed slightly and frequently as the Angle and the Depth of Cut has to be constantly re-adjusted, facet to facet. Meet Point Faceting has to be completed as a *final cutting step on the polishing lap* for time-consuming minor corrections.

Some faceters successfully judge reproduction of “Mast Flex” by the sound of the cutting.

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.
PO Box 11975
Lynchburg, VA 24506-1975**