



The Rostrum

The Newsletter of the Maryland Geological Society
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March Messages

- Congratulations to George Powell for his upcoming poster presentation on "A Whale of a Challenge: the Development of a Large-Scale Fossil Display at the Aurora Fossil Museum" which will be part of the 65th Annual meeting of The Geological Society of America (Southeastern Section) March 31 - April 1, 2016 being held in Columbia, SC. See <https://gsa.confex.com/gsa/2016SE/webprogram/Paper273953.html> for more information.
- We have received the following request from Bill Shankle and Ralph Johnson of the Delaware Valley Paleontological Society and Monmouth Amateur Paleontologists Society: The Severn Formation is a late Cretaceous formation with a narrow band of outcrops in Maryland East of Washington D.C., extending into parts of Northern Delaware. There have been a number of documented vertebrate finds in the Severn, but very little has been published on the invertebrate fauna. We plan on doing a thorough review of this invertebrate fauna and would like to contact any collectors with this type of material. Please email Bill at wjshankle@gmail.com.
- The Delaware Valley Paleontological Society (DVPS) has announced that all back issues of The Mosasaur journal articles are available as free PDFs on www.dvps.org. This is in keeping with an ongoing trend of many scientific journals to make information freely available. They have reprinted a small number of The Mosasaur Volumes 1 and 2 and paper copies are also available for all other Mosasaur volumes, \$10 if picked up at a DVPS meeting or at their Fossil Fair and \$14 if mailed. Order form can be found on the web site in The Mosasaur section.
- The Fourth HoCo STEM Festival will be held from 1-5 pm on Sunday, June 5, 2016 at Howard Community College in Columbia Maryland. They are anticipating exceeding last year's attendance of over 2,000 students and parents. The Festival is open to everyone and there is no attendance or participation fee for attendees or presenters.

Dates to Remember

March 20th, 2016

Meeting Time and Location

11:00 AM to 3:00 PM

Bowie Community Center, 3209 Stonybrook Drive, Bowie, MD 20715

General Meeting & Executive Board Meeting

Mineral of the Meeting - Smithsonite. Bring a few choice specimens to the meeting.



Scientific principles and laws do not lie on the surface of nature. They are hidden, and must be wrested from nature by an active and elaborate technique of inquiry.

John Dewey



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Maryland Geological Society

Founded in 1991, MGS is comprised of both amateur and professional mineral and fossil collectors. The organization emphasizes collecting, identification, study and display aspects of the geological sciences. MGS is a nonprofit organization affiliated with the American Federation of Mineralogical Societies (AFMS) and the Eastern Federation of Mineralogical and Lapidary Societies (EFMLS).

Dues

Annual dues are \$15.00 per individual adult member. Applications for membership may be obtained from the MGS website or by contacting the Membership Chairman, Mike Folmer, at 417 West Maple Road, Linthicum, MD 21090, (410) 850-0193. Dues are payable by January 1st of each year.

Meetings

Meetings are held bimonthly, beginning in January at the Bowie Community Center, located at 3209 Stonybrook Drive, Bowie, MD - (301) 464-1737. The doors open at 11:00 AM and the meetings are completed by 3:00 PM. Club meetings will be held as scheduled so long as the Bowie Community Center is open.

Meeting Dates & Programs for 2016

January 17: General Meeting

July 17: General Meeting

March 20: General Meeting

September 18: Annual Auction

May 15: Joint meeting with AFF

November 20: Elections & Holiday Party

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The Rostrum

Published bimonthly beginning in January. Submit material for publication electronically to nick.smith.mgs@gmail.com or by mail to Rick Smith, 1253 Brewster St, Baltimore, MD 21227.

Website

www.ecphora.net/mgs/
Material for the website should be sent to Jim Stedman at stedmanjim@gmail.com.

Mineral of the Meeting: Smithsonite

Bob Farrar

For the March meeting of MGS, the Mineral of the Meeting will be smithsonite. Named for James Smithson, founder of the Smithsonian Institution, smithsonite is a beautiful mineral that is popular with collectors.

Smithsonite consists of zinc carbonate, $ZnCO_3$. It crystallizes in the hexagonal system. Distinct crystals, however, are uncommon. More typically, it occurs in layers in botryoidal masses, stalactites, and crusts. When crystals do occur, they are usually rhombohedral, or rarely, scalenohedral. Smithsonite varies in color from white to yellow (from cadmium), green or blue (from copper), to pink (from cobalt). Yellow material is sometimes known as "turkey-fat ore", while porous white material has been called "dry-bone ore". The obsolete name "calamine" has been applied to smithsonite, as well as to hemimorphite (zinc silicate) and other minerals. Physical properties include a hardness of 5, specific gravity of 4.3, and rhombohedral cleavage. Smithsonite can be identified as a carbonate by fizzing in heated acid. A chemical test for zinc may be necessary to distinguish it from other carbonates. Some botryoidal blue specimens may resemble blue hemimorphite, but hemimorphite does not fizz in acid.

Smithsonite occurs in the weathered zone of zinc deposits, usually in the presence of limestone (a source of carbonate). Among the most famous localities are those in the southwestern United States. For example, the Kelly Mine in Magdalena, New Mexico is famous for beautiful blue-green botryoidal material. Several localities in Arizona, including Bisbee, the Silver Bill Mine, and the 79 Mine have produced good smithsonites. The Cerro Gordo Mine in Inyo Co., California is also well known. Numerous localities in Mexico have produced smithsonite, including Santa Eulalia, Chihuahua, and Los Mochis, Sinaloa. White to yellow crusts have been found in Rush, Arkansas. Many worldwide localities

produce smithsonite. Particularly noteworthy are the well developed crystals found at Tsumeb and Berg Aukas, Namibia. Large masses of yellow material are found in Sardinia, Italy. Cadmium-rich smithsonite is found in Co. Clare, Ireland. Other worldwide localities include Russia, Australia, Greece, and Morocco.

Smithsonite is sometimes abundant enough to be mined as an ore of zinc. Examples of such deposits include Leadville, Colorado, the Verberroth Mine in Lehigh Co., Pennsylvania, and the Longh-Keng Mine in Burma.

Due to its interesting forms and often bright colors, smithsonite is popular among mineral collectors. Occasionally, colorful material has been cut and polished, but smithsonite is not used in significant amounts as a gemstone. Finer specimens can be pricey, but smithsonite is common enough that nice specimens can be had for a reasonable price.



Smithsonite from Tsumeb, Namibia. Image by Lech Daeski and reproduced under Creative Commons Attribution-Share Alike 3.0 Unported license. Image is available at [Wikimedia Commons](#).

Field Trips

Marci & David Shore

The Maryland Geological Society is an advocate of responsible collecting. The society has permission to collect in all of the sites listed that require such permission. Most trips are weather dependent and some require at least an average level of physical fitness. Field trips are restricted to MGS members only.

Marci Shore has agreed to be the MGS Field Trip Coordinator. In addition, junior member **David** had agreed to coordinate youth trips. President Gary Lohman suggested that the MGS coordinate trips with other clubs and will help Marci with that. Anyone else interested in helping please contact Gary or Marci. There is a Junior Members trip planned for later this year.

The Calvert Marine Museum Fossil Club has invited members of the MGS and several other clubs to join them on a couple of upcoming trips. You can sign up directly with Bob Ertman by email at robertertman@msn.com, sooner rather than later (please include your cell phone number). Detailed directions will be provided when you call to sign up. Bob's cell is 410-533-4203 but email is better.

Saturday, March 19, 2016, Odessa, DE. This is a John Wolf Memorial Trip. Meetup at 9:45-10:00 AM. We'll move on to the farm in Odessa to walk the fields and collect petrified wood (cypress from the Pleistocene, probably 1.5-2 million years old. No special equipment is necessary; in fact, you should leave your tools at home so that we do not do anything to cause erosion on this no-till farm. Here's a link to a nice write up about one of our trips to a nearby site: <http://viewsofthemahantango.blogspot.com/2011/08/petrified-wood-from-delaware.html>.

Sunday, June 5, 2016, Purse State Park. Meetup at 11:30 AM (low tide a little after noon). Aquia formation (Late Paleocene, about 60 million years ago). This site is on the Potomac River in Charles County, MD. Best known for internal molds of the gastropod *Turritella* sp. (more than you can carry out); occasional crocodile, ray, shark teeth (*Otodus* sp., and *Striatolamia* sp.) and petrified wood (also some nice specimens of jasper and other minerals). Access to the site requires a moderate hike through the woods, and sometimes rather strenuous hiking and climbing over trees along the water's edge (there were no problems when we were there in June). Collecting is mostly by beachcombing along the riverbank; screening may be productive (it's a long hike for a wood-frame screen; if you want to screen a kitchen colander would be better). Take a look at what you can find: <http://www.fossilguy.com/sites/potomac/index.htm> And some examples of the petrified wood can be found here: <http://dlynx.rhodes.edu/jspui/handle/10267/1814> The wood is not from local deposits but was carried down river by ice rafts, formed when the river froze solid all the way down to the bed. It's older, harder, and shinier than the petrified wood we find near Odessa.

A Man of Strata David Shore (MGS Junior Member)

"Every once in a while a revolutionary product comes along that changes everything." Steve Jobs said this when talking about the iPhone. William Smith created one of those products "that changes everything." What did William Smith create? The map that changed the world!

William Smith, the father of English geology, had humble beginnings. He was born on March 23, 1769 in Churchill, Oxfordshire, England, as the village blacksmith's son, therefore, the name Smith. His father died when Smith was eight and he stayed in the village school only until the age of eleven. His mother remarried. His uncle, also named William Smith, taught him about surveying and helped develop his interest in geology. Smith enjoyed fossil collecting. When he was 18, he was hired as a surveyor. This is a hint as to what he does in the future.

Smith's life wasn't easy. His wife was put in an insane asylum. It is not known to this day if she really was mentally ill or if she said or did something that someone didn't agree with. In those days, women were committed for all kinds of reasons. In addition, Smith's sister and her husband died. The bright side of this was he took in his nephew, John Phillips, who became his loyal assistant and later on a great geologist who helped establish the geologic timeline. And Smith was plagiarized. You will see by whom in the future of this article.

Smith traveled about 10,000 miles per year, walking much of it, while he surveyed canals. This was a time when England used canals for transporting coal. In 1795 Smith dug through two valleys about two miles apart and found the same order of strata in each valley. By 1796 he recorded his discovery: the different layers of strata contained its own species of fossils in a predictable pattern, and you could tell the order of the strata by the fossils it contained.

In *Strata Identified by Organized Fossils*, published from 1816 to 1819, he recalled: "Fossil shells had long been known amongst the curious, collected with care, and preserved in their cabinets, along with other rarities of nature, without any apparent use. That to which I have applied them is new and my attention was first drawn to them by a previous discovery of regularity in the direction and dip of the various Strata in the hills around Bath; for it was the nice distinction which those similar rocks required, which led me to the discovery of organic remains peculiar to each Stratum". This was the finding that became known as Smith's Principle of Faunal Succession. Today it appears in geology textbooks the world over (earthobservatory.nasa.gov).

In 1799, Strata Smith, as he became known, published one of the first geologic maps in the world - *A Map of Five Miles round the City of Bath*. In this map he not only mapped the surface of Bath, but also the strata beneath it.

But still his biggest accomplishment and the one he is best known for had yet to come. Mapping it all out! The map that changed the world was published in 1815 and titled: *Delineation of the Strata of England and Wales with a part of Scotland*. The map measures 6 feet by 8 feet 6 inches. The scale is 5 miles per inch. It is a beautiful hand colored map. Today, a copy hangs at the Geological Society in London at Burlington House.

This map helped England fuel the industrial revolution, literally. It identified where coal was in the strata beneath the earth. England produced coal and led the industrial revolution because of the map. These numbers will give you the idea about coal production in England:

1700: 2.7 million tonnes of coal were produced,

1750: 4.7 million tonnes of coal were produced,

1850: 50 million tonnes of coal were produced,

1900: 250 million tonnes of coal were produced.

This shows you how much England depended on coal for the industrial revolution and which is why the map changed the world.

But in spite of his great the map, life was not easy for Smith because he was not good at managing his financial debts. He financed his work on many of his large projects, including the famous map. He also bought many expensive properties on I.O.U.'s. He had to sell his fossil collection to the British Museum to raise money to pay off his debts. But that was not enough. He spent almost two months in King's Bench debtors' prison in 1819.

George Bellas Greenough, the first president of the Geological Society plagiarized Smith's famous map and had the support and money of the Geological Society behind him. Since Smith did not come from the right class of society in England, and did not have the best connections or education, the Geological Society was not friendly to him or to his ideas. Greenough was able to sell his version of the map for less and this hurt Smith financially and helped cause him to serve time in prison.

Smith had to find different jobs to support himself. He taught and also helped design the Rotunda Museum in Scarborough, where there was a display of fossils in order of time on the outer walls and visitors could enjoy the history of fossils and life on planet earth as they viewed the display, climbing a spiral staircase.

At the end of his life, Smith received the recognition he deserved. In 1831 the Geological Society, gave him the first Wollaston Medal and King William IV gave him a pension for the rest of his life. He died August 28, 1839 on his way to a meeting at the British Association for the Advancement of Science.

Note: A different Mr. Smith deserves credit for my seeing The Map that Changed the World. Rick Smith told us about the Geological Society of America national conference at the Baltimore Convention Center and I went to see what it was all about. It was fossiltastic! There I met Sarah Fray, the Executive Secretary of The Geological Society, the world's first geological society. I told her I was going to be in London with my dad, because he had a business trip. She invited me to come and visit The Geological Society at Burlington House and arranged for a full fledged tour of the whole Society, with Humphrey Knight, Education Assistant and Caroline Lam, Archivist. It was fossiltastic! I will write more about my visit in a future article.

Some of the resources used in writing this article:

1. A visit to the Geological Society at Burlington House, London, including a discussion with Sarah Fray, the Executive Secretary, Humphrey Knight, Education Assistant, Caroline Lam, Archivist.
2. The Map That Changed the World, Simon Winchester
3. WilliamSmithOnline.com
4. Wikipedia: William Smith, George Greenough, Industrial Revolution, The Geological Society,
5. NYtimes.com, Malcolm C. McKenna. Book review: The Map That Changed the World, by Simon Winchester.
6. Livescience.com, Rediscovered 'Map That Changed the World' Unveiled to the Public'.
7. Earthobservatory.nasa.gov, Discovering Faunal Succession
8. Historylearingsite.co.uk, Coal Mines in the Industrial Revolution
9. Teachinghistory.org, Coal and the Industrial Revolution
10. ask.com, Why did Britain lead the Industrial Revolution?
11. Strata-smith.com, William Smith biography
12. WilliamSmithOnline.com
13. Nature, August 26, 1939, Vol. 144, William Smith (1769-1839), The Father of English Geology.

Final Reminder - Please Pay your 2016 Membership Dues!

Annual dues of \$15.00 were due on December 31st.

Whales, Whales, Whales ~ Some Assembly Required

Jim Stedman

Spoiler alert: This article is NOT about fossils, but it still features SKELETONS!

The lion's share of the Smithsonian Institution's treasures are not on public display but, rather, reside behind the scenes. That was very evident on the tour I recently took of the Paul E. Garber Facility in Suitland, Maryland, which stores the National Museum of Natural History's rich and diverse collection of cetacean skeletons. These skeletons are part of the Museum's Marine Mammal Collection that has more than 6,500 cetacean specimens. Though what we saw were almost exclusively the skeletal remains of modern cetaceans, it was a wonderful opportunity to place in context the



few fossil cetacean bones and teeth I have found along the Calvert Cliffs (e.g., "so that's where the tympanic bulla is housed in the skull").

This behind-the-scenes tour for volunteers who work in the Museum's FossilLab was conducted by Nick Pyenson, Smithsonian Curator of Fossil Mammals. As Pyenson made clear, a key role of modern museums is to slow down the inevitable decay that specimens undergo. It was also evident from the tour that this material is not simply being housed and preserved, but is being actively studied to address the myriad questions about cetaceans yet to be answered.

Upon entering the facility, what initially caught my eye were the incredible arrays of whale vertebrae lined up in stacked shelves that ran the length of the enormous hangar-like facility (above). The space of this facility has enabled scientists to lay out skeletal remains and more easily make side-by-side comparisons of specimens.

Many of the larger whale skulls are mounted on vertical racks that can be rolled to facilitate such comparative analysis. The massive blue whale skull (at right) is on such a rack, one which reaches almost to the ceiling. This particular skull is from a 78-foot-long whale collected in Newfoundland in 1903 that served as the basis upon which the first full (external) model of a blue whale was created, a model shown at the St. Louis World's Fair of 1904.

That certain whale species may live for at least one or two centuries enhances the value of collecting these skeletal remains. Pyenson likened them to time machines because they offer the opportunity to study the impact on the DNA and other aspects of specific individuals of the broad sweep of changes that happened over their lifetimes, from the influx of pollution into the oceans to climate change.



The part of the facility containing the smaller cetaceans offered many additional prizes. The Museum has one of the world's largest collection of beaked whale specimens (one is shown at right).

I was particularly impressed with the row of killer whales (orca) skulls sporting particularly savage teeth (below, left). Many other skeletal elements in this portion of the collection are protected in rows of white metal cabinets. Nick Pyenson slid open a cabinet drawer to reveal an array of tusks from that most enchanting of whales, the narwhal (below, right). With those tusks laid out before us, our magical mystery tour had come to a fitting end.



(All photos by author)

Notes:

- 1) More information on the Museum's Marine Mammal Collection can be found here: http://vertebrates.si.edu/mammals/mammals_mmp.html.
- 2) More information on the 1903 blue whale can be found here: http://www.mnh.si.edu/onehundredyears/profiles/Whales_SI.html.

Future Rockhounds of America
Rick Smith

The American Federation of Mineralogical Societies (AFMS) sponsors a youth program called the Future Rockhounds of America. The first meeting of the MGS Chapter was held at the July, 2015 meeting where our founding members received their Future Rockhounds of America patch and also completed their first badge - the Collecting activity badge. At the January 2016 meeting our group of future rockhounds worked on earning their Communication badge. Brooke

prepared a poster and presented it to those in attendance at the January meeting. Her presentation was about her successful hunt for the mineral vivianite in Maryland. David spoke about the 18th century British geologist William Smith and he gave an oral presentation titled "William Smith and the Map That Changed the World". Photos from the January meeting can be seen below.



If you and your child might have an interest in the program, please meet with me at an upcoming MGS meeting or contact me via email - rick.smith.mgs@gmail.com. There is no cost to the program, but anyone participating in the badge program must be a junior member of MGS.

National Geographic Program - Spinosaurus Tom Piscitelli

There will be a program from National Geographic Live -- Spinosaurus: Lost Giant of the Cretaceous with Nizar Ibrahim, paleontologist, who rediscovered the location of Spinosaurus bones and led the reconstruction of a full skeleton. Save \$10 on line at LiveatHarfordCC.com ticket code "FOSSIL" valid through April 6th, 2016 for any remaining seats. Program will be held on April 7th, 2016 @ 7:30 PM.

[Harford Community College Ticket Sales](#)

Shows & Events

March, 2016:

19-20: 52nd Annual Gem, Mineral and Fossil Show sponsored by the Gem, Lapidary, and Mineral Society of Montgomery County MD. Montgomery County Fairgrounds, 16 Chestnut Street, Gaithersburg, Maryland 20877. Saturday 10:00 A.M. to 6:00 P.M. and Sunday 11:00 A.M. to 5:00 P.M. Admission is \$6.00, ages 12 and older. Admission is Free for Children (11 and under), Free for Scouts in Uniform. To get a \$1 off coupon please go to the club website: <http://www.glmcmc.com/show.shtml>. Free parking. More than 20 dealers will have gems, minerals, fossils, meteorites and crystals for sale. Enjoy demonstrations, over 40 exhibits, raffle, door prizes, free workshop, and free specimens for kids. Those under 18 can dig for free specimens in the kid's mini-mines.

April, 2016:

2-3: Mineral Treasures & Fossil Fair sponsored by the Philadelphia Mineralogical Society and Delaware Valley Paleontological Society. LuLu Temple, 5140 Butler Pike, Plymouth Meeting, PA.

16: Annual Gem, Jewelry, Fossil and Mineral Show sponsored by the Patuxent Lapidary Guild. Earleigh Heights Fire Hall in Severna Park, MD. More information at www.patuxentlapidary.org.

May, 2016:

14: South Penn Rock Swap & Sale sponsored by the Central Pennsylvania and Franklin Rock & Mineral Clubs. 8 a.m. to 3 p.m. South Mountain Fairgrounds (west of Arendtsville, PA on Route 234). For GPS, use address 615 Narrows Rd., Biglerville, PA 17307. General admission is \$1.00/person; a table for swappers is \$5.00/table. For more information email tsmith1012@comcast.net.

21: 27th Annual Chesapeake Gem & Mineral Show presented by the Chesapeake Gem & Mineral Society. Rohl Armory, York Rd. at Baltimore I-695, Towson, MD. More information can be found at www.chesapeakegemandmineral.org.

Important Reminder about Parking at the Bowie Center

Bowie Parks and Planning has informed us that there is currently **NO** parking at the Community Center from now ''until certain work is completed in the shopping center lot''. People can park on Sadler, Sussex, and Shawmont, which are the 3 closest streets (all are off of Stonybrook). Restricted parking zones [indicated on signs posted in these areas] will not be enforced by the city while the lot is closed.

Bowie Parks and Planning indicated that parking issues of some sort may continue for several months. Basically, no future predictions are available at this time. There is a tiny handicapped area at the street entrance to the Community Center, next to a fenced play area. It may be possible to offload people & materials here.

Dates to Remember

Sunday, March 20th - General Meeting

Last reminder: Dues for 2016 are now overdue.

Meeting Time & Location

11:00 AM to 3:00 PM

Bowie Community Center

3209 Stonybrook Drive, Bowie, MD 20715

301-464-1737

Location/Directions: The Center is located off of Route 450 in Bowie. Detailed directions and a map can be found on the MGS website (www.ecphora.net/mgs/).

Mineral of the Meeting: Smithsonite. Bring a few choice specimens to the meeting.

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Rick Smith, Editor

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First Class Mail

