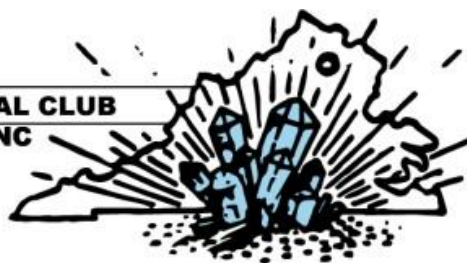




THE NORTHERN VIRGINIA

MINERAL CLUB
INC



The Mineral Newsletter

Meeting: October 27 Time: 7:45–9:00 p.m.

Long Branch Nature Center, 625 S. Carlin Springs Rd. Arlington, VA 22204



*Happy
Halloween!*



Cabochons, Soup to Nuts October 27 Program

by Kathy Hrechka

Our October 27 meeting will feature Mike Smith, NVMC member and cabochon maker extraordinaire. Mike will introduce the concepts and techniques of cabochon making, perhaps rekindling interest in club members who have tried cabbng in the past but not lately.

Mike retired 3-1/2 years ago as Vice-President of Training and Development for a local company of about 450 employees. He was responsible for everything from new employee orientation to executive development. He designed training programs, trained trainers, and implemented various programs.

Before retiring, Mike never collected rocks, but retirement gave him time for our great hobby. Mike attended his first class in cabochon making at William Holland School, where he went to spend a week with a good friend and his professional mentor, who was teaching the class. Mike was hooked

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You can explore our club website:

<http://www.novamineralclub.org/>

Northern Virginia Mineral Club members:

Please join our October 27 speaker, Mike Smith, for dinner at the Olive Garden at 6 p.m.

*Olive Garden, Baileys Cross Roads (across from Skyline Towers), 3548 South Jefferson St. (intersecting Leesburg Pike), Falls Church, VA
Phone: (703) 671-7507*

Reservations are under Kathy Hrechka, Vice President, NVMC. Please RSVP to my cell at (703) 407-5393 or kshrechka@msn.com.

after that first class, and since then he has created over 500 self-cut and self-polished cabochons. He has returned to cabbng class each year for the past 3 years. ↗



Agate cabochon made by Wayne Sukow.



The Prez Sez Memorial Service for John Wells

by Wayne Sukow

In the early morning on Sunday, September 28, John Wells passed away in his sleep. Before retire-

ment, John was an active member of the Northern Virginia Mineral Club. After retiring, he moved to Chassell, MI, where he was instrumental in establishing the Mageia Mineral Shop with his daughter Kathryn and wife Barbara.

A memorial service for John was held on October 7 at his home in Chassell. A memorial has not yet been designated. Condolences may be sent to:

Barbara and Kathryn Wells
Mageia Minerals
PO Box 295
Chassell, MI 49916

John was considerably younger than me and played a key role in how I am disposing of my mineral collection, especially the high-end collector and museum-quality specimens. In our November newsletter, I will talk about disposing of a mineral collection as you approach or enjoy retirement so you can help others build their collections and experience the joy and satisfaction that goes with it. ➤

Can You Give a Ride to a Club Meeting?

***We value our members—please
help us reach out!***

We have a member, Karen Lewis, who lives at Goodwin House on South Jefferson Street in Falls Church, VA. Can anyone volunteer to call Karen at 703-578-7394 and ask whether she wants a ride to the October meeting?

Are there other members who need a ride to meetings? Even our Fearless President, Wayne Sukow, might need a ride during the dark winter nights. Does anyone live near Fairfax City or Merrifield?

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Items at the September club auction: commemorative stamps in mint condition and calcite on prehnite from Virginia. Photos: Sheryl Sims.

Meeting Minutes: Club Auction! September 22, 2014

by Ti Meredith, Secretary

President Wayne Sukow called the meeting to order at 7:30 p.m. at the Long Branch Nature Center in Arlington, VA. A short business meeting preceded the club auction.

Guests and new members included John Perry; Ann Marie and Jerry Papa; and Pat, Cathy, and Tim Bryan. Past presidents in attendance included Rick Reiber, Barry Remer, Sue Marcus, Wayne Sukow, Rob Robinson, and Kathy Hrechka.

Jim Kostka reminded us of the GMU club show coming up in November (see his article below). He asked club members to take show cards with coupons and pass them out, placing them in schools, churches, coffee shops, and anywhere else people might take them. Jim also called for more volunteers to sign up for the show.

Alex Brenner thanked club members for awarding him with a scholarship from the Fred C. Schaefermeyer Scholarship fund. He said he has been busy at Cal Tech.

Sue Marcus contributed a tray full of minerals to serve as door prizes for the October meeting.

Vice-President Kathy Hrechka spoke about upcoming elections for club offices in 2015. The club needs members to step up and volunteer! A number of positions need to be filled, and our club will not survive unless members help out!



A short business meeting preceded the auction. Around the table, from left to right, are President Wayne Sukow, Secretary Ti Meredith, former President Barry Remer, Treasurer Kenny Loveless, and Vice-President Kathy Hrechka.



Silent auction ...

For upcoming events, including a garage sale on October 18 and the GMU club show on November 22–23, see page 15 below.

By 8 p.m., the business portion of the meeting was over, and the real fun began. The auction was a terrific success! ➤



*... and master
auctioneers at work!*



Scenes from the
 September NVMC
 meeting and club
 auction ...
 thanks to
 Sheryl Sims for all
 the great photos!



Going Once! Going Twice! Sold!

by Sheryl E. Sims

It's hard to beat the energy in the midst of a bidding war! The NVMC's semiannual mineral auction in September 2014 was great fun. Surrounded by all types of beautiful minerals, I found it difficult to keep my checkbook shut! There were times when I had to let beauties slip away, but I didn't leave the meeting empty-handed.

Much to my delight, I added minerals to my collection from some of my favorite club members—George Reimherr, Wayne Sukow, and Jim Kostka. One was a beautiful specimen of rhodochrosite with gageite from the N'Chwaning Mine in Hotazel, Kuruman, South Africa. Another was a fluorescent piece of strontianite from Winfield Quarry in Pennsylvania. I was even fortunate enough to buy a piece of Seneca Creek red sandstone from the Smithsonian Castle! I enjoy having pieces in my collection that I can associate with other collectors. It makes each acquisition very special.

Participating in the auction is nice, but it is also important to me to help our club—and the auction is one way. Other ways include serving as an officer or chair and helping out at the club's annual mineral show. Hey—you can even contribute to the newsletter! These topics were all brought up at the short business meeting before the auction, and they are all things that we as club members should consider.

It was also great to see our AFMS President-Elect, Matt Charsky, in attendance. Matt has worked hard on behalf of our EFMLS clubs and will soon do the same on the national stage!

Just remember, there's always a place for you to help out, too! I hear that the officer positions are ... going once! Going twice! Gold! ♫

Looking for Cutting/Polishing Services

Matthew Sullivan has a large spherical stone that he would like to have polished to a glossy finish. If you know of anyone in the area who cuts and polishes stones, please let him know at remnantsofmagic@yahoo.com.



Top to bottom: Rhodochrosite with gageite (South Africa); strontianite (Pennsylvania); Seneca Creek sandstone (Maryland). The red sandstone is from blocks quarried near Seneca Creek that were used to build the Smithsonian Castle. The National Mall architect has spare blocks for repairs to the castle, and the specimen is from one of them.



Rock/Soil Composition Goes on Display

Thanks to Sue Marcus for the tip!

Jorge Rodriguez-Gerada's installation *Out of Many, One*—a 6-acre portrait made entirely of sand, soil, and gravel—goes on view on the National Mall on October 4. The work is a composite portrait of several people photographed in Washington, DC.



Bug-in-a-Vug

by Bob Cooke

I recently discovered a new technique for performing a cardiovascular stress test:

1. Concentrate on observing minerals with a microscope at 20x.
2. Shift the field of view to investigate a promising vug in a rock sample.
3. Realize that the crystals in the vug are actually a sizable insect—1/4 inch long and looking monstrous in the scope! ➤



The rock is from the Palermo Mine in New Hampshire. I put the white lines around the vug to aid in photography. I used a Nikon D-80 camera with an 85-millimeter macro lens and extension tubes.

Volunteer Opportunities at the Smithsonian!

Adapted from links to the Smithsonian National Museum of Natural History Website sent by Sue Marcus.



Hall of Geology, Gems, and Minerals

Help visitors interpret thousands of world-class rocks, minerals, and meteorites! The specimens tell fascinating stories about how our planet and solar system formed and continue to evolve today. Volunteers provide visitors with unique experiences and a deeper understanding of how geology affects our daily lives.

Training is led by museum educators and researchers. Volunteers participate in five evening sessions beginning in late October. You will learn how to engage diverse audiences in conversations about meteorites, plate tectonics, and minerals and gems.

No prior knowledge of geology is necessary, but teaching experience and a science background are a bonus. You should be interested in geology and comfortable working with diverse audiences, with good communication skills and the ability to multitask.



The Last American Dinosaurs: Discovering a Lost World

In November 2014, Smithsonian will open a new dinosaur exhibit. Sixty-six million years ago, the last dinosaurs roamed what is now the western interior of North America; a global catastrophe left a single group of dinosaurs—birds. Join us as we piece together a picture of their world by looking at ancient fossils!

This 4-year exhibition will provide visitors with the opportunity to learn about mass extinction events, in particular the K/Pg extinction event 66 million years ago, and the role these events play in shaping past, present, and future ecosystems. We will also “pull back the curtain” for a peek behind the exhibit development process.

As an exhibit guide, you will introduce visitors to the exhibit and answer questions, encouraging them to think more deeply about paleontology, including how fossils help us understand past worlds. You will help interpret the behind-the-scenes work of fossil preparation happening in the FossiLab; you will also lead visitors in hands-on activities related to paleontology.

Training is led by museum educators and paleontologists. Volunteers participate in five evening sessions beginning in late October. You will be trained in museum learning, visitor engagement, paleontology, and fossil preparation. Teaching experience and a science background are a plus. You should be interested in paleontology and comfortable working with diverse audiences, with good communication skills and the ability to multitask.

For more information on volunteering in either area, please send an e-mail to NMNHVolunteer@si.edu.



The Annual NVMC Mineral Show—Volunteers Needed!

Jim Kostka, Show Co-Chair

Our annual mineral show is coming up on November 22–23. This is *your* show—we need your help!

It's easy to sign up online. Just type or copy and paste the following spot link into your browser: <http://vols.pt/fmg5iM>. Then enter your e-mail address twice.

You'll see a range of activities you can sign up for. Just click on whatever appeals to you. Even if you can't participate this year, just click "No, thanks." Maybe next year!

Just to let you know, there are four white display cases available for allotment. When they are all taken, that's it. If you have a great display case available, please let Jim Kostka know.

Your rocks are needed for the show! Please give generously! This is a great time to clean out your garage and basement and donate to the club!

In particular, we need moderately sized specimens suitable for the kids' tables, door prizes, and the silent auction.

- Kids Mini Mines—the size of a quarter to a half-dollar is best. Detailed information on the specimen is not necessary. Also needed are loose Herkimer diamonds for the Herkimer bin and lapidary scraps (small slabs, cabs, and cuttings) for the lapidary bins.
- Door prizes—pretty specimens are best, but relatively small (under 4 inches). Labels are desirable but not required.
- Silent auction—labeled and well-identified specimens are best. Again, the specimens should be moderately small.

If you have something to contribute to the cause, bring it to the show—or contact Tom Taaffe, Jim Kostka, or Rob Robinson. ➤

Spinosaurus on Display

The skeleton model, replete with fossils, of a huge swimming dinosaur will be on display from September 2014 until April 2015 at the National Geographic Museum. At over 50 feet long and 20 feet



Last year's GMU mineral show was a big hit with visitors of all ages.

***"Research has shown that
people who volunteer often
live longer."***

*~ Allen Klein, author and
motivational speaker*

high and weighing 6 tons, spinosaurus is the largest predatory dinosaur to ever roam the Earth—even bigger than T. rex.

In this exhibition, you can travel with National Geographic explorers and scientists to the remote edges of the Sahara to discover the origins of this rare African dinosaur and the mysterious journey that led to its rediscovery.

The National Geographic Museum is located at 1145 17th St. NW in Washington, DC. Admission is \$11 for adults, \$9 for seniors, and \$7 for children 12 and under. ➤



Spinosaurus. Davide Bonadonna, National Geographic.

Chalcedony

Editor's note: The piece is adapted from Wikipedia. All photos are from Wikipedia.

Chalcedony, like quartz, is silicon dioxide (SiO_2). It is a cryptocrystalline form of silica composed of very fine intergrowths of quartz and moganite. Like quartz, moganite is a silica mineral, but it has a monoclinic structure, whereas quartz has a trigonal crystal structure. Chalcedony has a waxy luster. It can be semitransparent or translucent, with a wide range of colors.

The name chalcedony comes from the Latin *chalcedonius*, a word that Pliny the Elder used in his *Naturalis Historia* for a translucent kind of jasper. It is probably derived from the ancient Greek town of Chalcedon in Asia Minor.

Chalcedony takes various forms.

Agate has multicolored curved or angular banding.

Fire agate shows iridescent phenomena on a brown background; iris agate shows exceptional iridescence when light is shone through the stone. Landscape agate has mineral impurities, making the stone resemble landscapes.

Aventurine is characterized by translucency and platy mineral inclusions that bestow a shimmering or glistening effect called aventurescence. Chrome-bearing fuchsite (a variety of muscovite mica) is the classic inclusion, giving the stone a silvery green or blue sheen. Oranges and browns are due to hematite or goethite.

Carnelian ranges from a pale orange to an intense, almost black color. Sard is similar to carnelian but is brown rather than red.

Chrysoprase has a green hue due to nickel oxide. The darker varieties of chrysoprase are known as prase, a term also used to describe green quartz.



Heliotrope is dark green with red inclusions of iron oxide resembling droplets of blood, giving heliotrope its alternative name of bloodstone. A variety with yellow instead of red spots is known as plasma.

Moss agate has green filament-like inclusions, giving it the appearance of moss or blue cheese. Tree agate is similar, but solid white with green filaments, whereas moss agate usually has a transparent background, making the "moss" appear almost three-dimensional. Moss agate is not a true agate because it lacks concentric banding.



Mtorolite is a green variety of chalcedony colored by chromium. Also known as chrome chalcedony, it is found mainly in Zimbabwe.



Onyx is a variety of agate with black-and-white banding. Agate with brown, orange, red, and white banding is known as sardonyx. ➤



Chalcedony cameo of Roman Emperor Titus, 2nd century A.D. Note the signature waxy luster.

Sugarloaf Mountain: A Maryland Mystery

by Hutch Brown, Editor

Sugarloaf Mountain looms over the rolling hills of Maryland's Piedmont like a mysterious outlier of the Blue Ridge Mountains to the west. The average elevation of the area is about 500 feet; Sugarloaf reaches almost 1,300 feet, much higher than anything nearby until you reach Catoctin Mountain, where the Blue Ridge geologic province begins some 10 miles to the west.

Why is Sugarloaf there? If there's a clear and compelling reason, I haven't found it. But the region's geology points to an intriguing possibility, suggested by the sources referenced below.

An Unusual Landform

As you drive northwest on I-270 toward Frederick, MD, Sugarloaf Mountain rises on your left about 35 miles from Washington, DC. A privately owned trust fund maintains a series of trails that are open to the public. You can also drive most of the way to the top for a view.

The name comes from the commercial form of sugar before it was sold in grains. Early settlers sometimes named isolated hills or mountains, known to geologists as monadnocks, for their resemblance to the so-called sugarloaf they bought in a hard rounded mass. Maryland's Sugarloaf Mountain is one of many examples.

As a landform, Sugarloaf is actually a ridge, with the "mountain" at its high point. It lies in the higher portion of the Piedmont geologic province, to the east of the basin at the foot of Catoctin Mountain (fig. 1). Like most landforms in the mid-Atlantic region, the ridge runs from southwest to northeast, paralleling the ridges to the west—and pointing to common origins.

Sugarloaf's rocks are metamorphic, with a hard gray-white core overlain by a softer gray-brown rock that has mostly worn away. The core is known as Sugarloaf Mountain quartzite; the overlying Urbana formation has been variously identified as phyllites, metasiltsstones, and a metamorphosed sandy shale called metagraywacke.



Sugarloaf Mountain (circled) is an uncharacteristic outlier in the rolling landscape of Maryland's Piedmont. Sources: Wikipedia (above); Southworth and others (2007) (below).

Iapetan Rifting

The rocks originated during the Cambrian period, more than 500 million years ago. About 570 million years ago, all of Earth's continents were joined in a supercontinent known as Rodinia. The supercontinent was starting to break up, with rifting taking place along ancient fault lines between proto-North America and proto-Africa.

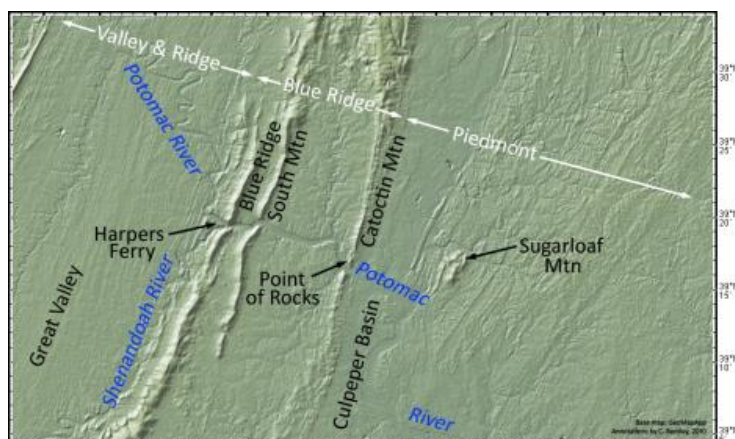


Figure 1—Sugarloaf Mountain in relation to other topographical features in the area. Source: Bentley (2010).



Rocks associated with Sugarloaf Mountain include Sugarloaf Mountain quartzite (top) and Urbana metasilstone (bottom). Source: Southworth and others (2002).

As the continents separated, the granitic basement rocks that still underlie much of our area today stretched and broke, forming great rift valleys that filled with gravels, sands, and silts. Magma welled up through the thinned overlying crust, causing lava flows. An ancient ocean known as the Iapetan formed along the edge of today's Blue Ridge Province in Maryland (fig. 1). The ocean gradually submerged the rocks along the continental margin.

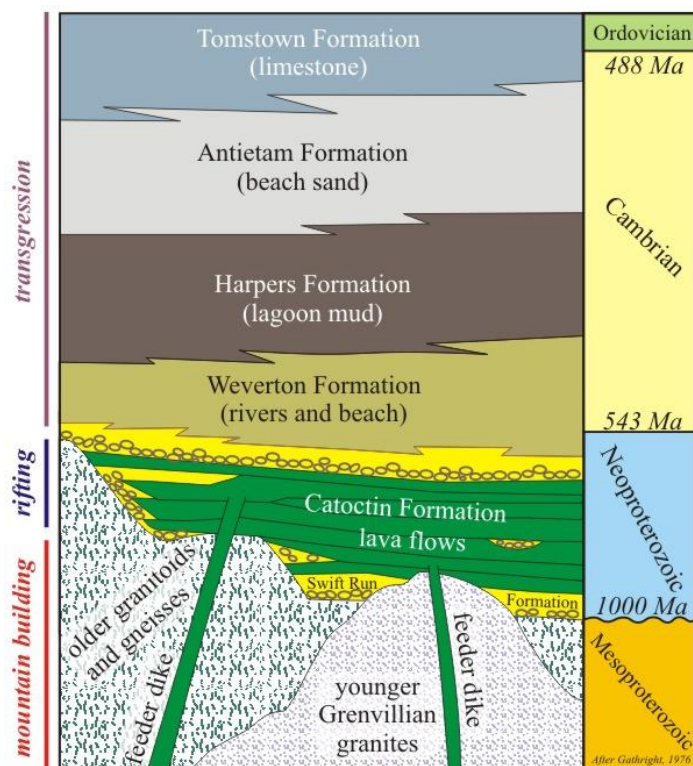


Figure 2—Except for the granitic basement rocks, the rock formations associated with the Blue Ridge Province are tied to rifting as proto-North America and proto-Africa pulled apart, forming the Iapetan Ocean. Source: Bentley (2014).

The evidence for all this comes from the series of rocks that make up the Blue Ridge Province (fig. 2). The oldest rock is the granitic basement rock generically known as Grenville granite, more than a billion years old. During Iapetan rifting, the basement rock was covered by the sands and conglomerates of the Swift Run formation, followed by the lava flows that later metamorphosed into Catoctin greenstone.

Next came a sequence of nearshore and offshore sediments associated with rising and falling sea levels (what geologists call marine transgressions and regressions). The sands that became Weverton quartzite were covered by the silts and muds that eventually turned into Harpers phyllite, which in turn gave way to more sands, the origins of Antietam quartzite.

Finally came the Tomstown formation of dolomite and limestone. By then, the Iapetan Ocean had a well-defined continental shelf, and the rocks were all buried at sea, allowing new rocks to form from deposits of shells and other organic ocean matter.

Today, the Tomstown rocks are west of the Blue Ridge in the Great Valley.

Sugarloaf Rock Deposition

So what does Blue Ridge geology have to do with Sugarloaf Mountain? Nothing—except that the Sugarloaf rocks started forming at about the same time, only farther out to sea.

The sands that would become Sugarloaf quartzite collected on what became the continental slope toward the ocean floor (fig. 3). Over time, the sands were covered by the finer continental sediments of the Urbana formation.

Covering the Urbana formation were layers of silt that would become known as the Araby formation of metasiltstones. In turn, the Araby rocks were overlaid by organic marine sediments, the basis for the Frederick and Grove limestone formations. One source calls the Frederick and Grove formations “metasediments” (Southworth and others 2009), reflecting the tremendous tectonic forces at work on these limestones over time.

Farther out to sea, a thick layer of mud formed the basis for what would become known as Ijamsville phyllite, a metamorphic Piedmont rock that was pushed up onto the continent by later mountain-building events. The phyllite is associated with a thin layer of limestone.

By about 450 million years ago, the net result was a sequenced layering of basalt and sedimentary rock overlying the basement rocks on proto-North America’s continental shelf and slope (fig. 3). Valley and Ridge and Blue Ridge rocks were on the shelf closest to shore. Farther out were the limestones you see today near Frederick, MD, along with the Sugarloaf rocks. Farthest out were the deepwater limestone and mudstone, now part of the Piedmont.

Except for the underlying basement rocks, each layer was relatively flat. No folding, faulting, or metamorphism had yet occurred.

Mountain-Building Events

But that would change. From about 450 million to about 320 million years ago, proto-North America collided with a series of land masses as the Iapetan Ocean began to close.

First came two island arcs in a pair of mountain-building events (called orogenies), with a long period of tectonic calm in between. An island arc is a chain of volcanic islands, usually shaped like an

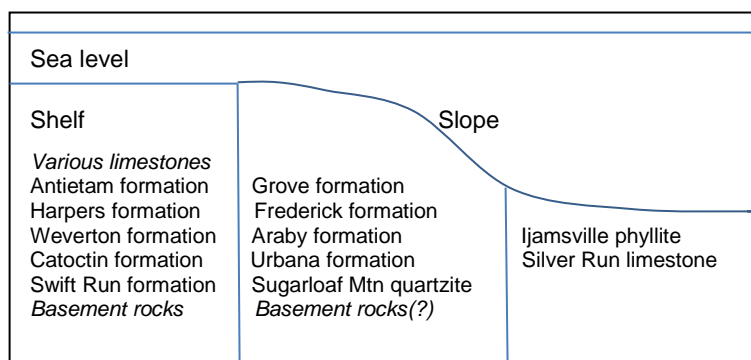


Figure 3—Offshore rock deposition following Iapetan rifting (from about 570 to about 450 million years ago). Source: Southworth and others (2009).

arc, that forms where one tectonic plate in the ocean subducts under another.

As the ocean crust subducted under each approaching island arc, it acted as a ramp; each arc—first the Taconic, then the Avalon—rode up over the continental margin, attaching itself to proto-North America. The added land masses are known as terranes, fragments of crustal material broken off from one tectonic plate and sutured onto another.

The Taconic collision was uneven across the continental margin, because the coast in our area was jagged (fig. 4). Mountains formed in what is now southwestern Virginia and southeastern Pennsylvania, but the area in between was sheltered from direct impact. Marine basins formed that gradually filled with sediments from the eroding mountains.

A period of tectonic calm followed from about 435 million to 370 million years ago. Because quartz is relatively slow to weather, it is the last thing to

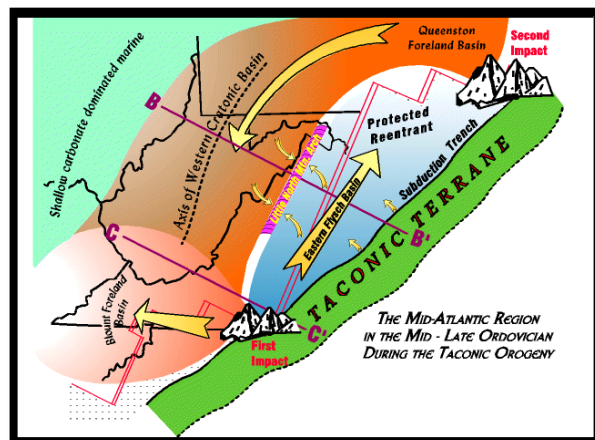


Figure 4—Mountains formed where the Taconic terrane (olive green) struck the jagged continental coastline (red lines). The area ahead of the terrane contained marine foreland basins (blue/orange/red) that gradually filled with sediments. Source: Fichter and Baedke (1999).

erode; the sedimentary sands that formed in the basins from the last remnants of the Taconian Mountains are variously known today as the Clinch, Massanutten, and Tuscarora sandstone (they are all the same rock layer).

About 350 million years ago, a second island arc, known as the Avalon terrane, struck the proto-North American continent. Again, mountain building was uneven along the contact zone, and the mountains gradually eroded away. The remaining terrane formed the bedrock for today's coastal areas, out to the continental shelf.

About 320 million years ago, the Iapetan Ocean completely closed. Proto-Africa collided with proto-North America, helping to form another supercontinent called Pangaea. As with the earlier terranes, the dipping subduction zone acted as a ramp, allowing proto-Africa to slide up over the edge of proto-North America (fig. 5). An enormous mountain chain formed, probably centered over what is now the Piedmont Province, with its heavily metamorphosed terrane rocks.

The Alleghanian Transport Train

The enormous weight of the African continental plate and the tremendous heat and stress generated by its collision with proto-North America not only metamorphosed the underlying rocks, but also displaced them, moving them long distances and forming all or part of three geologic provinces: the Valley and Ridge, Blue Ridge, and Piedmont.

Old sutures associated with the terranes and old faults along the ancient continental edge caused large sheets of rock to detach and slide westward along great, nearly horizontal thrust faults (fig. 5). Parts of both the Taconic and the Avalon terranes detached and moved inland, forming belts of metamorphic rock in what is now the Piedmont Province.

The thinned and stretched Grenville basement rocks at the old continental margin also broke free. Together with overlying rocks, they moved inland ahead of the terranes along thrust faults.

At the head of the great rock train were limestones and overlying sedimentary rocks from the ancient Taconic foreland basins (fig. 6). Tectonic forces pushed them westward along the North Mountain fault, forming what is today the Great Valley.

The folded sedimentary layers formed what geologists call synclines—layers of rock folded down in

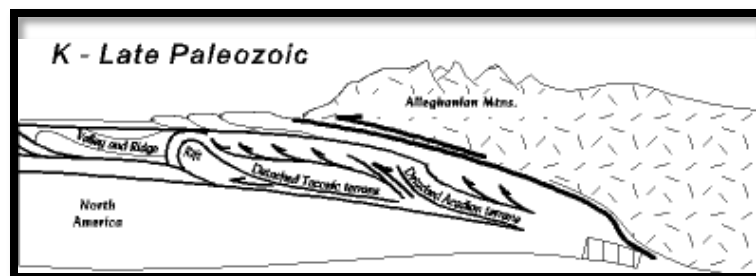


Figure 5—The Alleghanian orogeny, about 320 million years ago (during the late Paleozoic era). As proto-Africa rode up over proto-North America, massive thrust faulting pushed Taconic and Avalon rocks and Grenville basement rocks westward while folding the flat sedimentary rocks beyond. Source: Fichter and Baedke (1999).

the middle and up on each end. One syncline is clearly visible today in Massanutten Mountain, with its erosion-resistant upfolds of Massanutten sandstone, remnants of the ancient Taconian Mountains (fig. 6).

A thrust fault just to the east of the Massanutten syncline carried the ancient Grenville and associated rocks upward, forming an anticline—the opposite of a syncline, folded up in the middle and down on each end (fig. 7). The anticline is enormous, up to 20 miles across, encompassing the entire Blue Ridge Province. Most of it has eroded away, leaving parallel ridges made up of granitic rocks as well as Catocin greenstone, Weverton quartzite, Harpers phyllite, and Antietam quartzite.

The train of transported rocks didn't end there. The Bull Run fault along the eastern edge of the Blue Ridge Province transported the metasedimentary limestones from the continental slope—the Grove

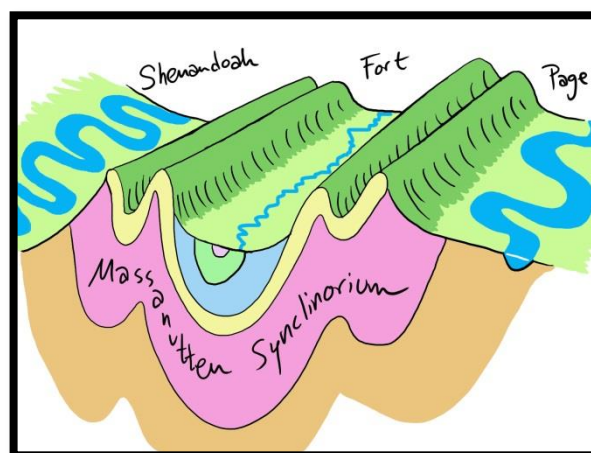


Figure 6—The Massanutten syncline underlies the Shenandoah, Fort, and Page Valleys to the west of the Blue Ridge. The syncline is formed from rocks laid down in the Taconic foreland basins. Yellow is Massanutten sandstone and pink is Martinsburg shale; brown is older (Cambrian/Ordovician) limestone. Source: Bentley (2012).

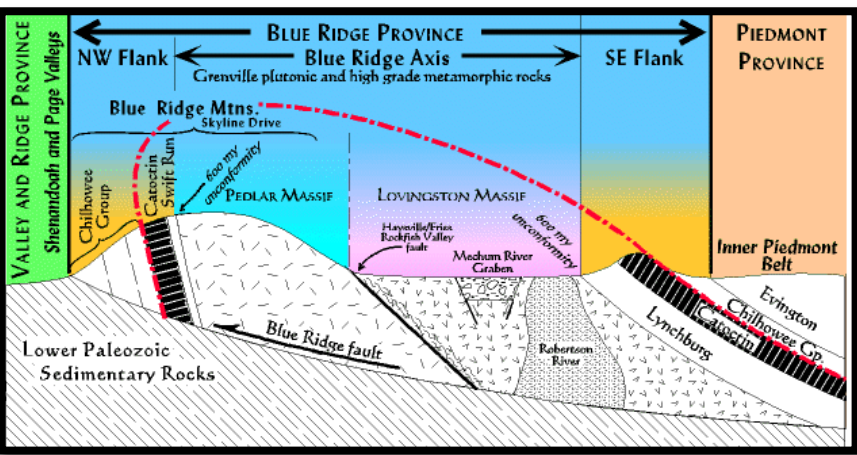


Figure 7—The Blue Ridge thrust fault and anticline. The Blue Ridge Province includes a suite of associated rocks, such as Grenville granite, Catoclin greenstone, Weverton quartzite (part of the Chilhowee group), and other rocks with origins in the Iapetan rifting event about 570 million years ago. Source: Fichter and Baedke (1999).

and Frederick formations (fig. 3)—forming a syncline in what is now Frederick Valley in Maryland (fig. 8).

The syncline is wedged between two basins containing much younger sedimentary rock—the Culpeper and Gettysburg Basins (the pink rocks in figure 8). Where did the basins come from?

About 250 million years ago, during the Triassic period, the supercontinent Pangaea began splitting apart as what is now Africa separated from North America. A series of parallel rift valleys formed, reactivating the Bull Run fault.

Along Catoclin Mountain (the orange western margin in figure 8), huge blocks of rock dropped down as if on a hinge from the metamorphic Piedmont rocks to the east. Catoclin Mountain became an enormous ridgeline overlooking a deep rift valley between the Blue Ridge rocks to the west and the Piedmont rocks to the east. The valley filled with sediments that hardened over time into rock layers.

Is the Frederick Valley syncline a geographical anomaly? Why didn't it sink like the rocks on either side to form a basement for the Triassic basins?

A Blue Ridge Mini-Me?

One final member of the thrust fault transport train remains. The Sugarloaf rocks emerged along a series of fault lines known as the Martic fault (fig. 9), to the east of the Frederick Valley syncline. The Martic fault also transported other metamorphic rocks. The Sugarloaf rocks were folded into an anticline, with the Urbana metasiltstones and related

rocks arched over the Sugarloaf Mountain quartzite (fig. 9).

So the Massanutten syncline, Blue Ridge anticline, Frederick syncline, and Sugarloaf anticline are all related, forming a sequence of rocks transported and folded during the Alleghanian orogeny. As Southworth and others (2009) put it in more technical terms, “The Massanutten synclinorium, Blue Ridge–South Mountain anticlinorium, Frederick Valley synclinorium, and Sugarloaf Mountain anticlinorium constitute a fold train that was transported westward above the North Mountain thrust

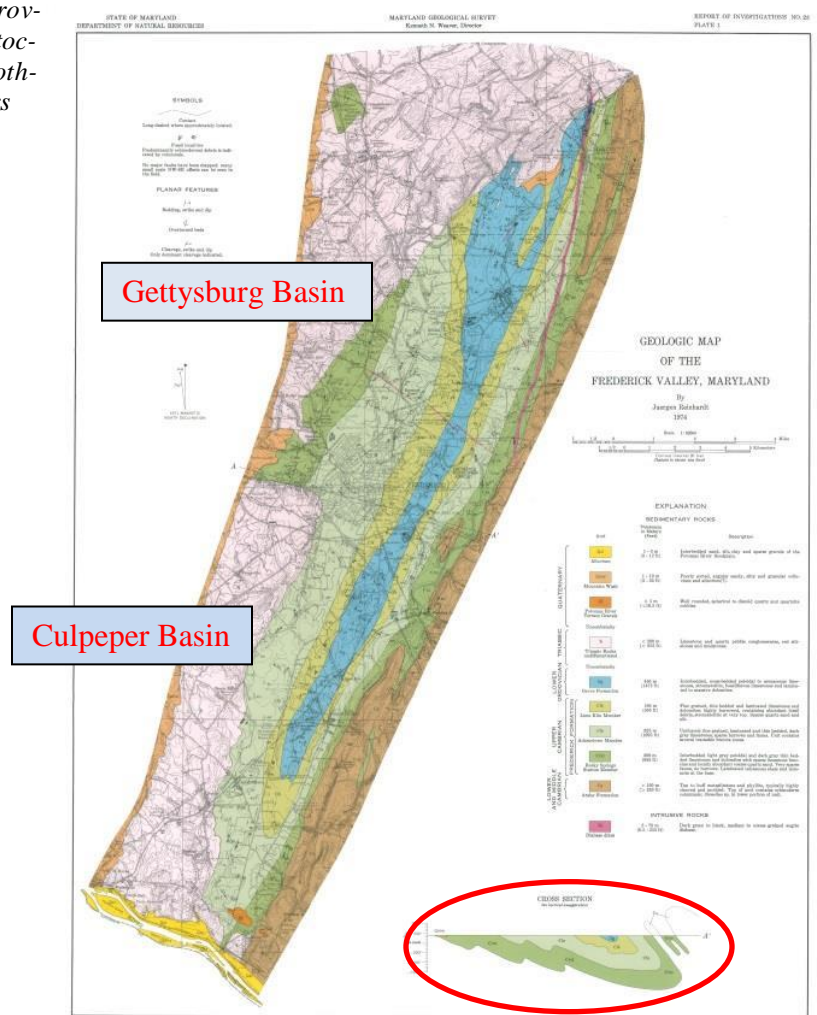


Figure 8—Frederick Valley in Maryland, showing limestone syncline cross-section (circled, bottom right). The Grove limestone is blue; shades of green represent members of the Frederick limestone formation; brown is Araby metasiltstone. Orange along the western edge is Catoclin Mountain (Catoclin greenstone), and pink represents various younger sedimentary rocks deposited during and after the rifting event that formed the Atlantic Ocean. The Frederick Valley anticline appears to separate much younger Triassic basins—the Culpeper to the southwest from the Gettysburg to the northeast. Source: Reinhardt (1974).

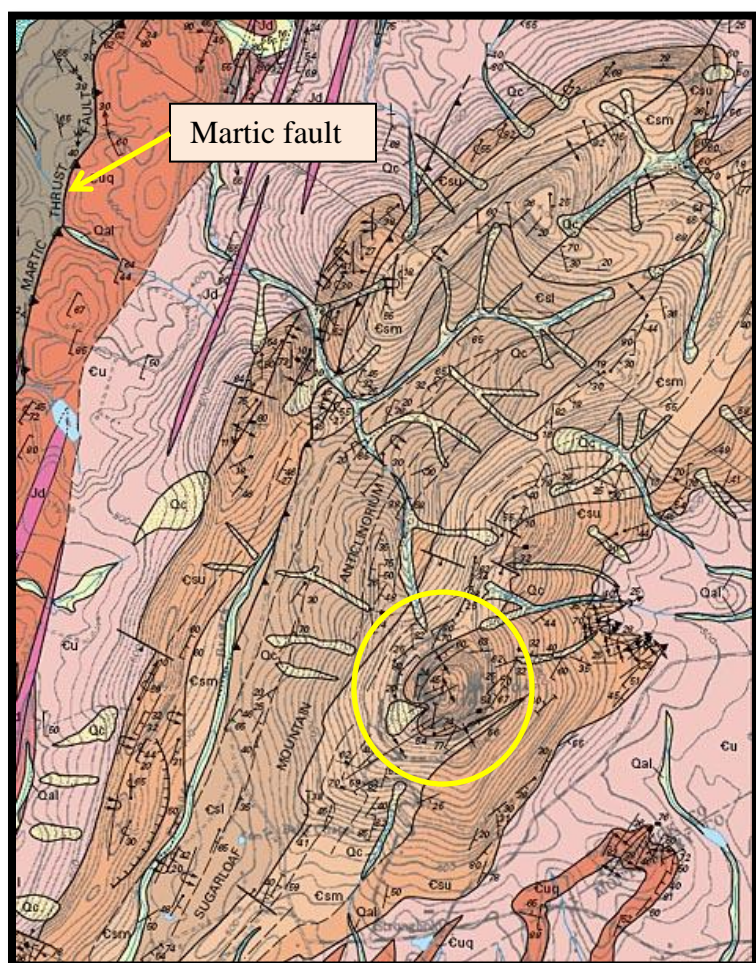


Figure 9—Sugarloaf Mountain quartzite (light shades of orange) emerges from the younger overlying Urbana rocks (pink and dark orange), forming an anticline trending southwest to northeast. The peak is circled. Brown beyond the Martic fault is the overlying Araby formation. Source: Southworth and others (2007).

fault during the late Paleozoic" (fig. 5).

Accordingly, Bentley (2010) has speculated that Sugarloaf quartzite and Weverton quartzite are practically the same rock, each overlain by the same phyllite formation. The rocks all originated at about the same time and in about the same place—one set on continental beaches and lagoons, the other farther offshore.

If they are essentially the same rock, then Sugarloaf Mountain might have the same geology as the Blue Ridge Mountains to the east. Is Sugarloaf a Blue Ridge “mini-me” anticline? Is the emerging quartzite underlain by Catoclin greenstone and the Grenville basement rocks?

No one knows for sure. For now, the origins of Sugarloaf Mountain remain shrouded in mystery.

But an emerging Blue Ridge “mini-me”—wouldn’t that be cool? ↗

Acknowledgment

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Upcoming Events (of interest in the mid-Atlantic region)

October

- 10:** Club auction; Chesapeake Gem & Mineral Society; jewelry, books, rough cutting, lapidary equipment, and more; Westchester Community Center, 2414 Westchester Avenue, Oella, MD; 7:30 (preview at 7)
- 10–12:** 58th Annual Paul Desautels Micromount Symposium; The Baltimore Mineral Society; The Friends School of Baltimore, 5114 North Charles Street, Baltimore, MD; registration required: Carolyn Weinberger, P.O. Box, Glyndon, MD 21071-0302 or info@baltimoremineralsociety.org
- 18:** Garage sale, Cynthia Payne Collection of minerals from locations worldwide; Fishers' garage, 14981 Gold Post Ct., Centreville, VA (park on circle and walk up Pipe Stem Drive to Fishers' garage); 10–4; contact Susan and Ed Fisher, 703-830-9733.
- 18–19:** 41st Annual Jewelry, Gem, Mineral & Fossil Show; Kanawha Rock & Gem Club; So. Charleston Community Center, South Charleston, WV.
- 18–19:** Annual Fall Outdoor Rock Swap & Sale; North Jersey Mineralogical Society; Sterling Hill Mining Museum, 30 Plant St, Ogdensburg, NJ; 9–5; free admission; <http://www.nojms.webs.com>
- 25:** Ultraviolation 2014 (fluorescent minerals only)—show/swap/sell; Rock & Mineral Club of Lower Bucks County, PA; First United Methodist Church, 840 Trenton Road, Fairless Hills, PA; 9–4; \$2 donation, 12 & under free.
- 25:** Southern Penn Fall Swap & Sale; South Mountain Fairgrounds, 1.5 miles west of Arendtsville, PA, on Route 234; GPS address: 615 Narrows Road, Biglerville, PA 17307; 8–3; \$1 adults, children free; contact tsmith1012@comcast.net
- 26:** 2014 Fall Auction; Gem, Lapidary & Mineral Society of Washington, DC; Catherine J. & Bruce Gaber Collection of minerals, plus gemstones, jewelry, lapidary rough, books, beads, & fossils; 5500 Sonoma Rd., Bethesda, MD; 12–5; contact Al DeMilo, abdemilo@verizon.net; directions <http://www.bethesdawomansclubmd.com>

November

- 1–2:** 45th Gemarama; Tuscarora Lapidary Society; CFS, The School at Church Farm, 1001 E. Lincoln Hwy, Exton, PA; <http://www.lapidary.org>
- 8:** Mineral Swap; Richmond Gem and Mineral Society; Ridge Baptist Church Meeting Hall, 1515 East Ridge Road, Richmond, VA; 8–3/4
- 8–9:** Bead Bazaar; Activity Center, Bohrer Park, 506 S. Frederick Ave., Gaithersburg, MD; Sat 10–5, Sun 11–5PM; <http://www.bsgw.org/nextbazaar>
- 22–23: Northern Virginia Mineral Club Annual Show;** George Mason University; Braddock Rd. & Rte. 123, Fairfax, VA; 10–6, Sun 10–4. To volunteer, please click on <http://vols.pt/fmg5iM>

March 2015

- 7–8:** 52nd Annual Earth Science Gem & Mineral Show; Delaware Mineralogical Society, Inc.; Delaware Technical & Community College, 400 Stanton-Christiana Road, Newark, DE; Sat 10–6, Sun 11–5; \$6 adults, \$5 seniors, \$4 children 12–16, under 12 free; <http://www.delminsociety.org>
- 28–29:** 46th Annual Che-Hanna Rock & Mineral Club show; Athens Twp. Vol. Fire Hall, 211 Herrick Ave, Sayre, PA; Sat 9–5, Sun 10–4; contact Bob McGuire uvbob@epix.net

What's this Lamp Worth?

Bob Zebrowski is looking for someone who can appraise the value, either as a lamp or just as stone, of a 17-pound lamp made of beige onyx, originally purchased in Turkey in the 1970s. If you can help, please contact him at zebrowskirg@gmail.com.





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The Northern Virginia Mineral Club

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Visitors are always welcome at our club meetings!

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PO Box 10085, Manassas, VA 20108

OR

Bring your dues to the next meeting.

Purpose: To promote and encourage interest in and learning about geology, mineralogy, lapidary arts, and related sciences. The club is a member of the Eastern Federation of Mineralogical and Lapidary Societies (EFMLS, <http://www.amfed.org/efmls>) and the American Federation of Mineralogical Societies (AFMS—at <http://www.amfed.org>).

Dues: Due by January 1 of each year; \$15 individual, \$20 family, \$6 junior (under 16, sponsored by an adult member).

Meetings: At 7:45 p.m. on the fourth Monday of each month (except May and December)* at **Long Branch Nature Center**, 625 Carlin Springs Road, Arlington, VA 22204. (No meeting in July or August.)

**Changes are announced in the newsletter; we follow the snow schedule of Arlington County schools.*