

Southern Maryland Rock and Mineral Club



Rock Talk



December, 2014

Message from the President

Rich Simcsak

This Thursday we will conclude another successful and fun year of activity in our club. We look back and with the Center we grew another new club for those with lapidary skills. We had a VERY successful Rock, Mineral, and Jewelry Show in March. First time having the main floor at the Showplace Arena. Looking forward to Feb 14, 2015 for the 25th Anniversary of the club's shows. We had a multitude of Rock Hounding trips with many other clubs during the year. I expect we will once again do more.

But to do greater than what we did this year, we need people to take on the initiative to strive to be better. Our club can be better. That must be done with new ideas from those just coming to the club, ideas from the "old timers" of the group and a mixture of both to make this club one that people will not want to miss each month. This month we will have a quick meeting to elect next year officials, move into the traditional pot luck buffet and complete it with the year-end gift exchange. This will all start at 6 PM (1800).

We are still in need of some good people to fill in for some of the departing officials. All positions

have no experience requirements - just a need to dedicate a few hours each month to the club. So please re-think helping the club through your volunteer spirit!

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Next Meeting:
December 11, 2014@6:00 PM
Program
Election of Officers, Holiday Pot Luck and Gift Exchange

Refreshments
Everyone!

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

NOVEMBER MINUTES

Submitted by Cheryl Reese

DATE: November 18, 2014; Meeting was called to order at 7:10 pm by President Richard Simcsak.

VISITORS/NEW MEMBERS: --- Two new members were introduced: Christine and her son Mason.

NOVEMBER MINUTES: October meeting minutes accepted.

MEMBERSHIP: No Report.

NEWSLETTER: Tim would like everyone to continue sending field trip reports and pictures or articles on anything a rockhound might like to hear about.

FIELD TRIPS: (Jim White) --- Last minute notice to the Morefield Mine on Thursday, November 20th.

PROGRAMS: Penny provided the talk tonight on Meteorite Impact Structures. Lorna and Mel provided refreshments. The December meeting will be on **Thursday December 11, at 6:00 pm** for a potluck and gift exchange. January program will be on the geology of Tennessee by Ed Masouka. Penny has done a wonderful job with the programs this year and due to her busy schedule we will not be seeing her in this position next year. Kudos and many thanks to a job well done!

ELECTION: The election of officers will also take place this night also, as the November meeting was very sparsely attended and we had no roster of officers.

WEBMASTER: Bob sent out about 400 emails to previous attendees of our rock shows telling them about table rentals being available. He has gotten some responses.

OLD BUSINESS: Rock Show --- Advertising for the show has been placed in Rock and Gem, Mindat.org, Bob's Rock Shop on the web. He is considering other avenues of advertising.

NEW BUSINESS: William Holland will be announcing new upcoming class schedules.

ADJOURNED: Meeting adjourned at 7:45 PM.

Upcoming Field Trips

“Saturday, Jan 31st is our annual trip to James Madison University to visit Dr. Lance Kearns. For those new members or anyone who has never been, Dr. Kearns has one of the most complete Geology labs around, including x-ray diffraction equipment for definitive mineral ID. We take our specimens to him and he uses his knowledge and equipment to ID them. He also has surplus specimens for sale at very reasonable prices, a great opportunity to add to your collections. If that's not enough the school has a GREAT mineral museum, worth the trip all by itself. One of the few places in the WORLD where you can see Turquoise CRYSTALS.!!!

We will be doing something a little different this year, a combined trip with the Montgomery County club, suggested by Jonathan Harris, their trip chair, and whole-heartedly endorsed by Dr. Kearns (it's probably one more Saturday that he will have free). Hopefully this won't make for too big a group and everyone will get a chance to get their specimens identified.”

Upcoming Shows and Events

December 13: Minerals, Fossils, Beads, and Jewelry Sale, one day only, Mike's Minerals, Holiday Inn Hotel, 9615 Deereco Road, Timonium MD (See Flyer)

February 14: 25th Annual Mineral Jewelry, and Fossil Show, hosted by the Southern Maryland Rock and Mineral Club, the Show Place Arena, 14900 Pennsylvania Ave., Upper Marlboro, MD

March 7-8, 2015 - Newark, DE - The Delaware Mineralogical Society, Inc. will hold its 52nd Annual Earth Science Gem and Mineral Show @ Delaware Technical and Community College 400 Stanton-Christiana Road; Newark, DE

March 21-22, 2015 - Gaithersburg, MD - Gem Lapidary, and Mineral Society of Montgomery County MD., Inc. 51st Annual GLMSMC Gem, Mineral and Fossil Show At the Montgomery County Fairgrounds , 16 Chestnut Street, Gaithersburg, MD

March 28-29, 2015 - Sayre, PA - The 46th Annual Che-Hanna Rock & Mineral Club show, Athens Twp. Vol. Fire Hall, 211 Herrick Ave, Sayre, PA

EFMLS/AFMS NEWS by Timothy Foard



The EFMLS Newsletter for December has additional information on the 2015 EFMS Convention in Hickory, NC. There is also info on the 2015 Wildacres Spring workshop including a course syllabus and lodging. There is an article on the activities of an intergenerational lapidary club, the Rochester Rockhounds, a plea for donations of earth science related material for the EFMLS acution, and a call for newsletters for the upcoming bulletin editors contest.

For more information, visit www.amfed.org.efmls



The December newsletter of the AFMS has announcement of AFMS rockhounds of the year, the AFMS website contest. Articles on safety during the holiday season, membership building, and involvement or exclusion of children in the hobby are also included.

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

Rocks, Minerals, and Fossils in the News



Space Rock Sheds Light on Mysterious Mineral on Earth by Charles Q. Choi, Live Science Contributor | November 27, 2014 02:00pm ET

<http://www.livescience.com/48939-bridgmanite-mineral-meteorite.html>

A rock from space is giving scientists the first glimpse of a mineral long thought to be the most abundant mineral on Earth, but which researchers lacked a natural sample of until now.

This discovery could shed light on the structure and dynamics of [the inner Earth](#), as well as the early history of the solar system, according to the new paper.

"The search for this mineral in meteorites has been going on for decades — it was just a matter of finding the right method for detecting it," said lead study author Oliver Tschauner, a mineralogist at the University of Nevada, Las Vegas.

The mineral is a [high-density](#) version of magnesium iron silicate. It is the most abundant mineral on Earth, and makes up about 38 percent of the planet's

volume. But it's only stable at very high pressures and temperatures, so for decades, researchers had only seen lab-generated versions of it. [[Fallen Stars: A Gallery of Famous Meteorites](#)]

Under the heat and pressure found in [Earth's lower mantle](#), which extends from about 410 to 1,615 miles (660 to 2,600 kilometers) below the planet's surface, magnesium silicate can form what is called a perovskite structure, which can be imagined as an array of double pyramids that are joined at their corners. The centers of each pyramid are made of silicon, the apexes and corners are made of oxygen, and magnesium and iron reside in the spaces between each double pyramid.

But scientists had not discovered a naturally occurring version of this mineral until now — the mineral would not survive the long journey from the lower mantle to Earth's surface because it would readily transform into lower-density minerals.

The fact that scientists had not found any specimens of magnesium iron silicate perovskite in nature also meant it could not get an official mineral name from the [International](#) Mineralogical Association. This presented geologists with the odd situation of a nameless mineral being the most abundant one on Earth.

Since researchers could not find a naturally occurring version of magnesium iron silicate perovskite from Earth, they instead looked to space. They hypothesized that high-speed cosmic impacts could generate the pressures and temperatures needed to create this mineral, and samples of it could then [come to earth as meteorites](#) knocked off their parent asteroids or planets.

Recently, Tschauner and his colleagues carefully isolated magnesium iron silicate perovskite in a meteorite. The mineral was given the official name of "bridgmanite," after the father of high-pressure experiments, Nobel laureate Percy Bridgman, according to the report, published in the Nov. 28 issue of the journal *Science*.

The researchers analyzed a Tenham meteorite, a rock that was part of a meteor shower that rained down on Australia on a spring night in 1879. This meteorite bore signs that it was part of an asteroid that

experienced a great impact. The stone also possessed minerals called akimotoite and ringwoodite, which are similar in composition and origin to bridgmanite.

In prior attempts to find bridgmanite in meteorites, researchers often used electron microscopes. However, this [strategy](#) involves probing the rocks with electron beams that can turn bridgmanite to glass. Instead, Tschauner and his colleagues used high-energy X-rays from a synchrotron, a kind of [particle accelerator](#). These intense X-rays do little damage to bridgmanite, thus helping the scientists prove its composition and crystal structure.

The researchers found that bridgmanite was higher in iron and sodium than they had expected based on synthetic samples. "This gives interesting insights for what might be going on in the lower mantle," Tschauner said.

Tschauner added that detecting bridgmanite in other meteorites could shed light on the strength of the impacts their parent bodies experienced. The pressures and durations of these impacts in turn "allow us to estimate the size of the parent bodies of these meteorites, and with enough data, we can, for given [points](#) in time in the solar system's history, figure out how large bodies in the solar system were," Tschauner said.

Fossil Find Behind New Jersey Strip Mall Causing Excitement

<http://www.cbsnews.com/news/drexel-university-fossil-finds-behind-new-jersey-strip-mall-causing-excitment/>



MANTUA TOWNSHIP, N.J. -- A dig site, in New Jersey, is yielding exciting finds: the fossils of animals believed killed around the same time the dinosaurs disappeared. Uncovering the mystery has taken a cast of thousands.

Behind a strip mall in southern New Jersey, paleontologists from Drexel University are traveling 65 million years into the past. This quarry could be the most significant fossil site in decades.

"We know all these animals died at the same time because their bones are still put together," said Ken Lacovara, the professor leading the dig team.

Lacovara thinks those may be the fossils of thousands of animals that all died around the time a meteor struck and killed off 70 percent of life on earth.

If it turns out to be the case, the only window the world has to animals actually killed in that cataclysm, that wipes out the dinosaurs, and essentially makes the modern world as we know it, is in a pit behind a shopping mall in New Jersey.

Last summer, Lacovara made big news when he announced another discovery -- [the largest dinosaur in the world](#).

The dreadnaughtus was bigger than a Boeing 746 and weight 65 tons. Lacovara found it in the wilds of Patagonia in Argentina.

In the New Jersey quarry, the Drexel team has uncovered some amazing fossils over the past 12 years, including a predator the size of a bus, and a 7-foot-long thoracosaurus crocodile that once lived along the coast here.

But this site is special for another reason. For three years now, Lacovara has invited the public to come help dig for a day; 1,300 people have shown up to help.

The people are fascinated, looking almost like they are going to find what's under the Christmas tree.

"Can you imagine when you're a kid, when you find your first fossil?" said Lacovara. "That's a transformational experience, it connects them for the first time in a tangible to the Earth's ancient past. I

think for many of these kids they are never going to forget that moment.

The hope is these kids find more than fossils. Lacovara wants them to discover a love for science.

"I am going to be a paleontologist when I grow up," said Jordan Lane, who came with her mother and brother. "Because they're so cool."

Even with all the help, the team has literally just scratched the surface of what the quarry might reveal.

"If we were to excavate here five days a week we could process an acre in 10 years and this property is 65 acres, so we have about 650 years of work left to do," said Lacovara. "Geologically, that's no time at all."

Which means there will be plenty of work awaiting all these future paleontologists.

Giammar Seeking New Solutions for Underground Carbon Storage

Released: 25-Nov-2014 3:00 PM EST

Source Newsroom: [Washington University in St. Louis](#)

http://www.newswise.com/articles/giammar-seeking-new-solutions-for-underground-carbon-storage?ret=/articles/list&category=science&page=1&search%5Bstatus%5D=3&search%5Bsort%5D=date+desc&search%5Bsection%5D=20&search%5Bhas_multimedia%5D=

Newswise — Dan Giammar, PhD, at Washington University in St. Louis, is going deep into the earth to find a potential solution to store carbon emissions from coal-fired power plants.

Giammar, professor in energy, environmental & chemical engineering in the School of Engineering & Applied Science, has been working with the Consortium for Clean Coal Utilization (CCCU) since its inception to find ways to reuse or safely store emissions or waste from coal-fired power plants, including fly ash or carbon dioxide. This ties in well with his research, which focuses on chemical reactions that affect the outcome and transport of

heavy metals and radionuclides in natural and engineered water systems.

In a new \$1.28 million project funded by the U.S. Department of Energy, Giammar is looking at the potential for fractured basalt, a layer of common mineral-rich rock, to store carbon dioxide emissions. He and a team of researchers will work with finger-sized basalt samples in the lab to see how the rock tolerates the transport of carbon dioxide and the chemical reactions that take place among the rock's natural minerals and the carbon dioxide.

Geologic carbon sequestration, also known as carbon capture and storage, requires deep underground storage that includes porous open space, a permeable material and an impermeable cap so that the CO₂ doesn't leak out. Many current methods of geologic carbon sequestration use sandstone, an abundant porous and permeable material. But CO₂ remains as a separate phase of either a gas or supercritical fluid within sandstone, creating the potential for leaks.

However, when CO₂ is injected into basalt through the rock's fractures, which are naturally created cracks caused by high pressure or temperatures, it reacts with the calcium, magnesium and iron within the basalt to create carbonate minerals, a solid product without potential to leak.

Giammar said there are three potential outcomes to this process.

"As you convert the minerals and basalt into carbonate minerals, there is a volume expansion, so you could fill up the fractures and seal off the system from further reactions, making it self-limiting, which is the worst-case scenario," he said. "The best-case scenario would be that this volume expansion starts to exert stresses on the rocks and opens up new fractures, so it could be self-propagating."

But, he said, there could also be something in between, with some fracturing of rocks and some filling or partial filling of prior fractures.

"We've got a whole range of possibilities," he said. "We don't really know the answer to this. Whether or not basalts will be tenable formations for sequestration is critical."

Giammar will be working with Washington University colleagues Mark Conradi, PhD, professor of physics; Sophia Hayes, PhD, associate professor of chemistry; and Philip Skemer, PhD, assistant professor of earth & planetary sciences, all

colleagues from previous CCCU-supported research projects, as well as with Brian Ellis, assistant professor of civil and environmental engineering at the University of Michigan. Conradi and Hayes will apply their expertise in nuclear magnetic resonance (NMR), which allows researchers to look at chemical reactions as they occur in real time at high temperatures and pressures similar to those that occur inside the earth to measure the progress. Skemer, an expert in the physical properties of rock, will create artificial basalt in the lab to be used alongside the natural basalt fragments. Ellis specializes in building reactors that supply a confining pressure to rocks and push fluids up through them.

Giammar also has completed three prior research projects in collaboration with the CCCU. One looked at the rates of reactions of CO₂, minerals and water. The second was a steppingstone to the current project, looking at the transport and reactions of CO₂, minerals and water, but using powder instead of rocks, and the third studied the fate of metals in fly ash from coal combustion.

In addition to the research collaborations with colleagues at WUSTL, Giammar has developed an international collaboration with Anurag Mehra, PhD, and graduate students at the Indian Institute of Technology (IIT) Bombay.

“They look at the same types of systems but at lower pressures and have done some nice parallel experiments,” Giammar said. “The project has benefited from this international collaboration.”

ROADTRIP,

Or... (my first visit to Morefield)

John Pesch



At the last club meeting (11/18) Dave Lines asked if anyone wanted to go rock collecting. ...the catch??? He was going Thursday (11/20) to the Morefield Mine in Amelia, VA. I knew about Morefield, but had never been there. It is one of several highly mineralized pegmatite dikes in the area, and well known for gem quality amazonite. What I didn't know was about all the other minerals (over 80) that had been found there. Some of the better known include apatite, various beryls, fluorite, topaz, and tourmaline.

Now I am not a particularly “spur of the moment” type person. So after a lot of soul searching (about 1 hr), consultation with my business partner (my wife Jody) and visions of riches untold, I was “all in”. On Thursday, I left the house at 5:30am to meet Dave who was driving the 2 ½ to 3 hours to Amelia. We left his farm around 6:30am and arrived in Amelia in enough time to scope out another old pegmatite location (now closed) as well as check out a box of sample specimens Dave had prepared so I would have an idea what I was looking for (thanks Dave).

After arriving at the mine around 9:30am, I had the pleasure of meeting the owners Sam and Sharon Dunaway. Even though they had a mine inspection scheduled that day, both were very gracious and Sam spent considerable time talking with Dave and I about the mine, where they were shooting and what they were finding. We were part of a relatively small group that day that included Dave, myself, a few collectors from Maryland and Northern Virginia and a school group.

Picking through the tailings was fairly slim at first as it appeared there had not been much new material spread out in a while. We did find a lot of the albite, smoky quartz and mica (muscovite?) host rock along with many small pieces of amazonite. There were also micro specimens of cleavelandite, tantalite (or columbite), cassiterite(?) and the occasional fluorite. Others were finding small garnets and pieces of amethyst (probably salted from another mine). After lunch I checked out their exhibit and gift shop which contains many interesting and reasonably priced specimens. With about an hour left before the mine closed Sam had a front-end loader dump fresh material for just the six of us that were left (I did mention he had a mine inspection that day). This material contained much larger specimens of amazonite and cleavelandite which were quickly gobbled up.

Our trip back was uneventful, arriving at Dave's around 8pm. If you haven't been to Morefield you need to visit at least once. Never know what you will find. Check them out online at www.morefieldgemmine.com. By the way, if you don't know, Dave has a habit of finding good specimens right next to you or where you had just been (must be a gift).

Member's Finds

Photo of tooth of an extinct mako shark, *Isurus hasturus* collected from Flag Ponds Nature Center, Calvert Co., Maryland by Mason Hartman.



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:

(301) 297-4575

**We're on the web:
SMRMC.org**

The Southern Maryland Rock and Mineral Club's Annual
Mineral, Jewelry & Fossil Show

\$1.00 Off Admission

Door Prize Entry Form Drawings every half-hour, must be present to win

Name _____

Please Print Neatly - THANK YOU

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(if you wish to receive an email notification next year)

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**Minerals, Fossils, Beads &
Jewelry Sale**

ONE DAY ONLY

SATURDAY, DECEMBER 13, 2014

10:00 AM- 4:30 PM

HOLIDAY INN HOTEL

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TIMONIUM, MD

(I-83 - EXIT 17 - PADONIA RD)

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