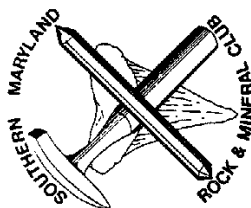




# RockTalk



# Message from the President

Alex has requested that a winning article from the AFMS newsletter competition be printed in place of the president's message this month. So the following is one of the many winners from the 2009 contest. Will yours be submitted for the 2010 contest? Do you have something you'd like to put into the running? Submit your pieces for publishing in the RockTalk!

## Junior Report -- Malachite

by Sam Anguiano (9), Lakeside Gem & Mineral Club

From: Geode, 9/08  
(10th Place – AFMS Junior Articles, Under 12)

Malachite is a carbonate mineral known as "copper carbonate." It

has the formula  $Cu_2CO_3(OH)_2$ .

Malachite is banded light and dark green and is normally found with copper ore deposits. It can be found in large dull masses or in delicate silky crystals. It has a hardness of 3.5 to 4, a specific gravity of 3.9, and weakly effervesces in acid.

Malachite is fairly common and is found around the world. Large quantities are found in the Congo, Zambia, Tsumeb, Namibia, Ural Mountains, Russia, Mexico, Broken Hill, New South Wales, England, Lyon and in the southwestern United States, especially in Arkansas and Arizona. In Timna, Israel, called King Solomon's Mines, they have been mining and smelting malachite for over

3000 years.

Malachite contains copper and can be melted down to get the copper. It is also used for jewelry, to make green paint or color things green, and to make green statues. It occurs wherever copper ore deposits are in the rain. Because it is bright green and easy to see, early American miners found copper mines by looking for malachite.

The "Tazza" is one of the largest pieces of malachite in North America. It was a gift from Tsar Nicholas II, a Russian leader. It stands in the Linda Hall Library in Kansas, Missouri.

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### Meetings

...are held the 4th Tuesday of each month at 7:00pm.

Clearwater Nature Center 11000 Thrift Road  
Clinton, MD.

For more information, call Michael at (301) 297-4575.

# Upcoming Shows and Events

Ralph Gamba

**November 7 – 8:** Gemarama 2009. Tuscarora Lapidary Society. CFS, The School at Church Farm, Exton, PA. North side of Business Route 30, ½ mile west of Frazer-Rt 30 exit of Route 202  
Saturday 10 AM-6 PM, Sunday 10 AM to 5 PM \$6 admission

**November 14:** Fall Rock Swap; Richmond Gem & Mineral Society  
Ridge Baptist Church Meeting Hall, 1515 East Ridge Rd.  
Sat. 9-3; free admission

**November 21 & 22:** 18<sup>th</sup> Annual Gem, Mineral and Fossil Show.  
Student Union II Building, George Mason University Campus.  
Braddock Rd and Route 123, Fairfax, VA.  
Saturday 10-6, Sunday 10-4. Adults \$4.00, Seniors & Teens \$3.00,  
Children 12 and under free.

**November 21 – 22:** Gem Miner's Holiday, Lebanon, PA.  
Saturday 10-5, Sunday 11-4. Admission \$5.00, Children under 12  
free. Lebanon Expo Center, Route 72. [www.gem-show.com](http://www.gem-show.com). 717-  
838-8870

**December 12:** Fall Festival of Fine Minerals  
10 AM to 4 PM.  
Holiday Inn, 9615 Deereco Road, Timonium, MD. I-83, exit 17

**March 6-7, 2010:** Delaware Mineralogical Society.  
Delaware Technical & Community College, Churchmans Road (Rt.  
58), Newark (Stanton) DE @ I-95 exit 4B.  
Saturday 10-6, Sunday 11-5.  
Admission adults \$6.00, Seniors \$5.00, 12-16 - \$4.00

If anyone has information on any other local shows or rock events,  
contact Ralph Gamba at [rgamba@verizon.net](mailto:rgamba@verizon.net), so they can be in-  
cluded in this list.

## SMRMC OFFICERS

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\*\*\*If corrections or additions are  
needed, please contact Rocktalk Editor

# Minutes...

Polly Zimmerman

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September 22, 2009

The meeting was called to order at 7:10 pm.

**Treasurer:** The balance is \$346.00 due to proceeds from the “rock” auction.

**Fieldtrips:** Two trips are planned. Make sure you **check your email** for details. Fossil trip on October 10<sup>th</sup> and October 17<sup>th</sup> Vulcan-Manassas Quarry are up-coming trips.

There will be several possibilities to go to Amelia Va.

**Membership:** No new members were present.

**Programs:** The calendar is full for the rest of the year.

**Newsletter:** Corrections to email .... See Jessica.

**Web Master:** Nothing new to report.

**Old Business:** Plans for the annual roc show are progressing.

**New Business:** Committee was formed to discuss slate of officers for 2010.

The meeting was adjourned at 7:30 pm for snacks and program.

# Willis Mountain—Rare Crystals Found on September Club Trip

Dave Lines

---

A gorgeous morning --- cool, crisp, clear and bright --- it was the perfect start to a four hour field trip at Willis Mountain kyanite mine, near Dillwyn in Buckingham County, Virginia. When we (Lorna Larson, Anna Baden and I) arrived at 8:30 a.m., about 100 rockhounds from 6 clubs from Virginia and Maryland had already gathered in the office parking lot to sign a release and hear the Safety Brief by Mike Morris of the Kyanite Corporation.

Willis Mountain is a very interesting location. Geologically, it is classified as a “monadnock” (mo-nad-nok) --- “a hill or mountain of resistant rock surmounting a fairly level peneplain [an almost flat, eroded area]”. Although mined primarily for kyanite for many years, the long list of minerals found here is similar to those found at Graves Mountain, Georgia, which is famous for its spectacular rutile crystals. Except --- Willis Mountain is *without* the rutile crystals. Although Mike Morris says that the material mined contains about 1% “titanium dioxide”, it is microscopic and dispersed as an accessory mineral. In other words, macro crystals of rutile are seldom, if ever, found at Willis Mountain.

This fact changed during the field trip on September 19, 2009.

We spent the first two hours of the trip on Willis Mountain itself. The large group spread out to every part of the heavily mined mountain. During that time, I saw or found the following minerals:

- solid massive kyanite (gray, white, red and bluish)
- blue bladed kyanite crystals, both loose and embedded in matrix
- visible pyrite in massive kyanite and quartz
- botryoidal and surface coatings of hematite, often with colorful iridescence
- apatite, light yellow-green flattened crystals up to 2 inches long

About 11 a.m., we all moved our vehicles a few miles away to the newer East Ridge mining area, where we spent the remainder of the trip. There, we divided into 2 groups. Lorna, Anna and I went with those exploring the northern portion of the mine. Following a wide road, we drove our vehicles into a pit that was several hundred yards long, 100 yards wide and 100 feet deep. Kyanite was abundant, but usually massive in colors of white, gray, red and, less frequently, in blue. Most of the rock contained a great deal of visible pyrite (iron sulfide) This abundant and widely dispersed pyrite, in turn, has led to the formation of sulfuric acid throughout the mined area and in the ponds inside the pit. Even elemental sulfur, which had been released from the pyrite, was visible on the rock surfaces in parts of the highwalls. “Red” was a common color of the loose rock --- especially in the northernmost portion of the mine. Shiny red and white mica were also common. Anna found a small pocket of green mica --- or fuchsite --- on a kyanite boulder. I heard later, from others, that the fuchsite was more plentiful in the other (southern) portion of East Ridge.

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# Willis Mountain

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About noon, a small group of Lynchburg club members found an area near the central part of the western edge of the northern pit of East Ridge that contained embedded nodules of solid pyrite up to 2 inches across. This material seemed to exist in rocks which were primarily massive red colored quartz, so we started looking for red quartz in the loose rocks laying in that general vicinity. When we found one, we would break it apart with a sledge hammer to determine if pyrite was inside. In this scenario, I had an advantage --- a 20 pound sledge hammer.

At 12:30 p.m. or so, when John Hatcher (Lynchburg Club) and I were trying locate a boulder of this red quartz containing pyrite, he spotted a large red quartz boulder that showed a ½ inch diameter metallic crystal which was sheared off. With a 6 foot steel bar, we managed to move the rock out of a pile to flat ground, where we could work on it.

After several whacks with a 4 pound hammer and then with my 20 pounder, the rock finally split open --- revealing a beautifully terminated metallic crystal of a reddish silver color. Then it dawned on us --- it was rutile!!! Very nice at ½ inch diameter and 1 inch long. Further splitting the rock, we found a second rutile crystal about the same size. Then we found a third, although smaller diameter, which John gave to me. We broke apart several more pieces of the red quartz rocks without success. Just before leaving, I picked up several smaller pieces of the broken red quartz scrap --- just in case.

Later, back home, I carefully and methodically split more of this red quartz with a 12 ton shop press which I had converted to a heavy duty mineral trimmer of sorts. My persistence paid off when I found another rutile crystal --- luckily, it was perfectly terminated --- about 3/8 inches in diameter and 1 inch long.

That rutile crystal is still firmly embedded on the surface near the center of a chunk of red quartz, where I will leave it. A very special and rare find --- certainly, my personal best specimen to date of any mineral from Willis Mountain.



# Fossil Fern Trip to St. Clair, PA

Carole Raucheisen

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On Saturday, October 10, with dark rain clouds overhead, we set out for St. Clair, Pennsylvania, to join the Northern Virginia Club to collect fossil ferns. As Ted, the trip leader, promised it was a long, LONG, LONG drive. But, the rain clouds soon gave way to bright sun alternating with a few puffy white clouds.

When we arrived at the parking spot, we were glad to see Tom and Joy from our club who had arrived just a few minutes before us. Then Paul and his 14 year-old son, Alec, from the Northern Virginia club arrived. After gearing up, and not seeing anyone else, we decided to go it alone.

As we hiked down the rocky path, we debated which path Ted had said to take. First we went straight, and then at another junction, we went left, partly, perhaps, because to the right of the path, we could hear gunfire from the nearby firing range. Tom, or was it Joy, said maybe we needed bullet-proof vests instead of hard hats.

At the fossil beds we were fortunate to have Paul and Alec with us as they had been there before. Alec soon became our resident expert, giving us a printed explanation of the fossil site, and helping us identify the various finds. His “rocksforbrains” email address is not only witty, but well deserved.

The fossil beds here are part of the 300 million-year-old Llewellyn Formation, a member of the Pennsylvania epoch of the Carboniferous period. The rock the fossils are found in is a black, fine-grained shale. The plant fossils themselves are made primarily of a soft, white aluminum silicate mineral called pyrophyllite, which is chemically similar to talc. The chalky-white coating on these fossils is what makes ferns from this site distinctive throughout the world as being from St. Clair.

When the ferns originally fossilized, their remains were replaced by the yellow iron sulfide mineral pyrite. As the temperature and pressure built up from being compacted into sedimentary rocks, the pyrite decayed and leached sulfur into the surrounding rock, and the pyrite was replaced by pyrophyllite. Some fossils still retain some of the residual sulfur, and are yellowish instead of white.

Fern fossils were abundant in the exposed bedrock, but it was difficult to get them out in one piece. Shale doesn't break into clean, slate-like patterns, rather it crumbles out. We had pretty good luck, however, finding them loose on the ground, but it was hard to reduce their size. In trying, I broke many pieces right through the middle of the specimen. I soon learned to chip off little pieces from the thinnest edges and this worked better to reduce the matrix.

We collected several varieties of ferns: Alethopteris, Neuropteris, Pecopteris, and Sphenopteris (according to Alec), but I'm not sure I could identify each specific kind. Also, we collected horsetail, Equisetum, flowers and trunk, and maybe some fern/horsetail tree bark.

# Fossil Fern Trip...

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In early afternoon, Ted and a few others arrived with a large gas-powered circular saw. They had spent the morning getting the saw, and then they spent the rest of the afternoon extracting a large fossil-bearing slab (to create a table top), creating plumes of smoke that sent everyone running for cover. When we left to visit the second sight , they had freed the 2 ft. x 3 ft. x 4" slab and were trying to figure out how to get it to their vehicle. Not even passing dirt bike riders escaped their realm of possibilities.

Getting back to the car was an adventure. Loaded down with more than we could carry, naturally, we slogged back through the rocky path, now more like three-quarters of a mile away since we had walked on the fossil bed away from the car. And, I can tell you that a box full of fossils strapped to a luggage cart with 3 inch wheels doesn't roll easily in that terrain. I thought we had a hard time returning until we saw Tom and Joy (who had left way before us) come walking up behind us. They had taken a wrong turn and had been wandering around in the woods for way too long, sometimes to the sounds of a barking dog near a house.

The second site, now mostly covered by big-box stores, was nonproductive. We climbed a steep hill behind Wal-mart, but found only a few inferior specimens of some unknown somethings. We saw people high on the hill opposite us, but were too tired by that time to attempt another site.

As late afternoon turned into early evening, and the cold crept in, we thought of the long, LONG, LONG drive home, and how it had definitely been worth it.





# ROCKTALK

Clearwater Nature Center  
Maryland-National Capital Park &  
Planning Commission  
11000 Thrift Road



**We're on the web:**  
[www.freewebs.com/smrmc/](http://www.freewebs.com/smrmc/)

## Message from the Editor

As the weather gets colder, we find ourselves looking toward the close of another year. As our year ends, I find myself looking back at this year's newsletters. I am already narrowing down articles to use for the 2010 Bulletin Contest. I am hoping to get more in the next couple of months.

If you have anything that you are interested in finding out more information about, please go ahead and write up an article about it. Chances are, someone else is interested too!

Looking forward to reading!  
Happy Hunting everyone!!!



Hope he's not getting paid for this!

Photo courtesy of Dave Lines

### PROGRAMS/ REFRESHMENTS

September	<u>Program:</u> Ralph Gamba <u>Refreshments:</u> Jessica T. and Polly Z.
October	<u>Program:</u> Geology of Maryland <u>Refreshments:</u> Lorna and Mel Larson
November	<u>Program:</u> _____ <u>Refreshments:</u> Paul & Linda Holden
December	Holiday Party