The Cohoes Mastodon in the NYSM in Albany (see page 2 for more on Mastodons and Woolly Mammoths)

Website
http://www.wcgmc.org/

Bill Lesniak demonstrates the club’s new hand held polisher.

Next Club Meeting
Friday March 11th, 7:00 PM
Presbyterian Church, Maple Court, Newark, NY

PROGRAM: New York Fossils
Special Presentation: (Stephen Mayer)

HIGH RESOLUTION STRATIGRAPHY OF THE DEEP RUN SHALE MEMBER (MOSCOW FORMATION) ACROSS THE FINGER LAKES OF NEW YORK: A REINTERPRETATION OF BASIN AXIS DEPOSITION

- Stephen will practice the 15 minute talk he will give on March 23rd at the Northeast Regional Geological Society of America meeting in Albany. Come see him review the geology and paleontology across 9 western New York sites that we love to visit.
- Let’s all bring in some of our favorite New York fossils to share with others. We cannot quite yet return to the collecting fields, but we can surely enjoy looking at past finds and acquisitions.

Club Workshop, Saturday, March 12th
Bring your rocks to saw and polish. The workshop is open to all paid club members; we do ask for $5/visit from each adult to help maintain equipment.

When: 10:00 AM til mid afternoon, Sat. March 12th
Where: The Weiler’s Barn and Club Workshop
6676 E. Port Bay Rd, Wolcott, NY
Rules: BYOR (Bring your own rocks) to saw, grind, polish or even facet. Training on equipment is available. Eye protection is recommended.

ANNOUNCING:
Wayne County Gem and Mineral Club Public Facebook Group.

Those of you known to be Facebook users have already been invited. If you are a “closet” user (i.e. unknown to us), then consider joining the group. The administrator (Fred Haynes) promises to be prompt in accepting you if you elect to “follow” the group. The title above should link you to the site.

It is our hope that this public forum can help us communicate with each other even more while at the same time reaching out to potential folks in our area who would like to join us in our enjoyment of all things rock, mineral, and fossil.

Please use that like button, respond to posts frequently, and post interesting items related to the hobby we all share. We can’t always be out digging up fossils and minerals, but we can always find new ways to expand our interests, and those of others, in the hobby we all love.

WINTER WEATHER: An e-mail note will be sent if a Friday meeting must be cancelled. Or call Bill Lesniak (315-483-8061), Fred Haynes (585-203-1733) or Glenn Weiler (315-594-8478)
As geologists and amateur fossil and rock hounds, many of us focus on the Proterozoic minerals of the Adirondacks and/or the Paleozoic fossils of western and central New York State. However, two very important and much overlooked prehistoric animals roamed New York State approximately 10,000 years ago. The Woolly Mammoth and the American Mastodon were prominent residents in our own backyards.

In fact, one of the more famous and complete Mastodon skeletons unearthed in New York State was found on the Pirrello celery farm just seven miles north of Newark in 1973. The bones were uncovered about 75 cm below the surface in a gray marl layer. What’s more, the founders of the Wayne County Gem and Mineral Club, Jim and Marion Wheaton, were instrumental in the historic discovery and the resulting dig. Over 40 vertebrae and foot bones were recovered and radiocarbon dating indicated that the Pirrello Mastodon had died approximately 11,700 years ago (Ference and Kozlowski, 2012). Marion Wheaton’s summary of the event makes for interesting reading in the July 2008 issue of the WCGMC News (linked here).

Discovered a few miles west, a molar of a Woolly Mammoth excavated during the 1910 construction of the NYS Barge Canal Lock 26 just 2.5 miles east of Clyde has been dated to about 11,750 BP (9800 BC). Such close radiocarbon dates and proximity of where the remains were found provide evidence for the coexistence of Mastodons and Woolly Mammoths in New York State during the waning stages of the last Ice Age.

So, how do scientists distinguish Mastodons from Woolly Mammoths? And what do these differences tell us about their relative size, their preferred environments, and their diets?

The Woolly Mammoth was first described by Georges Cuvier in 1796 as an extinct species closely related to the extant Asian elephant. The appearance and life history is well known from the discovery of not only fossilized bones but also frozen carcasses from Siberia and Alaska. The males grew to 9-11 ft at the shoulders and weighed approximately 6.6 tons whereas females grew to 8.5-9.5 ft in height and weighed 4.4 tons. The mammoth was well adapted to the cold environment of the last Ice Age having a heavy woolly outer coat of fur, which reached lengths of 35 inches on the flanks and underside and an under coat of dense curly wool 3 inches thick. Moreover, the ears and tail were short to minimize frostbite and heat loss.

In 1996, the United States featured the two extinct Proboscidea mammals in a set of four stamps. The other two stamps featured a Smilodon (saber-tooth cat) and an Eohippus (a small early Equid or horse).

The Woolly Mammoth had very long, curved tusks (modified incisor teeth), which in males typically reached 7.9-8.9 ft long and weighed 100 lbs. Females tusks were shorter and thinner averaging 4.9-5.9 ft long and weighed only 20 lbs. They had 4 molars with 26 ridges of enamel and were replaced 6 times during a lifetime.

The Woolly Mammoth’s trunk was large and muscular and together with the tusks was used for foraging and drinking water, displays of territorial and intra-species dominance as well as defense against predators. Furthermore, the molars were particularly useful in grinding mainly grasses and sedges. An adult may have lived 60 years when its last set of molars had worn out and the animal died of starvation.

The Mastodon was similar in appearance to modern elephants and to a lesser extent to the Woolly Mammoth but not closely related to either. Although
fossil bones have been found in Asia, they were widely distributed throughout North America from Alaska to Florida, and from California to New York. The Mastodon had shorter legs, a longer body and was more heavily muscled than Mammoths. The average size of a large female or small male was 7 ft 7 inches in height at the shoulders whereas large males ranged from 9.5 ft – 13.5 ft tall and weighed 15-18 tons. Unlike the Mammoth, the head was low and long, not high and domed. The tusks were strongly curved especially in the males. Furthermore, Mastodons had cusp-shaped teeth in contrast to the enamel plates of Woolly Mammoth and elephant teeth. They were well adapted for mastication of leaves and branches while browsing in forests.

The high crowned “nipple-like” molars of the mastodon (left) were designed for mashing leaves and twigs, while the flat molars of the mammoth (right) look more like cheese-graters and were better suited for grinding tough grasses. (from Paleoaeerie.org, 2014)

Although Mastodon bones were discovered in the early 1700’s, the species was not recognized until 1817 by George Cuvier noting the conical shaped teeth as belonging to a different species other than Mammoth or elephant. As a genus, Mammut (Mastodon) diverged approximately 27 million years ago from Mammoths and elephants.

New York’s most famous mastodon, the Cohoes Mastodon, (page 1) was discovered in 1866 along the Mohawk Rive in Albany County, New York. The 8 foot high 15’ foot long behemoth now resides for all to see in the South Hall Lobby of the New York State Museum in Albany.

The Woolly Mammoth and the American Mastodon both disappeared about 10-11,000 years ago during the late Pleistocene and early Holocene along with other Pleistocene megafauna possibly either due to overhunting by Clovis Indians, climate change or both. A few isolated populations of Mammoths survived up to 4300 years BP on Wrangel Island in the Arctic of northern Canada and their disappearance coincided with the appearance of human arrival. Still further warming of the climate contributed to significant loss of habitat placing additional stresses on populations until neither species could no longer survive.

Unlike collecting trilobites and tourmalines, fossil hunters cannot explore one locality and expect to discover excellent Woolly Mammoth or Mastodon bones. Quite to the contrary, almost all partial and nearly complete specimens have been found by accident over many years scattered across the land. Maybe the WCGMC can be lucky and make such a fortuitous discovery on one of its adventures this summer.

References:

Paleoaeerie.org, 2014, Fossil Friday, a fossil of not quite mammoth proportions, Arkansas Education Resource Initiative website

En.wikipedia.org/wiki/Mastodon, 2016
NYSM.nysed.gov/exhibits/longterm/mastodon
February was Auction Month

The February club meeting was hectic and fun. And we have Linda Schmidtgal to thank for most of that. Linda searched our club inventory for stones, minerals, and lapidary items to auction off in three separate events. We held a raffle auction, a closest bid silent auction and a called auction. Over 40 members and guests were present and the club sold over $480 of specimens in over 40 lots. Most folks went home with something new. Four demerits for yours truly though: I got so excited by the action that I failed to take my camera out to record Glenn’s calling of the auction, or the bidding, or the Webelos checking out the stones and placing the free tickets we offered them into the raffle bags. I promise it will not happen again.

Speaking of the Webelos, we continued to help four of them work towards earning their Webelos Badge entitled “Earth Rocks”. At this meeting they learned what a geologist does, what resources we recover from earth materials and how to preserve them. Hopefully they also learned from looking at all the rocks and minerals on display at the auction. We hope to see them again in March and share some of our favorite fossils with them.

Website of the Month: New York Mineralogical Club

The New York Mineralogical Club has existed for 130 years. They have not had a website for that long, but now that they do they are able and willing to share their knowledge with any and all who care to hit their site. The site is very easy to remember but this should link you there also.

Naturally, they would hope you join and membership information is readily available. But like us they permit much of their bulletin information to be accessed by all and there appear to be over 50 years of them for you to open on their website. The latest issue has stories on turquoise, rare earth minerals in coal in West Virginia, gold, earthquakes, and a whole lot more. Looking back into last year, I enjoyed a multi-part series on Garnets authored by Vivien Gornitz and an interesting article on low temperature minerals in September. But with 175 pages alone in the 2015 file there is still a lot for me to read. Certainly seems worth the $25 annual membership to have your own Bulletin mailed to you monthly.

If you plan to be in the New York City area the first weekend of March they are hosting their Spring NYC Gem and Mineral Show in the Holiday Inn in Midtown Manhattan. Of course if that is too soon for you to plan a trip to the big city they do it all over again this fall, November 12-13 this year: perhaps a good time to plan a trip to the big city. The club currently boasts about 250 members and meets the second Wednesday of most months.

Ace of Diamonds Mine, April 1, 2016
The mineral beryl is hard and can sparkle with exceptional clarity and wondrous color when free of inclusions and defects, clearly justifying its lofty gemstone status. In fact, not just one gemstone, but several depending on the color imparted by trace amounts of iron, chromium, manganese and other transition elements substituting into the crystal lattice. Aquamarine, emerald, morganite, and heliodor are all gemstones of the mineral beryl. But it is sky blue variety that has our special attention this month as aquamarine is the March birthstone.

Beryl (var. AQUAMARINE)

\[\text{A}_2\text{B}_2[\text{Si}_4(\text{Si},\text{Al})\text{O}_{18}]\]

The letters A and B refer to tetrahedral and octahedral sites in the mineral lattice. Beryllium (Be) and aluminum (Al) dominate the A and B sites but other elements are often present:

A = Be, Mg, Fe, Cs, Li, Na
B = Al, Sc, Fe, Cr

Beryl is a beryllium-bearing silicate mineral. Specifically, the hexagonal mineral is a cyclosilicate, characterized by stacked rings of six SiO₄ tetrahedra which are linked by BeO₄ tetrahedra and AlO₆ octahedra. All bonds are strong and the mineral is very hard (7.5-8 on Moh’s scale).

A mere 0.1 to 0.3% of ferric iron (Fe³⁺) substituting into the octahedral site (the B site) is all it takes to impart the wonderful sky blue color characteristic of aquamarine to a beryl crystal. Often though, an equally small amount of ferrous iron (Fe²⁺) enters into that same site. We have all seen greenish blue aquamarine, even tending to yellow green. It is this Fe³⁺ ion in the lattice that imparts the lesser desirable greenish color. Interestingly, heat treatments can be used to reduce the Fe³⁺ to Fe²⁺ effectively limiting or even eliminating the yellowish tint. This is typically done after the stone is cut (Lauf, 2011).

Note the effect of Fe⁺² in the color of the pair of aquamarine from India. (Fred Haynes collection)

Most large aquamarines grow in cavities in granites and granite pegmatites. WCGMC members who have ventured north on our Ontario trips are fond of collecting beryl at the Beryl Pit in Quadville, Ontario. However, the specimens we bring back from Canada are not gems by any stretch of the term or the imagination, and probably do not qualify as aquamarine either, but they are found in association with tourmaline, feldspar, quartz, and mica due to their occurrence in a complex pegmatite. And they often display the perfect hexagonal, basally terminated form associated with the gemstone.

The world’s greatest most prolific source of gem aquamarine and also the largest source of fine mineral specimens is the State of Minas Gerais in southeast Brazil, notably the many mines of the Jequitinhonha Valley. However, arguably the highest quality aquamarine gemstones are recovered from northern mountains of Pakistan.

These two aquamarines are from Stak Nala, Gilgit, Pakistan and are currently for sale by WCGMC member Eric Elias on his SonicEvolution website. Note the characteristic lengthwise striations on the lower photo.
In the U.S. the pegmatites hidden high on Mount Antero and made famous by “The Prospectors” TV show contain some brilliant aquamarine as do several sites in the mountain ranges of southern California. But those of us in the northeast do not have to go that far to find aquamarine. Some fine gems and certainly some very nice mineral specimen aquamarines have been found in the pegmatites of several New England states. The list of classic pegmatite sites bearing aquamarine (or gemmy beryl) from ME, NH, MA, and CT is long and filled with historical accounts of locations. Although these locations have not been forgotten, many are now inaccessible for collecting.

This gemmy 5 cm aquamarine on pegmatite matrix is from the Reynolds Mine in Worcester Co., MA and was probably recovered over 100 years ago. It recently appeared on the Central Massachusetts Fossil and Mineral Club Facebook page from the collection of L. Vanuxem.

There are even a few aquamarines in New York State. The most famous are probably a set of 7 gems cut from a single stone found in the early 20th century in Manhattan.

These seven fine gems were faceted from a single large aquamarine found near the corner of 157th St. and Broadway in Manhattan (from Plate 1 of Manchester 1931) as depicted in Betts (2009)

References:
Betts, J. H., 2009, A review of the history of mining, mineral collecting and minerals found in the five boroughs of New York City, Rocks and Minerals, V. 84, #3, p 204-252.


47th ANNUAL GEM & MINERAL SHOW
Presented by Che-Hanna Rock & Mineral Club, Inc. (501c3) not-for-profit organization MAR. 19, 2016 9 a.m. – 5 p.m. MAR. 20, 2016 10 a.m. – 4 p.m.
ATHENS TOWNSHIP VOL. FIRE HALL 211 HERRICK AVENUE, SAYRE, PA

42nd Rochester Mineralogical Symposium
April 14-17, 2016
Radisson Hotel Rochester Airport 175 Jefferson Road, Rochester, NY http://www.rasny.org/minsyp/
**WCGMC 2016 Field Trip Schedule**

Punxsutawney Phil did not see his shadow! It is time to start planning for an early collecting season. This list is an early snapshot of our spring plans. You should always contact the trip leader for details and possible changes. Or come to our monthly meeting and help plan. As the days get longer and warmer, this list will firm up and additional dates will be added with each newsletter, and on the website. You can always contact our trip leader, Bill Chapman, if you are uncertain whether you have the latest information.

**Remember to attend a WCGMC field trip you must be a club member, or a member of an affiliated club if you do not live in our region.**

If weather permits (i.e. snow stays away) we may schedule a local fossil trip in late March.

**April 1 (Friday)** – Ace of Diamonds Mine, Middleville, NY  **Leader – Bill Chapman**
*Opening day at the Herkimer diamond locale, getting them before others!* $10/person
Visit [http://www.herkimerdiamonds.com/]

**April 22-24 (Fri.-Sat.-Sun.)**- Super Dig Weekend in Sterling Hill, New Jersey  **(Leader – Linda Schmidtgall)**
Visit [www.uvworld.org](http://www.uvworld.org) to register or [http://www.sterlinghill.org/visitor/schedule.php#events](http://www.sterlinghill.org/visitor/schedule.php#events)

**April 29-May 1 (Fri.-Sat.-Sun.)** - Pennsylvania: Pleasant Mills for wavellite, calcite and fossils, Jerymn and Carbondale for plant fossils, maybe more! (motel in Sunbury)  **-- Leader – Bill Chapman**

**May 6 (Friday)** – A Fossil Day  Ridgemont, Ontario for Eurypterids if this can be arranged. If not, we will collect in Indian Creek, east side of Seneca Lake  **Leader – Stephen Mayer**

May 25th weekend: Hickory Hills will likely be open this weekend for Herkimer picking. More info to come

June 23-26 (tentative long weekend trip): Gilsum Rock Show and Swap, Gilsum, NH combined with possible shared collecting trip with a Vermont club  **(stay tuned)**

July 17-24 –ONTARIO, Canada (Bancroft?, Eganville? Cobalt?) Final destinations to be determined by those attending. Planning will continue but this will be the week  **Leader – Fred Haynes.**

August 20-21 (Sat. – Sun.) Powers Farm, and Bush Farm tourmaline locations in conjunction with St. Lawrence County Club show

**Much more will be planned – Watch this space**

Fossil Trips proposed include Deep Run, Green’s Landing, Alden, Indian Creek, Syracuse area, Second Creek in Sodus, and more. Mineral trips to Ilion, Penfield, Walworth, Rose Road, and more

**SHOWS and OTHER EVENTS TO KEEP ON YOUR RADAR in the next few months**

**March 19-20:** Che-Hanna Club Rock and Mineral Show, Sayre, PA (see page 6)  

**April 2-3:** Buffalo Geological Society Gem Mineral and Fossil Show, Hamburg Fairgrounds, (Grange and Market Bldgs., $5/ person  [Focus on Crinoids ]

**April 14-17  **Rochester Mineralogical Symposium in Rochester, NY  
[http://www.rasny.org/minsyp](http://www.rasny.org/minsyp)/

**May 21-22** Southern Vermont Mineral, Rock, and Gem Show, Grace Christian School, Bennington, VT  
WCGMC members free with dues card, others $5

**June 4-5 – THE BIG EVENT -- GEMFEST 2016 IN CANANDAIGUA**  
[www.wcgmc.org](http://www.wcgmc.org) for details

July 9-10 GemWorld 2016 in Syracuse  (more details to follow)
Wayne County Gem & Mineral Contacts

**ELECTED OFFICERS**

Glenn Weiler – President  gwexterior@gmail.com  
315-594-8478

Jerry Donahue – VP  Chester145322@yahoo.com  
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Eva Jane Weiler – Secretary  gwexterior@gmail.com  
315-594-8478

Bill Lesniak – Treasurer/Webmaster  Dirtman300@aol.com  315-483-8061

**Board of Directors**

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Susie Hoch  smhrockfinder@rocketmail.com  
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**APPOINTED POSITIONS**

Bill Chapman – Field Trip Chair  batnpill@empacc.net  607-868-4649

Fred Haynes – Newsletter Editor  fredmhaynes55@gmail.com  585-203-1733

Glenn Weiler – Workshop Coordinator

Linda Schmidtgall – Collection Curator

Club meets 2nd Friday of each month starting in Sept.

Social meeting at 6:30 PM.

Regular meeting at 7:00 PM

Park Presbyterian Church, Maple Court, Newark, NY


Dues are only $15 individual or $20 family for a full season of fun. Send to:

WCGMC, P. O. Box 4, Newark, NY 14513