



Southern Maryland Rock and Mineral Club



ROCK TALK



NOVEMBER 2020

NATURE CENTER REMAINS CLOSED TO GROUP MEETINGS

Prince George's County Parks and Recreations is following the Maryland guidance for COVID-19 preparations and safety. The State is under a Stage/Condition I policy which is the strictest of the three. So external meetings will not be held until Prince George's County transitions to a Stage III condition. And in Stage III, there will still be limitations to club meetings and events in/around the Clearwater Nature Center.

The Clearwater Nature Center will keep their ongoing effort ensuring best practices ensuring the lowest chances of spreading COVID-19 between the animals and humans.

So the SMRMC meeting scheduled for November 2020 is cancelled. (And not due to "Lack of Interest!!")

The Lapidary workshop is also closed until further notice - both because of the COVID-19 shutdown

MINUTES

No minutes for April, May, June, July, August, September, and October 2020 meetings due to COVID-19 closure of the Clearwater Nature Center. Also there will be no minutes for the November 2020 meeting. Unfortunately "No News does not mean "Good News" in this situation.

Please..Stay Healthy. Take the time to think out all of your actions that will involve or interact with other people. Whether they are friends or total strangers - evaluate the possibility of the worst kind. Recently a local auction was held in the local Amish fields. This event drew many people but as myself and my wife were in the truck awaiting the start, we looked at each other and said at the same time, "Let's go home". The mixture of many people and in close proximity was the determining factor for our departure. Good health is more important than great priced "stuff".



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2020 / 2021 PROGRAMS/REFRESHMENTS SCHEDULE		
MONTH	PROGRAM	REFRESHMENTS
OCTOBER	MEETING CANCELED.	MEETING CANCELED
NOVEMBER	MEETING CANCELED	MEETING CANCELED
DECEMBER	<u>Christmas Party (UNCONFIRMED)</u>	Pot Luck
JANUARY	<u>TBD</u>	See Below
FEBRUARY	<u>TBD</u>	See Below

NEW POLICY

Due to the ongoing COVID-19 Pandemic, the Nature Center is **not** allowing personal food into the facility for group meetings. This and many other COVID-19 related limitations/rules/etc are being routinely reviewed in an attempt for a return to normality. The Nature Center will keep us informed on any changes to the ongoing COVID policies that PG County has instituted.

speakers/topics to enrich fellow members knowledge and interest. **Carol** is our current POC for this and will be **VERY** happy to have people volunteer to fill the TBDs list in the calendar. **PLEASE** help **Carol** smile by removing the TBDs from this table.

Any changes to the schedule will be documented in the meeting minutes (when there is a meeting) and reported in this table.

If anyone has noticed, there are many TBDs listed. These are not meant as "Surprise" events. We are in need of

Fool's Gold

<https://geology.com/gold/fools-gold/>

Don't be fooled: These quick tests separate pyrite from real gold.

Article by: [Hobart M. King](#), PhD, RPG



Pyrite with Striations: A cluster of cubic pyrite crystals exhibiting prominent striations. Photo copyright iStockphoto / Johanna Poetsch.

What Is Fool's Gold?

"Fool's gold" is a common nickname for [pyrite](#). Pyrite received that nickname because it is worth virtually nothing, but has an appearance that "fools" people into believing that it is [gold](#). With a little practice, there are many easy tests that anyone can use to quickly tell the difference between pyrite and gold.

The nickname "fool's gold" has long been used by gold buyers and prospectors, who were amused by excited people who thought they had found gold. These people did not know how to tell the difference between

pyrite and gold, and their ignorance caused them to look foolish.



Crystalline Gold: A specimen of native gold from Pontes e Lacerda, Mato Grosso, Brazil, approximately 3.5 centimeters tall. This specimen is visually appealing and displays the crystalline habit of gold. The value of this specimen to collectors of crystalline gold would be many times the value of its contained gold. Destructive tests should not be done on specimens of gold that display a crystalline habit or specimens of no trivial size that have an attractive appearance. This photo was taken by Carlin Green of the United States Geological Survey.

Separating Fool's Gold from Gold

Here are a few simple tests that almost anyone can use to tell the difference between pyrite and gold. They can usually be done successfully by inexperienced people. However, wise people obtain a couple small pieces of pyrite and a couple small pieces of

gold and use them to gain valuable experience.

CAUTION: All pieces of gold are valuable. However, any piece of gold with a nice [crystal habit](#) will have a premium value - often worth several times the value of its contained gold. That premium value can be ruined by some of the tests explained below. So, we have separated the tests into "destructive tests" and "non-destructive tests". Be careful if you think that you might have a valuable gold specimen.



Testing Specific Gravity: Specific Gravity is the ratio between the weight of a material in air and the weight of an equal volume of water. The device in the photo above is a scale that is used to weigh the material in air, and a weighing pan that enables the material to be weighed under water. The weight under water can be subtracted from the weight in air to obtain the weight of the volume of water displaced by the material. Specific gravity is then calculated by the

formula: $W_a / (W_a - W_u)$ where W_a is the weight of the material in air and W_u is the weight of the material under water.

Non-Destructive Tests

A) Tarnish: Most specimens of pyrite, found in nature, will have at least some tarnish on their surface. Nuggets or small flakes of gold are usually bright and untarnished.

B) Color: Pyrite has a brassy color. Gold has a golden to yellow color. Most native gold is alloyed with [silver](#), and if the silver content is high enough, the specimen will have a whitish yellow color.

C) Shape: Pyrite is usually found as angular pieces, and many of them exhibit the faces of a cube, octahedron or pyritohedron. Most gold particles found in streams have slightly rounded edges, but be careful - some crystalline gold specimens can display a crystal habit that is similar to pyrite.

D) Striations: Many crystals of pyrite have fine parallel lines on their faces. Gold crystals do not have striations.

E) Specific Gravity: Gold has a specific gravity of about 19.3. The specific gravity of pyrite is about 5. (All gold found in nature is always alloyed with other [metals](#). These metals have a specific gravity which will reduce the specific gravity of the specimen, but never enough that it approaches the specific gravity of pyrite. Specimens containing a significant amount of gold will always have at least two to three times the specific gravity of pyrite.)



Gold's Streak: A copper penny and a tiny gold nugget on a black streak plate, with a small streak made by the nugget. The copper penny is in the photo to serve as a scale. The tiny nugget weighs 0.0035 troy ounce, and at a gold price of \$1200/ozt the nugget, if it were pure gold, would have a gold value of \$4.20. The tiny mark left by the streak plate removed about \$0.06 worth of gold from the nugget.

Destructive Tests

A) **Streak:** Gold has a yellow streak. Pyrite has a greenish black streak. Learn how to do the streak test [here](#).

B) **Hardness:** Gold has a Mohs hardness of 2.5, while pyrite has a Mohs hardness of 6 to 6.5. Gold will not scratch a [copper](#) surface (Mohs hardness of 3), but pyrite will easily scratch copper. Gold can be scratched by a sharp piece of copper, but copper will scratch very few other materials. Learn about the Mohs hardness test [here](#).

C) **Ductility:** Gold is very ductile, and a tiny piece of gold will bend or dent with pressure from a pin or a pointed piece of wood. Tiny pieces of pyrite will break or resist the pressure.

D) **Sectility:** Small particles of gold can be cut with a sharp pocket knife. Small particles of pyrite cannot be cut.



Chalcopyrite in Dolomite and Quartz: Gold-colored minerals can be tested even if they are embedded in a rock. The gold-colored mineral in this rock is chalcopyrite, and a person could determine that it is not gold by poking the gold-colored material with a pin and observing if it dents or breaks. This photograph is by Scott Horvath of the United States Geological Survey.

Other Minerals That Can Fool You!

[Chalcopyrite](#) and small pieces of [biotite](#) mica can fool you. Chalcopyrite (a copper iron sulfide) has very similar properties to pyrite. It has a lower hardness than pyrite (3.5 to 4) and a lower specific gravity than pyrite (4.1 to 4.3), but the same tests can separate chalcopyrite from gold. Chalcopyrite also has a greenish black streak.

[Pyrrhotite](#) is an iron sulfide mineral with a chemical composition of $Fe_{(x-1)}S$. It has a high specific gravity, often has a brassy color, and a distinctly metallic luster. It is easy to separate pyrite and pyrrhotite because pyrrhotite is magnetic, is much softer, and if

you can see crystals they will be a very different shape.

Many people are surprised that biotite mica can fool people into thinking that it is gold. This most often occurs when an inexperienced person is [panning for gold](#) and sees a bright flash in their [gold pan](#). After chasing the tiny, highly lustrous flake, they think that it might be gold. However, slight pressure with a pin can break the flake of mica, but a tiny flake of gold will bend around the pin.

The Argyle Diamond Mine Is Shutting Down

<https://www.jckonline.com/editorial-article/argyle-diamond-mine-shutting/>

November 3, 2020 by **ROB BATES**



The Argyle diamond mine had its last day of mining on Tuesday, after making a significant contribution to the industry's history during its 37 years of operation.

The mine, in Perth, Australia, fueled the rise of the Indian cutting sector, "democratized" diamonds by producing gems that could be sold at lower price points, helped bring about

the end of the De Beers cartel, and gave the world an amazing amount of eye-popping pinks.

Diamonds were first discovered in Western Australia in 1979. Argyle's alluvial operations began in 1983, followed by its open-pit mining in 1985.

Since then, the mine has produced a total of 865 million carats.

Decommissioning and dismantling the Argyle mine will likely take five years, according to a company statement. While its owner, mining giant Rio Tinto, has long said the mine would close this year, many found the occasion bittersweet.

Wrote one employee on an Argyle Facebook page: "As the [last production] continues its journey down through the crusher, up the conveyors, out into daylight and up through process, it carries with it many years of hard work, determination, and a great deal of satisfaction."

Mine general manager Andrew Wilson told the [Australian Broadcast Corp.](#): "Many people have given this business a lot of their years and have loved that journey.... There's a real romantic feeling around this business."

The journey was certainly an eventful one. For years, Argyle was the industry's largest diamond mine by volume, producing over 40 million carats a year.

Yet, even at its height, it only represented about 6% of annual production by value. That's because the bulk of its output was made up of "smalls" and brown diamonds traditionally considered "near gems," unsuitable for jewelry.

That production, however, became a **game changer** for cutters in India, where labor costs were low enough to manufacture those stones profitably. Jewelry with Argyle diamonds was lapped up by mall-based mass merchants, opening a whole new segment of the market.

“The Indian diamond trade likes to say it did for diamonds what Henry Ford did for cars: It made them affordable to the American middle class,” *JCK* wrote in 1985.

On the other side of the spectrum, Argyle also produced a fair share of ultrarare—and ultrapracey—colored diamonds, particularly pinks, but also reds, yellow, violets, and blues. The cream of that crop were sold at an annual **tender**, which became a reliable generator of publicity and trade interest. The Argyle Pinks also attracted an avid following among collectors, **including** *The Notebook* author Nicholas Sparks.

The likely penultimate Argyle tender is now in progress, though because of COVID-19, it’s being held virtually.

For its first 13 years, Argyle sold its production through De Beers’ Central Selling Organisation, which then controlled around 80% of the market. **In 1996**, after negotiations with the CSO broke down, Argyle did the **unthinkable** and started selling its production independently. Argyle’s defection is generally considered a seminal event that helped lead to De Beers dismantling the CSO **four years later**.

Argyle began as a joint venture between Rio Tinto and junior partner Ashton Mining. **In 2000**, Rio Tinto took a 49.27% stake in Ashton, beating out a bid by De Beers. That gave Rio near-total control of the mine.

The deposit was **originally** supposed to close up shop in the early 2000s. However, in 2006, Rio Tinto **announced** that Argyle would start underground mining, extending its life another 14 years.

GEM NEWS

The Foxfire Diamond, Revisited

James E. Butler, Jeffrey E. Post, and Wuyi Wang

Gems & Gemology, Winter 2017, Vol. 53, No. 4



Figure 1. The 187.63 ct Foxfire rough diamond. Photo by Jeffrey Post.

The largest gem-quality rough diamond found in Canada, reported earlier in *Gems & Gemology* ([Summer 2016 GNI, pp. 188–189](#)), has revealed remarkable responses to excitation with long- and mid-wave UV light. This 187.63 ct diamond (figure 1) was extracted from the Diavik mine in the Canadian Arctic in the spring of 2015. Aptly named for the aurora borealis, the “Foxfire” displays unusual fluorescence and phosphorescence behavior upon exposure to ultraviolet light. As previously reported, this type Ia diamond has a high concentration of nitrogen impurities, a weak hydrogen-related absorption at 3107 cm^{-1} , and typical “cape” absorption lines.



Figure 2. Left: The Foxfire diamond, photographed in daylight-equivalent lighting. Center: The fluorescence exhibited in a darkened room while the diamond was exposed to long-wave UV. Right: The phosphorescence shown in a darkened room immediately after extinguishing long-wave UV excitation. Photos by Jeffrey Post.

Exposing this stone to the near-band-gap ultraviolet light of the DiamondView instrument (about 210 nm) and short-wave UV (253.7 nm) results in only very weak fluorescence and phosphorescence, as reported earlier. However, exposure to mid- and long-wave UV (313 nm and 365.0 nm, respectively) produces extremely strong blue fluorescence and strong, long-lived orangish phosphorescence (figure 2).

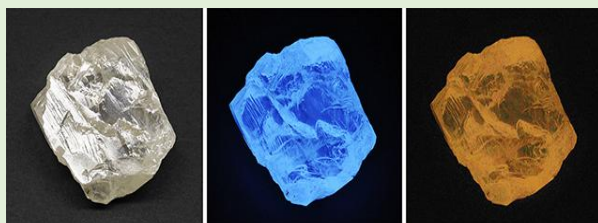


Figure 3. The Foxfire under ambient room lighting, before (left) and just after exposure to long-wave UV light (right). Photos by Jeffrey Post.

Another surprising result of exposing the Foxfire diamond to UV light is a noticeable color change from very pale yellow to a light brown color (figure 3). Fortunately, the diamond reverts to its original color in a matter of minutes in ambient room lighting.

We further examined the spectral characteristics of the UV-excited phosphorescence emission with the spectrometer previously used to study phosphorescence from the Hope and other colored diamonds (S. Eaton-Magaña et al., “[Fluorescence spectra of colored diamonds using a rapid, mobile spectrometer](#),” Winter 2007 *G&G*, pp. 332–351; S. Eaton-Magaña et al., “Using phosphorescence as a fingerprint for the Hope and other blue diamonds,” *Geology*, Vol. 36, No. 1, 2008, pp. 83–86). In the present experiments, the UV light sources employed were mineralogical short-, mid-, and long-wave UV lamps. Figure 4 displays the spectral emission between 350 and 1000 nm (approximately 10 nm resolution) as a function of time after turning off the UV light. The most intense emission resulted from long- and mid-wave UV excitation, while phosphorescence excited by short-wave UV was extremely weak.

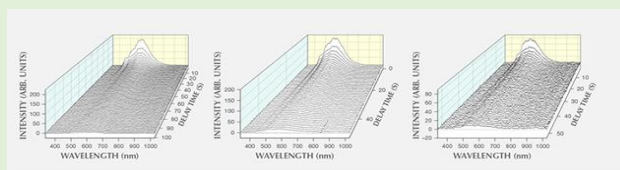


Figure 4. Phosphorescence emission vs. time after extinguishing long-wave (left), mid-wave (center), and short-wave UV excitation (right)

The spectra of the “orange” phosphorescence reported above are unusual and distinct from those of other natural and lab-grown phosphorescent diamonds we have examined. We speculate that the primary mechanism for phosphorescence in diamonds is light emission resulting from recombination of electrons trapped at ionized donors and holes trapped at ionized acceptors that are in close proximity to one another. The long time delay results from the thermal movement of the trapped electrons or holes to retrap close enough to one another (P.J. Dean et al., “Intrinsic and extrinsic recombination

radiation from natural and synthetic aluminum-doped diamond,” *Physical Review*, Vol. 140, No. 1A, 1965, p. A352–A386; B. Dischler et al., “Diamond luminescence: Resolved donor-acceptor pair recombination lines,” *Diamond and Related Materials*, Vol. 3, 1994, pp. 825–830). In the case of the Foxfire, we cannot identify as yet the nature of either the acceptors or donors involved.

Similarly, the phenomenon of the observed color change from light yellow to light brown with UV excitation and the reversal to light yellow has no detailed explanation yet. Such color changes, or sometimes a lightening of color, are often observed in natural diamonds. It is speculated that these are due to charge transfer between various defects (donor or acceptor states) within diamond. Diamond is inherently an insulator where electric charges move very slowly and their motion depends on the nature of the defects present, the temperature of the diamond, and its exposure to light. For an interesting discussion, see K.S. Byrne et al., “Chameleon diamonds: Thermal processes governing luminescence and a model for the color change,” *Diamond and Related Materials*, Vol. 81, 2018, pp. 45–53.

WILDACRES – DATES FOR SPRING SESSION

Great News! MARK YOUR CALENDAR! The dates for the Spring session at Wildacres are scheduled for May 17-23, 2021. More information will be available early next year. At this time, no dates have been set for the Fall Session.

Calendar of Events

Many events have been postponed/cancelled and/or rescheduled due to the COVID-19 pandemic.

Please check with the sponsoring club to make sure the event has not been cancelled due to the ongoing Covid-19 Coronavirus pandemic before attending any event.

Orange County Mineral Society, Inc. Annual Mineral, Gem, Jewelry and Fossil Show.

www.ocmsny.org

Saturday June 5 and Sunday June 6, 2021

10 am to 4 pm – Rain or Shine
Museum Village * 1010 Route 17M *
Monroe, NY 10950

Special Admission For Show and Museum
Adults – \$5.00 Seniors – \$3.00
Scouts in Uniform & Kids Under 12 Free

FREE Gift for kids 12 and under
*** THIS IS AN OUTDOOR EVENT ***
65 Vendors, Fun For The Entire Family

There will be lots of things to do. Immerse yourself in all things rock, mineral and fossil related. Featuring: Artisans, Craftsman, Collectors, Dealers and Exhibitors, Glass Blowing demonstrations and a Black Smith

On display: “Harry” The Most Complete Mastodon found in Harriman, NY

Extensive Local Mineral Collections Exhibits * Demonstrations * Educational Displays

New Fluorescent Mineral Display
Kids Games and Pet Rock Projects

7th ANNUAL FREE WEBELOS EARTH ROCKS:

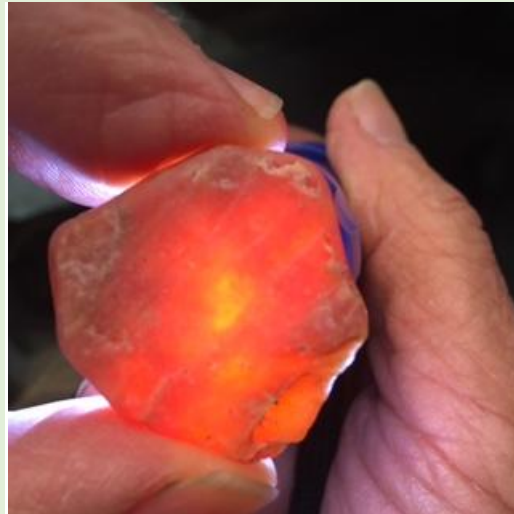
Panning for Gold and sluicing
By the Tri-State Gold Prospectors Association of America

Purse State Park -Still a great place to collect!!

Travels by Dave Lines

During a Blow Out Tide on Monday 02 November, it was witnessed that the low tide mark was TEN (yes 10) feet past normal mark! This gave a greater collection area and the possibility of walking further down the shoreline to scan areas rarely investigated. This additional pea/river gravel areas gave one a chance to look at areas very rarely seen! Lots of sand and seaweed covered the beach from the days prior stormy weather. But one always needed to remember that what you find and are carrying.... at the end of the walk must be carried back the same distance you just walked! The bucket somehow is always heavier on the return trip.

During this unusual tide condition, many beautiful Patuxent River Stones with excellent translucent color and quality were found.



. In addition to the fossils that were found, many of the beautiful Maryland State Gem, the Patuxent River Stone were plentiful--- many of excellent color and quality.

Some neat Indian artifacts were found! Four (4) choppers (2 broken) and a beautiful broken spear point that was of exquisite quality -- thin and well proportioned.

The otodus tooth was very worn. Walked a loooooong way --- past the light/daymarker on Smith Point.

As storms and strong winds are passing through the area, be aware of the possible Blow Out Tides. Dave has been constantly emailing the club members to possible "better" collecting opportunities. During these times of doing something in small groups or alone, a Blow Out Tide Event has the possibility of being an outstanding collecting event!!



COLLECTING SITES

By Rich Simcsak

W K E E R C Y R A R T N O C G
 O I E T A T S E S R U P U R C
 R D L P I C K E R I N G A E H
 F O E L K R L T Z R M V L M E
 W C Z S I S E R C R E D Y I S
 W J T B S S O W T S M A Y K T
 B U F U V A M W M Q U L C R N
 R E V I R E S O R S C E T E U
 V P H P R H U L U C K V H H T
 N V R P R N O B B N Z N N S R
 A O O Z T J L B C M T I D A I
 C F Z A U Q H E S R V A K L D
 L L I H G N I L R I T S I L G
 U N G M O R E F I E L D T N E
 V F D I X I E N N E P K H T G

Over the years the SMRMC has visited many sites to collect fossils and minerals. As you search for each site, try to remember the good times that was had by all each time we visited those in this word search!

ENJOY!!

CHESTNUT RIDGE
 CONTRARY CREEK
 DALE
 DIXIE
 GRAVES MOUNTAIN
 HERKIMER
 HK PENN
 LUCK
 MOREFIELD

MT IDA
 ODESSA
 PICKERING
 PURSE STATE
 ROSE RIVER
 STERILING HILL
 VULCAN
 WILLIS MOUNTAIN



The Southern Maryland Rock and Mineral Club

Meetings take place on the 4th 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:

SMRMC.ORG

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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