

# Southern Maryland Rock and Mineral Club



## Rock Talk



## January, 2020

**Next Meeting:**  
**January 28, 2019@7:00 PM**

**Program**  
**“Put Your Game Face On” for Box**  
**of Rocks by Greta**

**Refreshments**  
 Katie  
**Clearwater Nature Center, 11000 Thrift**  
**Road, Clinton, MD.**

### Recap of the Rock Club Christmas Party

by Dave Lines, pics by Al Raucheisen and Debbie Curtin

First of all, we owe a huge “thank you” to the good Lord for beautiful weather --- almost 60 degrees and sunny. It was literally the only dry day tucked into a long string of rainy ones. As another year had flown by, we celebrated the 2019 Christmas season with great fellowship, a delicious potluck feast and a fun gift exchange at the home of Dave and Ann in La Plata. It was really amazing --- a bit miraculous, in fact --- that the variety of potluck items were so well balanced. For example --- the hors d'oeuvres included a shrimp platter, cheese crackers, taco chips and an artichoke dip. The dinner items included baked salmon, roasted chicken, a pot of chili, more shrimp, macaroni and cheese, scalloped potatoes, three bean salad, grapes and homemade muffins. The dessert table was beautiful as well as scrumptious --- berry pie, pecan pie, chocolate pie, brownies and three kinds of cookies --- (my apologies for anything I missed).

About 22 of our members participated including Bill and Debbie, Jennifer, Carole and Al, Polly, Harry and Tina (returning from

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Pennsylvania!), Joe, Teresa, Ralph and Mary, Tim and Lorna, Cheryl, Rich, Greta, Mike, Katie, Dave and Ann, and Lorna L.

Soon after guests arrived and parked in the pasture, they turned their food over to Ann, Polly and Carole (who were so organized and made it look all so easy), filled out name tags and put their gifts under the Christmas tree.

Then people either visited Dave's rock room or simply enjoyed the snacks before dinner, or both. Meanwhile, the dining room door remained closed so no one could peek inside.

Around 4 pm, we said a blessing and opened the dining room to everyone. The table was magnificent! It was covered with beautifully arranged dishes and a stunning centerpiece composed of glittering rocks, minerals, crystals, jewelry, lapidary creations, gem trees and fossils. Lots of oohs and aahs. Polly said it was gorgeous! And the food was really, really delicious and many folks returned for seconds. The desserts were equally tasty. What a meal!

About 5 pm or so, Polly let everyone pick a slip of paper with a number on it. Then she explained the rules for the "Chinese gift exchange" --- the key being that when your number was drawn, you could either pick a gift from under the tree or steal a gift from someone else. But a gift could only be stolen twice. That led to many entertaining encounters. Some folks had the knack of not being able to hang on to a gift very long. Tim S. was one who probably chose and opened 6 or 7 gifts and then subsequently had each of them stolen. Things eventually quieted down after many of the gifts were stolen twice. The gifts were very generous and thoughtful with pretty rocks, useful tools, interesting books and rock games.

All in all, it was a very enjoyable afternoon with old and new friends. Later after the party, Lorna L. declared that she thought it

was the best Christmas party that the Rock Club had ever had --- high praise from one of our founding members and past presidents (several times). Greetings to you all for a happy and healthy New Year!









March 21-22, 2019: 56<sup>th</sup> Annual GLMSMC Gem, Mineral and Fossil Show, Montgomery County Fairgrounds, Gaithersburg, MD. [glmsmc.com/show.shtml](http://glmsmc.com/show.shtml)

## Rocks, Minerals, and Fossils in the News

**Green light: A look behind the scenes at Zambia's Kagem, the world's largest emerald mine**

### ITEMS WANTED/FOR SALE

For Sale – Virginia unakite slabs (approx ¼ inch thick) – \$0.50 per square inch (this is half off regular price). Call Dave (240) 427-7062.

For Sale – SMRMC Only 4 remaining t-shirts for sale: size small (1) at \$9.00; and large (3), also at \$9.00 each Contact Tina @ [htleague@comcast.net](mailto:htleague@comcast.net)

### UPCOMING SHOWS AND EVENTS 2019

March: 7 - 8: 57<sup>th</sup> Annual Delaware Mineral Society Show hosted by the Delaware Mineral Society. Doubletree by Hilton (next to Concord Mall) 4727 Concord Pike (Route 202), Wilmington, DE 19803. INFO: Gene Hartstein ([geneatfossilnut.com](http://geneatfossilnut.com))

Is there such a thing as ethical mining? We visit a mine that supplies Gemfields stones to find out

<https://www.thenational.ae/lifestyle/luxury/green-light-a-look-behind-the-scenes-at-zambia-s-kagem-the-world-s-largest-emerald-mine-1.968543>



Gemfields has developed its own grading system for emeralds. Courtesy Barry Hayden

A glint of green in a jagged sea of grey. I bend down to take a closer look. Embedded in a chunk of silvery rock is the telltale hexagonal outline and vivid hue of one of the rarest minerals on the planet. “I think I’ve found one,” I call over to the security guard standing a few metres away.

I am in Chama, the world's largest producing emerald pit. This is the beating heart of Zambia's 41-square-kilometre Kagem mine, a joint venture between Gemfields, a leading supplier of responsibly sourced coloured gemstones, and the government of Zambia. About 25 per cent of the world's emeralds originate here.



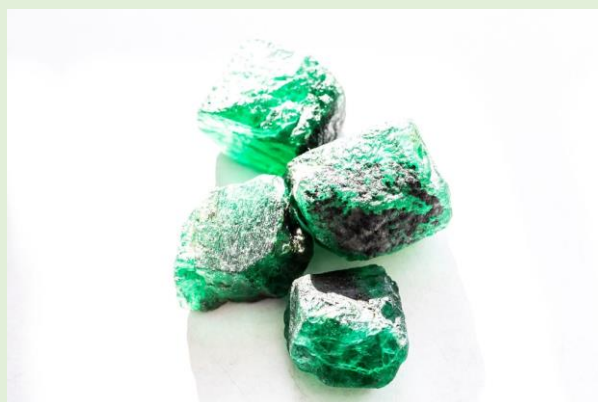
About 25 per cent of the world's emeralds come from Kagem. Courtesy Barry Hayden

A few minutes earlier, I had watched as a high-pressure water jet was used to spray the ground at one end of the 160-metre-deep pit. Now the rock bed sparkles in the Sun, pieces of mica and quartz catching the light and giving the sludge beneath our feet an otherworldly glow. I step gingerly through puddles, balancing on shards of rock, my eyes peeled to the ground. I am on the hunt for emeralds.



An emerald reveals itself in the Chama pit. Photo by Barry Hayden

Half a billion years ago, in the ground beneath me, an incomprehensibly rare occurrence unfolded. Two very different types of rock came into contact – a 500-million-year-old pegmatite containing elements of beryllium and a 1.6-billion-year-old talc-magnetite schist. And in the reaction zone between the two, one of the most striking substances known to man began to mineralise. Although they are the more recent to be discovered, east African emeralds are known to be much older than emeralds from other parts of the world, and get their pure green hue from the presence of chromium, iron and beryllium.



East African emeralds are much older than gems from other parts of the world. Courtesy Barry Hayden

The accepted consensus is that fine emeralds are 20 times rarer than fine diamonds, and to visit an emerald mine is to appreciate how truly rare that is. The rocks that we are trawling through on the mine floor have been dislodged using a controlled explosion.

Gemfields is open and realistic about the impact of a mining operation on the environment – there is no denying the scar that an open pit leaves on a landscape. But as long as there is demand for precious stones, there will be mining, and at least Gemfields is mindful of how it goes about its business. For a start, it does not use any chemical substances that are hazardous to health or that pollute the environment, and it recycles the water utilised in its processes wherever possible.



The emeralds are transported to the sort house in padlocked boxes. Courtesy Bary Hayden

### Extracting a treasure chest

After a team of miners has collected all the gemstones that are immediately visible in the pit, the remaining rock is transported to Kagem’s wash plant, where it is broken into smaller, more manageable pieces. These pass through the plant on what must be the world’s most valuable conveyor belt. On either side of the belt, workers sift through the stones trying to spot that elusive flash of green. The emerald-bearing rocks are picked out and placed directly into a bright red, double-padlocked box, which is sent on to the mine’s sort house.

Here, the priceless gems are gently dislodged from their “host rock” – or, in the fabulously futuristic-sounding phrase used by the sort house’s supervisor, Jackson Mtonga, “liberated from their matrix”.



The gems are separated from their host rock. Courtesy Bary Hayden

At Kagem, a mere 50 grams of “emerald and beryl mix” is recovered for every 100 tonnes of earth excavated. And within that mix, only 0.3g is considered premium emerald. That’s an infinitesimally small chance of finding the good stuff. At every stage of the process, in spite of the cutting-edge machinery and technology employed by Kagem, and the stringent security measures put in place at the mine, there is plenty of scope for the emeralds to be damaged or pilfered, or to simply escape unseen. It feels slightly miraculous that they are found at all.

While Gemfields may be in the business of extraction, it is also committed to giving back to the communities where it operates. Its core values of transparency, legitimacy and integrity manifest in a belief that “coloured gemstones should create a positive impact for the country and community from which they originate”.



Gemfields has rebuilt three schools in the area surrounding the mine. Photo by Bary Hayden

In tangible terms, this means that about 1 per cent of the company’s revenue is invested in corporate social responsibility initiatives in the areas surrounding its two mines in Zambia and Mozambique. Since it began operations at Kagem in 2008, the company has spent more than \$2 million (Dh7.3m) on community projects in the surrounding Lufwanyama district, focusing primarily on the areas of health, education, agriculture and conservation.

### Giving back to the community

In the whitewashed, Gemfields-built Chapula secondary school, smartly uniformed teenage students are waiting to sit their final exams. The school's deputy headmistress proudly shows us around the school's science lab, home economics class and computer/music room, where trumpets, xylophones and drums are stacked on desks alongside HP PCs. Students rush to greet us and partake in that most universal, unifying of experiences: the selfie. This is one of three schools that has been restored in the area, offering vital support to an education system plagued with challenges. Although still higher than the country's average, literacy rates in the Lufwanyama district stand at about 60 per cent.



Chapula Secondary School. Courtesy Barry Hayden

"It's very important to have partners like Kagem because, as governments, we cannot be everywhere," Mambe Hamududu, the district education board secretary of Lufwanyama, explains as we stand on the grounds of the Kapila Primary School, a two-building facility that Gemfields has helped restore. "Without them, this school would not be the way it is. They supported the teachers, they supported the infrastructure and the school is growing.

"Education is accessible to all, but it is a challenge," Hamududu adds. "It is a requirement in our country that all children go to school, but enforcement can be difficult." For some children in the area, getting to

class means a seven or eight-kilometre, one-and-a-half-hour walk each morning. Isolated schools in rural areas can also struggle to attract teachers because of a lack of accommodation in the area and the distances they are required to travel as a result – so Gemfields built teachers' accommodation at Kapila.

These educators, in turn, can act as role models, particularly for young female students, encouraging them to stay in school. It was a similar story for nursing staff at the nearby Nkana Health Centre, which has been transformed into a fully fledged medical centre, complete with nurse's quarters, a maternity ward, dedicated wings for men, women and children, and accommodation for expectant mothers.



Women from the Twasanda farming collective, which is supported by Gemfields. Courtesy Barry Hayden

At the local Twasanta farming collective, a group of women, resplendent in the brightly coloured chitenge fabrics typical of the region, show off the fruits of their toils. Proud and empowered, they seem happy to be able to share their stories, struggles and successes with us. It is an incredibly humbling experience.

One of a number of collectives supported by Gemfields, the women here grow an assortment of vegetables, which are bought, at above market rate, by Kagem to help feed its 1,153-strong workforce. Local farmers were encouraged to form collectives, so they could strengthen and diversify, rather than compete. The focus is on helping them hone their farming skills,



educating them about crop rotation and planting crops that complement each other, as well as providing pesticides when problems have arisen. Gemfields has also helped the collectives acquire treadle pumps, to mitigate the daily challenges of irrigation.

#### Raising up local women

In this carefully tended field in the middle of Zambia, it is not just crops being harvested – there is also a tangible spirit of entrepreneurship being cultivated. The women have independently struck a deal with the local branch of a South African supermarket chain, which means they are now selling their produce through increasingly diversified channels, and are looking for different ways to build their businesses.

In keeping with its commitment to responsible mining practices, Gemfields is also harnessing new technologies to drive transparency and traceability in the coloured gemstone supply chain. It has already established its own proprietary grading system, consisting of 214 grades of emeralds – introducing consistency and standardisation in a marketplace where there has traditionally been none – and has teamed up with Gübelin Gem Lab to offer the Emerald Paternity Test. This involves the introduction of unique DNA nanoparticles into an emerald's fissures, which can be used to confirm a gemstone's origin. The two parties have now taken this a step further, with the introduction of a blockchain record process, which provides a detailed account of a gemstone's complete journey.

“The Provenance Proof Blockchain offers a high degree of security and seamless documentation of the data collected along the journey of a gemstone, contributed by the different stakeholders that were involved in the value chain,” says Raphael Gübelin, president of the House of Gübelin. “The information is encoded and backed up on multiple servers, which helps prevent it being altered, deleted or manipulated. The individual history of each gemstone, from the

mine to the final customer, is stored permanently and securely. The advantages over a paper trail is that it is more convenient and less prone to tampering. And finally, it is free of charge and easy to use.”



A display of Zambian emeralds. Courtesy Barry Hayden

Back in the mine, I hold that chunk of silvery rock in my hand, marvelling at the gem that sits, semi-exposed, in its middle. Mining is a complex, undeniably controversial, business, but there's magic in it, too. There is something indescribable about picking up a gemstone that has sat under the Earth's surface for hundreds of millions of years – and knowing that this is the first time it has ever seen the light. Gems are of the Earth, further evidence of nature's unending bounty.

And while diamonds may have dominated the gemstone industry for the last century, it seems like coloured stones are finally having their moment. Ahead of the release of the 2019 *Knight Frank Luxury Investment Index* on June 14, Andrew Shirley, the company's head of luxury research, commented: “The interesting story here is that coloured gemstones are outperforming the wider jewellery market, with some significant sales taking place already in 2019.”

For independent jewellery specialist Joanna Hardy, author of the books *Emerald* and *Ruby*, things are coming full circle. “Diamonds weren't cut until the 1400s, so up until then, it was all pearls and coloured stones. They were used for their talismanic properties

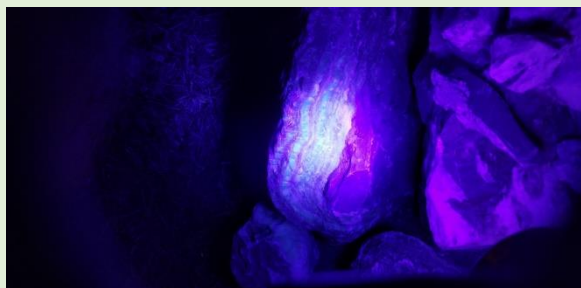
– it wasn't an intrinsic thing at all, at the time. If you look through history, Catherine the Great and all these people were wearing emeralds and sapphires and rubies and spinels.

"Historically, there are lots of occasions and situations where you will see coloured stones taking preference, and the reason for that is because if you look at the colour green, what does it make you feel? It's nature, it's paradise, it's rebirth – so there is that association with emeralds. With rubies, red is the colour of blood; it is passion and protection.

"Also, it's the art of the cutting of a diamond that really releases the properties of a diamond. Whereas, as you've seen, coloured gemstones can look pretty impressive without having to be cut."

## Member's Finds

These photos are some of the "flow stone" found by club member Cory Kivel at the Oct 11<sup>th</sup> field trip to National Limestone Quarry in Middleburg, PA. Specimens are a yellow brown in normal daylight, but displayed a green florescence under UV (wavelength not given).



Collected any interesting specimens? Send a photo or two to the editor at [bmorebugman@yahoo.com](mailto:bmorebugman@yahoo.com) for inclusion in the next issue of Rock Talk.

# The Chesapeake Gem & Mineral Society

Presents

## Living Estate Auction of Virginia & Gary White

To be held in two auctions with Hall of Fame Auctioneer Glenn Freeman

### First Auction

Date: Friday, March 13, 2020

Time: 7:00 pm (viewing at 6:30 pm)

### Second Auction

Date: Saturday, April 4, 2020

Time: 5:00 pm (viewing at 4:30 pm)

*Cash & Checks only*

*Place: Location*

*Westchester Community Center*

**2414 Westchester Ave., Oella Md.21043**

***Some items to be auctioned are Gemstones,  
Cutting rough, Jewelry, Minerals, Fossils.***

Full listing on our website

*Refreshments are available.*

### ***Directions:***

***From the north: Take I-695 to US 40 west (exit 15B). Turn left on N. Rolling Rd. Turn right at Old Fredrick Rd. (You will pass through 1 roundabout). Turn right on Oella Ave. Turn left on Westchester Ave. Westchester Community Center is on the right.***

***From the south: Take I-695 to Fredrick Rd. (exit 13). Turn left on Fredrick Rd. Follow Fredrick Rd. approx. 2.7 miles. Turn right on Oella Ave. Turn left on Westchester Ave.***

***Westchester Community Center is on the right.***

***<[chesapeakegemandmineral.org](http://chesapeakegemandmineral.org)>***

**The Southern Maryland Rock and Mineral Club**

Meetings take place on the 4<sup>th</sup> Tuesday of each month at 7:00pm

Clearwater Nature Center, 11000 Thrift Road, Clinton, MD.

For More information, call:

(301) 297-4575

We're on the web:



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