Southern Maryland Rock and Mineral Club

Rock Talk

January, 2016

Message from the Acting President

Bob Davison

Wherever you live or travel, geology is everywhere. Wouldn't you like to know how to read the rocks and the landscape? No other science deals more practically with the world on which we live, telling us where to dig a well; when to add lime to soil; how gold, oil, and other valuable minerals are formed and where to find them; what kinds of structures are safest in an earthquake zone; and why some active volcanoes are deadlier than others. During the course of the year our Programs Chairman, Carole Raucheisen, will be presenting half-hour lectures by Professor John J. Renton, an award-winning educator at West Virginia University. It's a program called The Nature of Earth: An Introduction to Geology. Field Trips are a major activity for the Club. Dave Lines recently sent a survey to all of us asking about our preferences. So far, he has only received a few responses. It will make his job much easier if you let him know the places you would like to go. After 25 consecutive years of holding an annual Mineral, Jewelry & Fossil Show we will not be hosting one this year. The decision was made by the Chief of the Natural and Historical Resources Division. In his email he stated "I am ok with meeting and discussing the pros/cons for a 2017 show, but we won't be involved in any aspect this year.

January Meeting Cancelled

Next Meeting:
February 23, 2016@7:00 PM

Program:
Al and Carole Raucheisen

Refreshments:
TBD

In this issue:

DECEMBER POT LUCK DINNER AND GIFT EXCHANGE

Photographs by David Lines

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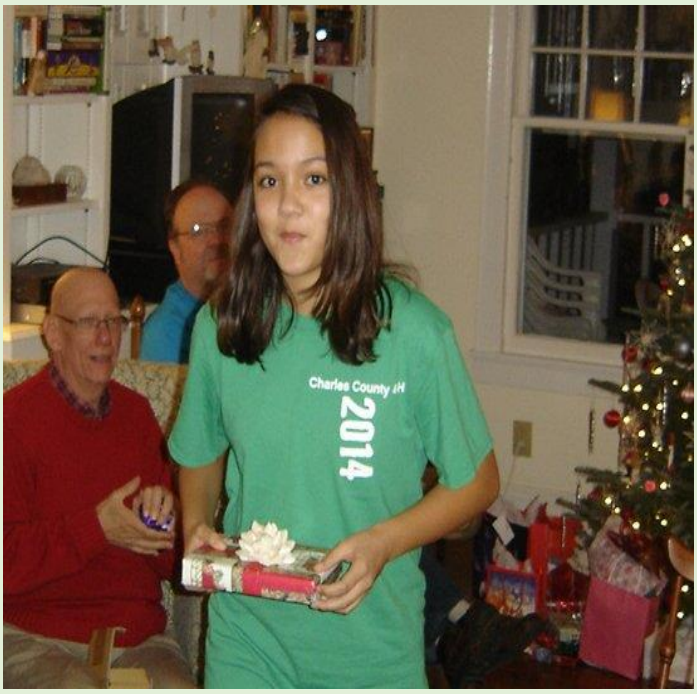

Upcoming Shows and Events:

2016

February 13-14-- Albany, NY—Annual Show; Capital District Mineral Club, New York State Museum, 222 Madison Avenue

February 14—Baltimore, MD—Minerals, held in association with the Baltimore Mineral Society and the Natural History Society of Maryland, 6908 Belair Rd, (Overlea)

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March 5-6-- Newark, DE—53rd Annual Earth Science Gem and Mineral Show, hosted by the Delaware Mineralogical Society, Delaware Technical and Community College, 400 Stanton-Christiana Road (@I-95 Exit 4B)

March 19-20-- Sayer, PA—47th Annual Che-Hanna Rock and Mineral Club Show, Athens Twp. Volunteer Fire Hall, 211 Herrick Avenue

Rocks, Minerals, and Fossils in the News

We Are Missing At Least 145 Carbon-Bearing Minerals, and You Can Help Find Them

http://www.smithsonianmag.com/science-nature/we-are-missing-145-carbon-bearing-mineral-you-can-help-find-them-180957575/?no-ist

The Carbon Mineral Challenge is asking rock enthusiasts around the world to hunt for the undiscovered forms of this common element

By Maya Wei-Haas

SMITHSONIAN.COM
DECEMBER 17, 2015

From the air you breathe to the dirt under your feet, you can't escape carbon. This element is a key building block of life as we know it, and it can be found throughout the planet in various forms

Much like plants and animals, scientists believe that carbon-bearing minerals have evolved over time and now occupy distinct niches on Earth. What's more, they think that we are far from discovering them all. So far, we've found 406 carbon-bearing minerals, and around four new types have been identified every year since 2010. But statistical estimates suggest that at least 145 carbon-bearing minerals have yet to be found, and mineralogists are calling for your help scouring the crags, crevices and rock collections of the world to locate these missing minerals.

This worldwide search, dubbed the Carbon Mineral Challenge, started as the brainchild of Robert Hazen, a scientist at the Carnegie Institution and executive director of the Deep Carbon Observatory (DCO). The DCO is an organization "dedicated to understanding the quantities, the forms, the origins and the movements of carbon from crust to core in planet Earth," Hazen said at a press conference this week announcing the challenge during the fall meeting of the American Geophysical Union. "A good way to put it is that we're crowd-sourcing mineralogical research," adds Daniel Hummer, a post-doctoral researcher at the Carnegie Institution and leader of the Carbon Mineral Challenge.

Carbon is one of the most versatile and abundant elements on Earth's surface. It can fit into many mineral structures, sticking to sulfur, bonding to boron and meshing with magnesium. What Hazen realized is that, like the diversity of life in a forest, there are lots of different types of rare carbon minerals, while the most abundant minerals belong to just a few types, or species.

"Each rare mineral represents a kind of mineralogical ecological niche," he says. Based on this realization, Hazen used models similar to those biologists use to estimate biodiversity to predict how many undiscovered minerals still remain. Now the search is on to locate them. "They could be hiding in any corner of the world right now," says Hummer.

Though the challenge has identified a few key field sites to examine, the missing minerals are probably hiding in remote localities in minute quantities. They could even be ephemeral, disappearing and reappearing with events like periodic rainfall.

Even more challenging is that the minerals are probably colorless and poorly crystallized or

powdery—Hazen's models suggest many of the missing minerals are some form of carbonate, one of the main ingredients in baking soda.

In addition to scouting in the field, the challenge encourages mineral enthusiasts and museum curators to explore their vast collections. "There might be [carbon-bearing] minerals hiding in drawers right now that we have—that we don't even know we have," says Hummer.

The grass-roots effort has an advisory board that consists of roughly 25 people from around the world. This board serves as the point of contact for rock and mineral hunters convinced that they have found something special and can assist in the detailed analysis of the samples.

To help you along in your hunt, Hummer has outlined the basic groups of known carbon-bearing minerals:

Carbonates: These minerals can be found all over Earth's surface. They are usually light-colored and many of them fizz if exposed to acid—just like adding lemon juice to baking soda. In general, these minerals are fairly soft and can be easily scratched. They form in oceans, lakes and from fluids moving through the crust that have carbonate material dissolved in them.

Carbides: These are minerals where the carbon is in an unusual negative form in the chemical formula. They are usually dark-colored and tough. But don't count on finding one of these easily. They are fairly rare and only occur in meteorites, impact sites or rocks from deep within Earth.

Hydrocarbons: This small group of minerals is mostly made up of molecules of carbon and hydrogen. They come in a range of colors and are flammable. They are fairly soft and can dissolve in organic solvents like alcohol but not water. "They form either near coal mines, in carbonate rock near an intrusive igneous body or in hydrothermal deposits sourced by deep fluids," according to Hummer.

Oxalates: These minerals are soft and brightly colored. "They are all biological in origin, mainly arising from the alteration of the pee or poop of animals, which all mineralogists find extraordinarily amusing," says Hummer. These form at various depths in the ocean.

Native carbon: This group includes four minerals that are made up almost entirely carbon: diamond, graphite, chaoite and lonsdaleite. The different atomic arrangements for each one gives them unique properties. Clear and shiny, diamond is one of the hardest known substances, while the gray-black graphite is very soft. Lonsdaleite is similar to diamond, but the atoms are arranged slightly differently, and chaoite is a soft, white mineral that is extremely rare. These minerals form in many different environments.

When a mineral is found, it must pass rigorous tests run by the International Mineralogical Association to ensure it is indeed something new. If it passes muster, the finder gets to propose a name—the only rule being you can't name it after yourself, according to Hummer.

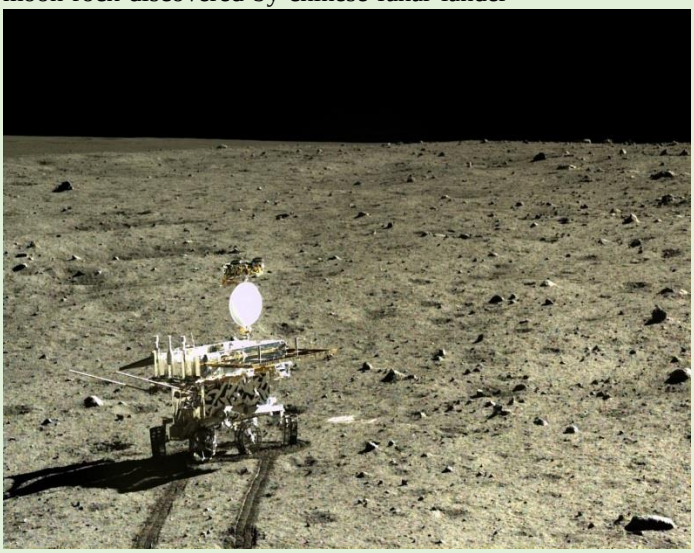
The hunt will continue until September 2019, when the DCO will celebrate the final assemblage of treasures. So keep your eyes on the rocks, and happy mineral hunting!

New type of moon rock discovered by Chinese lunar lander

Tim Radford

Tuesday 22 December 2015 11.04 ESTLast modified on Tuesday 22 December 201511.05 EST

http://www.theguardian.com/science/2015/dec/22/new-type-of-moon-rock-discovered-by-chinese-lunar-lander



China's Yutu rover on the moon. The rover has identified the new basalt from a comparatively young lava flow. Photograph: Chinese Lunar Exploration Program (CLEP)/ China National Space Administration (CNSA)

Chinese scientists have identified a new kind of rock on the moon. An unmanned Chinese lunar lander, launched in 2013, has explored an ancient flow of volcanic lava and identified mineral composition entirely unlike anything collected by the American astronauts between 1969 and 1972, or by the last Soviet lander in 1976.

The news, dispatched from an impact crater in the Mare Imbrium, is another reminder that planetary exploration is no longer the preserve of the Russians, the Americans or the European Space Agency: Japan, India and China have all launched lunar orbiters on their own rockets. Britain launched its own satellite, Prospero, on its own rocket, Black Arrow, from its own launch site in Woomera, Australia, in 1971 and then withdrew from the space race.

Since the end of the Apollo programme, US scientists have conducted their lunar research mostly from orbiters. Chang'e-3, China's unmanned lunar mission, put down a rover called Yutu or "Jade Rabbit" on a comparatively young lava flow. This rover proceeded to identify a mineralogical mystery on the moon, a basalt with "unique compositional characteristics."

The study, reported in Nature Communications, is expected to enhance readings from satellite instruments, and to throw new light on the origins of Earth's nearest neighbour.

The moon is thought to have formed when a Mars-sized object crashed into planet Earth early in the history of the solar system. The debris from the collision coalesced and cooled, but radioactive elements deep in the interior heated up the rock beneath the crust, and 500 million years later, volcanic lava slurped into impact craters on the moon to form the so-called "seas" or maria.

The Yutu rover's instruments started examining lava that probably flowed about 3 billion years ago. What they found won't keep ordinary citizens wide awake at night, but it is a surprise for planetary scientists. Geochemists can reconstruct a rock flow's history from the telltale mix of minerals in the cooled lava. Basalts sampled by astronaut expeditions or collected by a Soviet Luna probe tended to be distinguished in two ways: either high in titanium, or low.

But the latest find reported from the first soft landing on the Moon in 40 years is both intermediate in titanium content and rich in iron oxide.

"The diversity tells us that the Moon's upper mantle is much less uniform in composition than Earth's. And correlating chemistry with age, we can see how the moon's volcanism changed over time," said Bradley Joliff of the Washington University of St

Louis, the only American partner in the Chinese team.

The mix of minerals in magma tells a story: that is because minerals in molten rock characteristically crystallize at different temperatures. So rock on the surface delivers clues to the deep interior of a planet.

"The variable titanium distribution on the lunar surface suggests that the Moon's interior was not homogenized," Professor Joliff said. "We're still trying to figure out how this happened."

EFMLS/AFMS NEWS by Timothy Foard

The December/January newsletter recognizes the AFMS rockhounds of the year from the various region federations. The Austin convention recap and the changes to the AFMA Uniform Rues are also present in this issue.

In addition, the results of the competitive exhibit, web site competition, editors contest, and the All American awards are published in this issue.

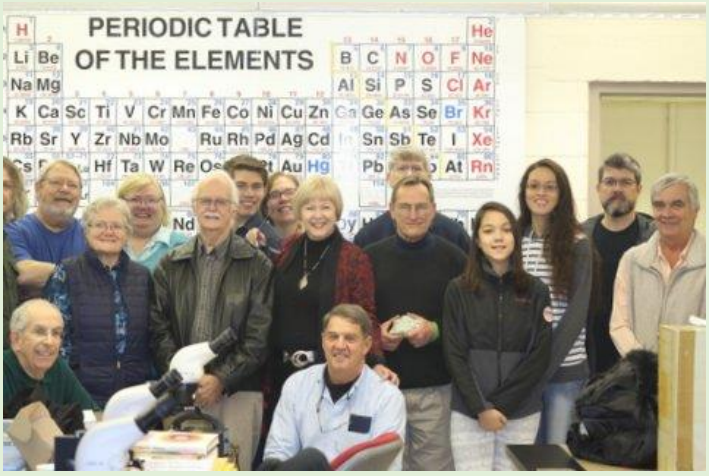
For these and other information, visit www.amfed.org

The EFMLS Newsletter for January has the registration info on the 2016 EFMLS workshop at Wildacres in North Carolina. The "Safety Matters" article deals with the distraction to drivers due to talking automobile features. There is a reminder to renew club dues and insurance for 2016. There is a list and description of spring and fall classes available at Wildacres.

For these and other information, visit www.amfed.org.efmls

Field Trip Report James Madison University Jan 9, 2016

by Dave Lines; Photographs by Bob Davison and David Lines



Our annual trek to Harrisonburg, Virginia to visit the Geology Department was another successful and enjoyable field trip and a great way to start the New Year. When we (11 folks from the Southern Maryland Club and 8 from the Montgomery County Club) arrived between 8:30 and 9:00 a.m., Dr. Lance Kearns had fresh hot coffee and pastries ready for us. Wow --- what a great host!

Traditionally, Dr. Kearns (or Lance as he prefers to be called) has a large number of mineral specimens as well as other hobby related items such as books and rock magazines "for sale". Some are offered at any price you chose to donate and some are priced for a specific amount --- but all are excellent bargains. We try to be generous in our donation amounts since the proceeds go to fund purchase of specimens for the JMU Mineral Museum as well as to fund field trips for his students. This trip was no exception as Lance had 50 or more flats ready for us --- all were covered until 9:00 sharp when he removed the cardboard. The next 30 minutes was a frenzy of activity akin to a Macy's sale. And everyone found some great specimens. I did not get any pictures of that activity since I was part of it --- hey --- that is

one of the best parts of this trip and I wasn't going to miss it!

Next, Dr. Kearns invited all of us down the hall to visit the Mineral Museum. Spectacular is an overused word --- but the specimens in this room truly were. There were many new ones since my last visit. I especially noticed the several ounces of gold nuggets from Contrary Creek (Mineral, VA). And a baseball sized spessartine garnet from the Rutherford Mine (Amelia, VA) along with several faceted spessartines were fabulous --- and super valuable!
There was a goose-egg size topaz crystal from the Morefield Mine (Amelia, VA) that Sam Dunaway told me about --- wow --- it was water clear! I took lots of pictures of the museum --- every cabinet had fine examples of the very best. It is well worth our support of this special place year after year. Dr. Kearns also identified several specimens that others had brought in.

Unfortunately, we learned that Dr. Kearns plans to retire in July 2017 --- so next year's trip will be the last that he will host. A nationwide search for his replacement had already begun – he is the only Mineralogist on staff and they want the best. His will be a difficult act to follow. Thinking ahead --- if you can possibly attend next year's JMU Field Trip, you better do so, for it is truly worth the effort.

Proposed Sanctuary May Prohibit Fossil Collecting along Potomac River

By Dave Lines

It has just come to my attention that the proposed Federal Mallows Bay-Potomac River National Marine Sanctuary in western Charles County, Maryland may prohibit collecting fossils, native American artifacts and rocks such as the Patuxent River Agate along a large portion of the Potomac River in Southern Maryland.

The original purpose of Marine Sanctuary status was to protect a small area of the tidal Potomac River containing the wooden remains about 200 small ships which were burned to their waterlines and abandoned there in the 1800's and early 1900's.

The proposed Sanctuary initially increased in size from less than 100 acres to 14 square miles including the popular fossil collecting areas of Purse State Park and Douglas Point BLM area. And recently, it has been proposed that the Sanctuary area expand again to many times (over 100 square miles) in size to include all of the tidal Potomac up to the high tide mark on both the Virginia and Maryland sides south to Popes Creek to include Nanjemoy Creek and Port Tobacco Creek and north to include Mattawoman Creek and Chapman's Landing State lands.

Although the proposed exact language for the Mallows Bay National Marine Sanctuary regulations has not been published, other sanctuaries specifically prohibit the "…possessing, moving, removing, injuring, or attempting to possess, move, remove, or injury a Sanctuary Historical resource." A Historical Resource (per the Monterey Bay, CA Nat'l Marine Sanctuary regs) is defined as "…any resource possessing…archaeological or paleontological significance … including … objects significantly associated with … earlier peoples, cultures."

If you want to LEGALLY continue to collect shark's teeth and other fossils as well as the incidental arrowhead or pretty rock in this area, then you better act fast and make a comment requesting specific language to allow fossil collecting by the January 15, 2016 deadline (this coming Friday) on the following Federal website: (highlight the web address below and left click your mouse)

http://www.regulations.gov/#!docketDetail;D=NOAA-NOS-2015-0111

As a result of that email, 38 comments from Rock Hounds were generated that supported language specifically requesting fossil collecting to continue. (173 total comments were posted by the NOAA website).

Additionally, during a Charles County Farm Bureau sponsored "Legislative Breakfast" on January 16th, I further learned that NOAA wants to complete all the approval process for this new Sanctuary in time to commemorate the 100th anniversary of the entry of the USA into WWI --- or by July 2017. The local elected officials who spoke about it indicated the initial plan "at this time" is to approve the 14 square mile Sanctuary which includes Purse State Park and Douglas Point BLM area. The "at this time" tells me that they will still ask for the expanded area (to 100 square miles) at a later time.

I also have written a letter to the local newspaper about the subject. And I have agreed to accept one of our Charles County Commissioner's offer to meet directly with NOAA to discuss the matter within the next few weeks. If you would like to attend the meeting with NOAA, please contact me.

Make no mistake --- unless specific wording is inserted into the proposed regulations, this Sanctuary is a serious threat to future fossil and rock collecting along the Potomac. The Sanctuary supporters are seasoned and smart environment activists who are very organized and well financed. They have had two (2) major successes here by coercing the State and Federal Government to purchase--- for $56 million --- both Chapman State Park and Douglas Point BLM area in order to halt development. They want to get the Mallows Bay-Potomac River Sanctuary approved in order to further expand their control of the area. We need to be vigilant.

The Dugway Geode Beds are Threatened!

To All Rock hounds Everywhere,

ALAA received this request to help save the Dugway Geode beds from extinction! If you have ever collected any of the Dugway Geodes and would like to collect them again or would like to collect these one of a kind Geodes in the future now is the time to get involved in a Grass Roots action. Yes this claim is in Utah and it is a commercial mining claim. Under the mining laws as long as the claim is active the access to the claim must remain open. Some of you reading this are on the East Coast and Utah seems like a long long way away. It is, but if you have ever collected there or know someone who has collected there in the last 50 years or would like the experience of collecting the Dugway Geodes now is the time to take action and try to save the Dugway Geode Beds. If the claim is lost the entire Dugway Geode Beds may be in danger of complete closure. Think about it and take the power of the pen and contact the Utah BLM and let them know that this resource needs to remain open and accessible for future generations of Rockhounds to enjoy. In your writings to the BLM, let them know that whether the mining claim is renewed or not, you are asking the BLM for assurance that the Dugway Geode Beds and their access roads will remain open for public recreational collecting. Below are email addresses to contact all of the parties involved in the Dugway Geode Beds issue. Please help "Save the Geodes!"

American Lands Access Association
Action Alert Committee
"Happy Rockhounding and Enjoy Your Public Lands"
Dugway Geode Claim

Save the Geodes! The BLM is threatening to close the only commercial claim on the Dugway Geode beds, in operation for the last 50 years, because the renewal paperwork was late this year. The claim is run by the Crapo family under the business name "The Bug House" and new mining claims will not be issued by the BLM for any commercial geode mining because the geode bed is a restricted area.

Public response to urge renewal of the claim is critical. The Crapo family has always supported the rock hound community and made sure that anyone who collected on their claim came away with lots of good geodes. Now it's our turn to support them so please get the word out to anyone interested in preserving this important collection area.

Please send your e-mails in support of renewing this important claim to the following e-mail addresses at the BLM and bcc the bughouse at their address below, so they can see who is supporting their efforts.

Deputy State Director Lands & Minerals:
Kent Hoffman E-mail: khoffman@blm.gov
Minerals Support Supervisor:
Robert L Bankert E-mail: rbankert@blm.gov
Bureau of Land Management Fillmore Field Office E-mail:
utfmmail@blm.gov
The Bug House E-mail: bughouse@xmission.co

Member's Finds

Photos of a trunk fragment of a cycad-like plant, found in a stream bed in Prince Georges County, Maryland, on the last day of 2015. Collected by Timothy Foard.

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

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:

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We're on the web: SMRMC.org

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