



# Southern Maryland Rock and Mineral Club



## ROCK TALK

## FEBRUARY 2024

**26 MARCH 2024 at 1900 (7 PM)**  
Meeting at OLD WALDORF SCHOOL  
(next to the Waldorf JayCees Hall)  
North of the RT 301 / RT 5 Intersection

### MARCH PROGRAM

A "volunteer and program" should be named shortly so be ready for that in March..

If you are desirous of doing a program, PLEASE contact Jill soonest!

### IN THIS EDITION

- Calvert Marine Museum Events
- Rare Earth Minerals found in Wyoming
- Total Solar Eclipse in April 2024
- Branches of Geology

### MINUTES

Old Waldorf School, Waldorf, MD  
Without a Monthly meeting, there are no minutes to be published.

### Editor's Ramblings

Appears Punxsutawney Phil saw his shadow and is predicting an early Spring. Some sources have placed his accuracy of predictions is about 40%. So he is as good as some of the weather guessers we all currently have. Take care when collecting, Mother Nature is fairly "fickle" at this time of year.



We have had some hard weather lately that has caused coastal flooding along the Bay and Potomac River. Purse State Park has had some drastic erosion as trees and cliffs have fallen off the land and onto the shore. Be very careful when hunting for ~~rabbit~~ shark's teeth.....

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2024 PROGRAMS/REFRESHMENTS SCHEDULE		
MONTH	PROGRAM	REFRESHMENTS
26 MAR 2024	TBD	Vycki and Bernie
23 APR 2024	Quarry Safety, Rich Simcsak	Trisha Y.
28 MAY 2024	TBD	Teresa and Alton
25 JUN 2024	TBD	Kenny S.
23 JUL 2024	TBD	Kurt and Sue
27 AUG 2024	CLUB AUCTION	POT LUCK
24 SEP 2024	TBD	Jill
22 OCT 2024	TBD	Polly, Al, & Carole
26 NOV 2024	TBD	TBD
TBA DEC 2024	Holiday Party	POT LUCK

**Program Volunteers, Dates TBD:**

1. Kenny Jameson – Local Rocks and Minerals, i.e Patuxent River Stones
2. Kenny Sams – Opals
3. Diane Etherton – Maryland Geologic Provinces
4. Jill Lee – Summer Astronomy

Dates are tentative. Changes are possible due to a multitude of reasons that are always beyond our control.

**REMINDER**

**SUNDAY 10 MARCH - Clocks SPRING FORWARD**

**CALENDAR OF EVENTS**

**2-3 March 2024—WILMINGTON, DELAWARE:** Annual show; Delaware Mineralogical Society; Double Tree by Hilton, 4727 Concord Pike (Rt-202); Sat. 10-5, Sun. 11-5; Seniors (60+) \$5, Adults (18 - 59) \$6, Juniors (12 to 17) \$3, Scouts in Uniform & Children under 12 Free when accompanied by a paying adult; Family Friendly show features educational exhibits of mineral, lapidary and fossil specimens; a roster of fine dealers of minerals, fossils, gems, jewelry; raffles of interesting specimens and a children's area, where youngsters may purchase inexpensive mineral and fossil specimens; contact Christine Verdi - (Show Chair); Email: 1DMS.President@gmail.com ; Website: www.facebook.com/DEMineralShow

**8-9 March 2024—RICHBORO, PENNSYLVANIA:** Annual show; Leidy Microscopic Society; Advent Lutheran Church, 45 Worthington Mill Rd, 916 Senator Rd; Fri. 12-6, Sat. 9-6; \$25 for half table ; \$40 for full table; visitors fee - \$5 on Friday, \$10 on Saturday and includes lunch; Micromount Symposium-two guest speakers, silent auctions, free giveaways, sell, trade, swap micromounts, lunch on Saturday included; contact Donald McAlarnen, (610) 247-5097; Email: donmcalarnen@outlook.com; Website: https://leidymicroscopical.com

**16-17 March 2024 - GAITHERSBURG, MARYLAND.** 58th Annual Gem, Mineral, Fossil & Jewelry Show; Sponsored by the Gem, Lapidary & Mineral Society of Montgomery County, MD. Saturday 10-6 and Sunday 11-5. Ages 12 and over \$6. Children (11 and Under) are FREE. Scouts in

Uniform, 4H youth with 4H Identification are FREE. More info at: [www.glmsmc.com](http://www.glmsmc.com)

**22-24 March 2024 - VIRGINIA BEACH, VA -** Treasures of the Earth. Fri Noon - 6PM; Sat/Sun 1000 to 5PM Located at 1000 19th Street, Virginia Beach Convention Center, Virginia Beach, VA. 23451 Website: <http://treasuresoftheearth.com>

**23-24 March 2024 - CHICOPEE, MASSACHUSETTS** Connecticut Valley Mineral Club presents the 2024 Western Mass Mineral Show. Sat. 9:30-5, Sun. 9:30-3:30 Admission \$5. Children 12 and under Free with paid adult. Scouts in uniform Free with paid adult. Free mineral specimen for children. — Featuring door prizes, vendors, enthusiasts, mineral experts, and collectors.

**8-9 June 2024 - WEST FRIENDSHIP, MD** Retail & Wholesale Vendors with Wholesale Only Trade area. Hourly Door Prizes and Grand Prize Drawing. \$6 Admission Children under 12 Free. Howard County Fairgrounds, 2210 Fairgrounds Road, West Friendship, MD 21794. [www.gem-show.com](http://www.gem-show.com).. Website will have updates. 301-807-9745

**ODDS AND ENDS**

**EDITORS NOTE:** *I may forward an email from ROCKCHASING.COM if the article(s) are worthy for sharing with the club members. IF anyone gets to their "FULL POINT" with too much information - PLEASE tell me and I will stop it's dissemination to those members not wanting the email.*

**Rock and Mineral Shows -**

<https://www.rockandmineralshows.com>

**The - Vug**

<https://the-vug.com/rock-and-gem-clubs>

**The Hoba Meteorite, Namibia: Largest Known Meteorite on Earth**

<https://geologyscience.com/gallery/geological-wonders/the-hoba-meteorite-namibia-largest-known-meteorite-on-earth/>

**Shark fossils from Alabama, Kentucky national park lead to discovery of new species**

The discovery was made through the Paleontological Resources Inventory at Mammoth Cave National Park in southern Kentucky.

<https://www.foxweather.com/earth-space/shark-fossils-alabama-kentucky-mammoth-cave-national-park-discovery-new-species>

**America's \$232 billion lithium industry could drain billions of gallons of water from Colorado River and residential wells because Civil War-era law doesn't limit how much mines can use**

<https://www.dailymail.co.uk/sciencetech/article-13030597/America-lithium-industry-drain-water-resources-Colorado-river.html>

**Dino-mite discovery! Scientists find a new species of pterosaur that roamed the Isle of Skye 168 million years ago**

<https://www.dailymail.co.uk/sciencetech/article-13047015/dinosaur-pterosaur-isle-skye-168-million.html>

**CALVERT MARINE MUSEUM (CMM)****EVENTS****Universal Coprolite Day**

Calvert Marine Museum

19 February 2024

1000 - 1500

Join us for the third annual celebration of fossilized poop, otherwise known as coprolites. Stations featuring fossilized feces and the stories they tell will be dispersed through our galleries. The event will also feature coprolites in the making...modern feces, some with a twist and a new Scats and Tracks activity. Included with the museum admission.

**First Fossil Friday**

Calvert Marine Museum

1300 - 1630

This is done every First Friday of the month except when there is a concert scheduled on that day.

Fossil Hunters, bring your fossil finds from the Calvert Cliffs or other local areas to be identified!! This service is provided for free; however, admission fees apply for access to CMM exhibits.

**FACEBOOK Page Is Growing!!  
Southern Maryland Rock and Mineral Club**

Kurt is maintaining our ever growing FACEBOOK Page and is looking for pictures of the club members collections and description of where those items were collected. This social media effort is helping share what this club is doing and can help it expand even further.

If you are not "FACEBOOK Friendly" or "Computer Savy", Kurt is happy to assist you in navigating these "internet waters" safely to share your stories.



**'Beyond our wildest dreams': 2.34 BILLION metric tons of rare earth minerals discovered in Wyoming that could make US 'world leader'**

- America is poised to become the leading producer of rare earth minerals
- Rare earth minerals are crucial for smartphones, hybrid cars and military tech

By [STACY LIBERATORE FOR DAILYMAIL.COM](#)

PUBLISHED: 16:35 EST, 8 February 2024 |

UPDATED: 16:38 EST, 8 February 2024

<https://www.dailymail.co.uk/sciencetech/article-13062273/rare-earth-minerals-wyoming-green-energy-material.html>

The US could soon surpass [China](#) as the world leader in rare earth minerals after more than 2.34 billion metric tons were discovered in [Wyoming](#).

American Rare Earths Inc announced that the reserves near Wheatland dramatically surpass the Asian nation's 44 million metric tons, saying it 'exceeded our wildest dreams' after drilling only about 25 percent of the property.

The company has a stake in 367 mining claims across 6,320 acres of land in the Halleck Creek Project, along with four Wyoming mineral leases on 1,844 acres on the same project now called Cowboy State Mine.

The types of minerals at the site are used in smartphones, hybrid car motors and military technologies - among others.



**American Rare Earths conducted the first drilling in March 2023, which determined there were 1.2 million metric ton estimates in northeastern Wyoming (map shows mining site)**

As much as 95 percent of processed rare earth minerals come from China - and the US imports 74 percent of its supply from the nation.

However, China recently announced a ban on rare earth extraction in December 2023.

Don Swartz, CEO of American Rare Earths, stated following the nation's announcement: 'China is driven to maintain its market dominance. 'This is now a race.'

Now, two months later, Swartz and his team are working to break China's lock on the market.

American Rare Earths conducted the first drilling in March 2023, which determined there were 1.2 million metric ton estimates in northeastern Wyoming, the [Cowboy State Daily](#) reported.

But a second attempt in the fall uncovered 64 percent more.

These results are illustrative of the enormous potential of the project when the resource increased by 64 percent during a developmental drilling campaign, which increased measured/indicated resources by 128 percent,' Shwartz said in a statement this week.

'Typically, you'll see the resource decrease as infill drilling takes place – instead, we're seeing the opposite, with only 25 percent of the project being drilled to this point.

The rare earth minerals uncovered at the site included oxides of neodymium, praseodymium, samarium, dysprosium and terbium.

Magnets made from neodymium are used in hard disc drives and mobile phones, while praseodymium is used in high-strength alloys in aircraft engines.

Dysprosium is used to make control rods in nuclear reactors, and terbium is used in low-energy light bulbs and mercury lamps.



**The rare earth minerals uncovered at the site included oxides of neodymium, praseodymium, samarium, dysprosium and terbium**

The extraction process would use an open pit on the surface, which is the most common method used throughout the world for mineral mining.

One example is the particularly massive Bingham Canyon mine near Salt Lake City, Utah, which is about three-quarters of a mile deep and about 2.5 miles wide.

While open-pit mining is an environmental hazard, it is still the fastest way to extract minerals - companies can pull as much as 20,000 tons a day.

The gaping hole in the ground is also safer for workers, compared to tunnels that go miles below the surface.

American Rare Earth is not the only company in the new gold rush' out west, as US-based Ramaco Resources has a stake near Sheridan, Wyoming that could be worth around \$37 billion.

Ramaco Resources CEO Randall Atkins told Cowboy State Daily: 'We only tested it for 100, 200 feet, which is about the maximum you'd ever want to do a conventional coal mine.

'Much deeper than that, and the cost would be prohibitive to mine for \$15-a-ton coal.

But there are seams that go down almost to 1,000 feet. So, we're drilling down into the deeper levels to see what's down there.'

Ramaco estimated in May that it had 800,000 metric tons of rare earths, but then announced in December that amount was up to 1.2 million.

Neodymium, praseodymium, dysprosium and terbium have also been found at the site - but the amount does not compare to what American Rare Earth has uncovered.



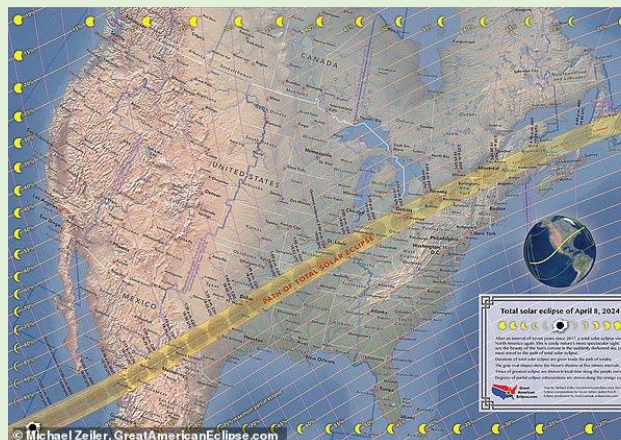
**Purse State Park Beachline**

**'Event of the decade': Total Solar Eclipse will block out the sun for over 30 million people this year - here's why it will be so special**

- The rare stargazing spectacle briefly turns the outdoors dark during daytime
- **READ MORE:** The [astronomical events of 2024](#) that you won't want to miss

By [JONATHAN CHADWICK FOR MAILONLINE](#)

**PUBLISHED:** 04:45 EST, 28 January 2024 |  
**UPDATED:** 11:59 EST, 28 January 2024



<https://www.dailymail.co.uk/sciencetech/article-13002089/Event-decade-Total-Solar-Eclipse-block-sun-30-million-people-year-heres-special.html>

Skygazers are gearing up for what is being described as one of the biggest astronomical events of the decade.

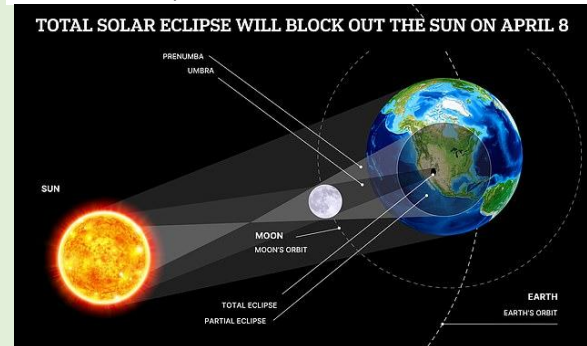
The total solar eclipse – when the moon completely blocks the face of the sun – is taking place in the early afternoon of April 8.

The spectacle – which briefly turns the outdoors dark in daytime – will be visible for an estimated 32 million people along a narrow strip of North and Central America.

It will mark the first total solar eclipse visible anywhere in the world since

December 2021, and [the first seen from the US since August 2017](#).

Although the total solar eclipse visible won't be seen from the UK, a partial solar eclipse – where just a chunk of the sun is covered – could be visible in western areas like Cornwall, Wales and Ireland.



**A total solar eclipse happens when the moon passes between the sun and Earth, completely blocking the face of the sun**

Dr Greg Brown, astronomer at the Royal Observatory Greenwich, said: 'For observers in North America, this is your best chance to see a total solar eclipse this decade.'

'Nothing quite compares to the day-turned-night that comes from a total eclipse.'

On April 8, the total solar eclipse will be visible along a 'path of totality', starting in Mexico and moving through Texas where it will travel up to New England and finish in Canada.

In any one location along the path of totality, people will see a partial eclipse followed by the total eclipse, and then a partial eclipse again.

Whatever your location along the path of totality, the total eclipse should be visible for about four minutes.

'North America won't lie in the path of totality of a solar eclipse again until 2033 when an eclipse will graze Alaska,' Dr Brown added.

'The rest of the US and Canada will have to wait for 2044 and 2045 when there will be another pair of solar eclipses to enjoy.'

Like any eclipse, it's important not to look directly at the sun with the naked eye while the event is happening – not even through sunglasses, binoculars or a telescope.

A simple pinhole projector, solar eclipse viewing glasses, which can be purchased online, or special solar filters are much safer.

According to Dr Brown, a total solar eclipse happens when the moon and the sun line up 'perfectly'.

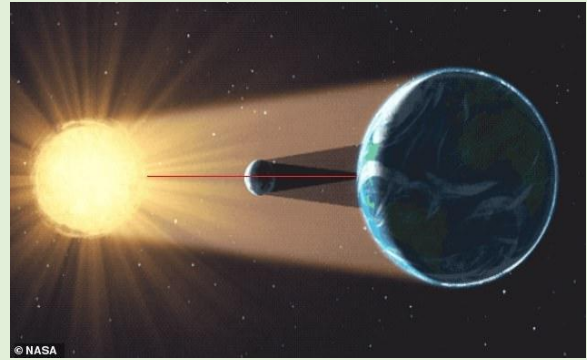
He told MailOnline: 'It's only when it perfectly lines up, so that the centre of the sun and the centre of the moon pass in front of one another – that's when you get a total solar eclipse.'

Where the total solar eclipse is visible is known as the point of totality – but this is only the very centre of the moon's constantly-moving shadow.

Elsewhere in the moon's shadow, further away from the centre, a partial solar eclipse will be visible on April 8 instead.

'The partial solar eclipse is because the moon's centre is slightly above or slightly below the sun's centre, from our point of view,' said Dr Brown.

As Dr Brown explains, another type of solar eclipse – known as the 'annular solar eclipse' – can also occur when the sun and moon are perfectly lined up (as viewed from Earth).



**Snapshot during a total solar eclipse: Red line shows the perfect alignment of the centre of the sun (left) and the centre of the moon (middle) with the Earth (right). On Earth, the very centre of the moon's shadow sees a total solar eclipse (where the whole of the sun is blocked). The rest of the shadow sees a partial solar eclipse (where part of the sun is blocked). People in the rest of the shadow see a partial solar eclipse because the moon's centre is slightly above or slightly below the sun's centre, from the viewer's perspective. In effect, part of the sun 'peeps out' because the sun isn't totally blocking it**

An annular solar eclipse is when the moon doesn't completely cover the sun, resulting in a halo of sunlight known as a 'ring of fire' visible around the silhouette of the moon.

Whether we get an annular or total solar eclipse depends simply on the distance of the moon from Earth, Dr Brown said.

Don't forget that the moon's orbit around Earth is elongated and not perfectly circular – so there's points when it's closer to us than normal.

On April 8, because the moon will be at the closest point to Earth in its orbit (known as 'perigee'), it will appear bigger – big enough to block out the whole of the moon.



In contrast, during an annular solar eclipse, the moon is not at perigee.

'In an annular eclipse, the moon is too far away, so it's not quite large enough to block the entirety of the sun – even if everything lines up perfectly,' Dr Brown told MailOnline.

It's worth remembering that the moon is constantly moving – and therefore so will its shadow over Earth on April 8.

The whole shadow, about 4,000 miles wide, will be travelling at around 1,500 miles per hour.

Sadly for Brits, it's unlikely that much of the UK will see even a partial eclipse on April 8.

In places like Ireland and perhaps Cornwall, Wales and the west of Scotland, a small percentage of the sun – about 5 per cent – will appear blocked by the moon.

But places like London, and other regions further east into mainland Europe, have no chance of witnessing the event.

'For the most of the UK, we won't see anything at all, partly because the sun will be below the horizon from our point of view,' Dr Brown said.

Unfortunately, the next total solar eclipse isn't visible in the UK for another 66 years.

Occurring on September 23, 2090, it will be the first total solar eclipse visible from Britain since August 11, 1999, and the first visible from Ireland since May 22, 1724.

After April 8, the next solar eclipse is an annular solar eclipse on October 2, but it will only be visible from the southern tips of Argentina and Chile, as well as Easter Island in the southeastern Pacific Ocean.

Other parts of South America including Brazil, Ecuador, Paraguay and Peru as well as Hawaii and New Zealand should see a partial solar eclipse that day.

## How to watch a solar eclipse safely

It is never safe to look directly at the Sun, even if the Sun is partly or mostly obscured.

When viewing a partial solar eclipse, you must wear solar viewing or eclipse glasses throughout the entire eclipse if you want to face the Sun.

Solar viewing or eclipses glasses are NOT regular sunglasses.

Regular sunglasses are not safe for viewing the Sun.

If you are in the path of a total solar eclipse, you can take off your solar viewing or eclipse glasses only when the Moon completely blocks the Sun.

If you don't have solar viewing or eclipse glasses, you can use an alternate indirect method, such as a **pinhole projector**.

Pinhole projectors shouldn't be used to look directly at the Sun, but instead to project sunlight onto a surface.

## Solar eclipse: Types

**Total:** Moon completely blocks out the sun, casting a shadow on Earth

**Annular:** Moon doesn't completely cover the sun, resulting in a halo of sunlight known as a 'ring of fire' visible around the silhouette of the moon

**Partial:** Sun is only partially covered by the moon, making it look like the sun has had a 'bite' taken out of it

**Hybrid:** Combination of a total and an annular solar eclipse



### 58<sup>th</sup> Annual Gem, Mineral, Fossil & Jewelry Show

Date/Time: **March 16-17, 2024** Saturday 10-6 and Sunday 11-5  
 Location: **Montgomery County Fairgrounds; Building #6**  
 16 Chestnut St. Gaithersburg MD 20877



**Featuring:**

Hourly door prizes	20+ vendors of minerals, beads, fossils, gems, and jewelry
Gold panning	40+ exhibits by club members, including junior exhibits
Fluorescent minerals	Two floors of everything mineral related
Raffle prizes	Mini Mine, free minerals, and activities for children
Free parking	Demonstrations of faceting, micromineralogy, jewelry making, and physics

Children (11 and under) Free! Ages 12 and over \$6  
 Scouts in Uniform Free! 4H youth with 4H identification Free!  
 More info at: [www.glmsmc.com](http://www.glmsmc.com)

**Show this flyer for  
 \$1 off admission price**  
(applies to each member in your group)

## BRANCHES OF GEOLOGY

Geology is the scientific study of the Earth, its materials, processes, and history. It is a broad field that can be subdivided into several branches, each focusing on specific aspects of the Earth's composition, structure, and history. Here are some of the main branches of geology:

1. **Physical Geology:** This branch deals with the study of Earth's materials, including [minerals](#) and [rocks](#), and the processes that shape and modify the Earth's surface, such as [weathering](#), erosion, [plate tectonics](#), and volcanic activity.
2. **Mineralogy:** Mineralogy is the study of minerals, their properties, crystal structures, and occurrences in nature. Mineralogists identify and classify minerals based on their physical and chemical characteristics.
3. **Petrology:** Petrology focuses on the study of rocks, their origin, formation, classification, and the processes that [lead](#) to their transformation from one type to another.
4. **Structural Geology:** Structural geologists study the deformation of rocks and geological structures like [faults](#) and [folds](#), seeking to understand the forces that cause these deformations and the implications for Earth's crust.
5. **Sedimentology:** Sedimentology is the study of [sedimentary rocks](#) and the processes involved in their formation, including deposition, transportation, and diagenesis. It often provides insights into past environments and Earth's history.

6. **Stratigraphy**: Stratigraphy involves the study of rock layers (strata) and their chronological sequence, helping to establish a relative and absolute timeline of Earth's history.
7. **Geomorphology**: Geomorphologists investigate the [landforms](#) and landscapes on Earth's surface, studying how they are shaped by geological processes such as erosion, weathering, and tectonics.
8. **Volcanology**: Volcanology is the study of [volcanoes](#), volcanic processes, and volcanic landforms. It involves understanding volcanic eruptions, magma composition, and volcanic hazards.
9. **Geophysics**: Geophysics applies physics principles to study Earth's interior and its physical properties, including [seismicity](#), gravity, magnetic fields, and electrical conductivity.
10. **Geochemistry**: Geochemistry examines the distribution and behavior of elements and isotopes within the Earth's crust and how these impact geological processes.
11. **Paleontology**: Paleontology deals with the study of past life through [fossils](#), helping to reconstruct the history and [evolution of life](#) on Earth.
12. **Environmental Geology**: Environmental geologists assess the interaction between geology and the environment, studying natural hazards, groundwater resources, and human impact on Earth's systems.
13. **Hydrogeology**: Hydrogeologists study the distribution and movement of groundwater in the subsurface and its interaction with geological formations.
14. **Engineering Geology**: Engineering geologists apply geological principles to civil engineering projects, assessing geological hazards and ensuring the stability of structures.
15. **Planetary Geology**: Planetary geology focuses on the geology of other celestial bodies in the solar system and beyond, including planets, moons, asteroids, and comets.

These branches often overlap and complement each other, contributing to a comprehensive understanding of Earth's past, present, and future. Geologists use their knowledge to address various challenges, from resource exploration to environmental conservation and hazard assessment.

Found at <https://geologyscience.com/geology-braches/>

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**The Southern Maryland Rock and Mineral Club**  
Meetings take place on the 4<sup>th</sup> Tuesday of each month at  
7:00pm  
Held at the OLD WALDORF SCHOOL  
Next to the Waldorf JayCees Hall  
3074 Crain Highway, Waldorf, MD 20601  
North of the RT 301 / RT 5 intersection  
We're on the web: [SMRMC.ORG](http://SMRMC.ORG)

<b>SMRMC OFFICERS</b>	
<b>PRESIDENT</b> Tim Smith	
<b>Programs / Vice President</b> Jill Lee	<b>Membership / Vice President</b> Vycki Borgnis
<b>Secretary</b> Teresa Jones	<b>Webmaster</b> Bob Davidson
<b>Field Trip Chairman</b> David Lines	<b>Treasurer</b> Greta G
<b>Rock Talk Editor</b> Rich Simcsak	<b>FACEBOOK Coordinator</b> Kurt Knower

**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

