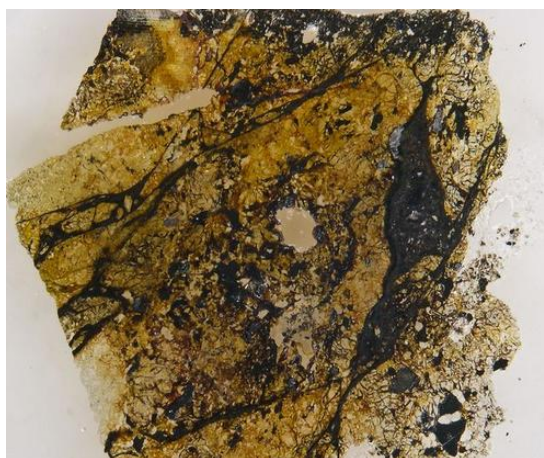


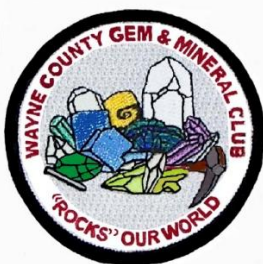
Wayne County Gem and Mineral Club News

February, 2015

Always Looking for Places to Dig!



Want to learn about the minerals "hiding" in the black glassy material in this meteorite? (see page 2)



Website

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

**HAPPY
GROUNDHOG DAY:
THINK CLOUDS ON
FEBRUARY 2**



Pyrite from the Standard Mineral pyrophyllite Mine in Glendon, NC (see page 3) Bill Lesniak specimens

Upcoming Events

Club Meeting, Friday February 13th, 7 PM

Presbyterian Church, Maple Court, Newark, NY

Program by Fred Haynes

"WCGMC field trips and events of 2014, A Review in Pictures"

If you attended any trips in 2014 come see yourself or the minerals/fossils you collected. If you did not attend any 2014 trips or events come see what you missed!

And more importantly, come tell us where you would like to go in 2015.

Club Workshop, Saturday. Feb. 7th

The club workshop will be open again from 10:00 to 3:00 PM on the first Saturday of February. Bring your rocks to saw and polish. The workshop is open to all paid club members.

When: 10:00 AM til mid afternoon, Sat. Feb. 7th

Where: The Weiler's Barn and 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.

Wayne County Gem & Mineral Club

**Gem Fest
2015**

Sat. June 6 10-5

Sun. June 7 10-4

NEW LOCATION

Greater Canandaigua Civic Center
250 N. Bloomfield Rd, Canandaigua

Soapstone Carving, Wire Wrapping, Sluice
Vendors, Exhibits, Free Prizes, and much more

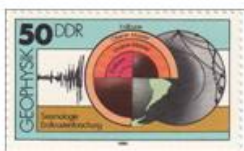
UV Bob's Ultraviolet Show

Gems, Minerals, Fossils, Beads & Jewelry

visit <http://www.wcgmc.org/> for details



WINTER WEATHER: An e-mail note will be sent to members 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)



Mineral Musings

by Fred Haynes



Earth's Most Common Mineral

Do you know the most common mineral in planet earth? Quartz? Nope. Feldspar? Nope. Ah, you say: All that limestone, the answer must be calcite. Wrong again. OK, you think it is a trick question. Maybe it is ice with all the polar ice sheets. Nice try, ice is a mineral, but not correct.

What if I told you this mineral cannot be collected anywhere and that it was not officially named until last year even though it comprises ~38% of the earth by volume? You might ask why. Well, no one had been able to find a sample to analyze. Are you catching on?

The newly christened mineral is bridgmanite. For a long time, scientists have known that a significant portion of the earth's lower mantle was comprised of a very dense magnesium-iron silicate mineral. However, lacking a sample they could not characterize the material and without crystal structure information it could not be properly studied and named.

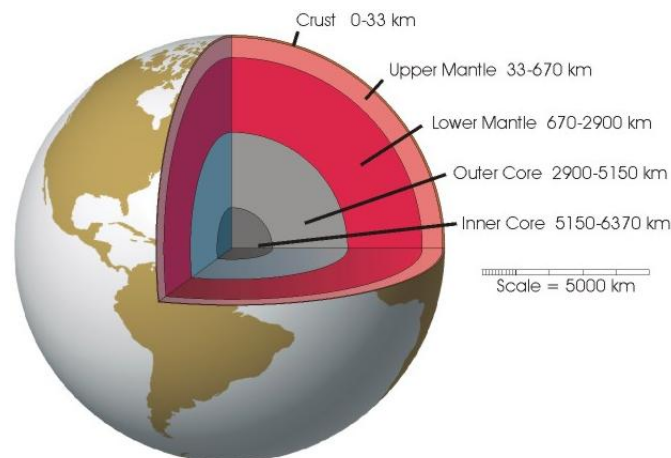
That changed in 2009 when scientists Chi Ma (from California Institute of Technology) and Oliver Tschauner (UNLV) began studying a meteorite that had struck Queensland, Australia in 1879. In the 1960's several high pressure minerals had been discovered and characterized in this famous meteorite. At that time it had been theorized that the meteorite originated from an extremely high-energy impact in space some 4.5 billion years ago. But some of the silicate minerals in the black glassy portion of the meteorite were sensitive to conventional beams of electrons used in microscopes for mineral study. As a result, the mineral defied characterization. So the unique meteorite rested in peace for several decades.

It took the two scientists five years and many experiments to fully characterize the structure of the high pressure silicate phase, eventually succeeding using a sophisticated new technique called synchrotron X-Ray diffraction (SR-XRPD). The micro-focused X-rays generated by this method are 5 orders of magnitude more intense than conventional X-Ray sources and permit dramatically improved structural characterization of

extremely small and sensitive material. The equipment Ma and Tschauner used was in laboratories in Chicago and Berkeley, California.

Before it was characterized the material was called silicate perovskite, based on its chemistry and on suspected mineral structure theorized from the response of earthquake waves propagating through the lower mantle. But this was not sufficient for mineral recognition. It was not until June, 2014 that the International Mineralogical Association (IMA) accepted the work done by Ma and Tschauner and the mineral could be named. The newly characterized mineral was named bridgmanite to honor Percy Bridgman, a physicist awarded the Nobel Prize in 1946 for high pressure research.

With pressures one million times atmospheric and temperatures exceeding 3500° F it is not possible to simulate bridgmanite in a lab. However, it is thought that as much as 70% of the 2300 km thick lower mantle is comprised of bridgmanite.



So .. at the next show, go ask your favorite mineral dealer if he has any bridgmanite for sale. See if he knows to turn to his meteorite collection. If he does tell him it needs to be from the 1879 Tenham L6 chondrite from Queensland, Australia.

Or better yet, let's plan a trip to the lower mantle and go get our own, the WCGMC is "always looking for new places to dig." We can go in Glenn's truck.

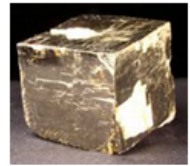
Reference:

Tschauner, O., Ma, C., et. al., 2014, Science, Vol. 346 no. 6213, p 1100-1102, 28 Nov., 2014.



SITE OF THE MONTH

Pyrite from Glendon, NC



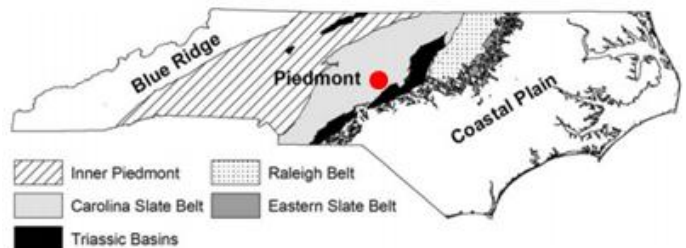
Cubic, Shiny, and Gold

The month's site article is leaving New York again and is headed for the Piedmont region of North Carolina. No, not because it is necessarily warmer there, although it probably is, but because I am the editor and I decided it would. But seriously, who doesn't like pyrite cubes and when I discovered some in a bucket in the Weiler's barn/club workshop last month I asked where they were collected. Turns out they came from the Standard Mineral Company Mine in Glendon, North Carolina. WCGMC had ventured south on at least two occasions (2009 and 2010) to dig pyrite on trips organized by the Mountain Area Gem and Mineral Association (M.A.G.M.A.) of North Carolina.

It sounded like an excellent opportunity to revisit some club history. And then I got really lucky. A visit to the M.A.G.M.A. website yielded photographs from those trips and bingo there was Bill Chapman in his orange collecting uniform holding up a 2" pyrite cube for all to see. The gentleman just behind his right shoulder is Bill Lesniak. I considered this is clear proof that they had actually made the trip south and I set off to learn something about the mine.

First, I learned that Standard Mining Company is not interested in the pyrite. Rather they are mining pyrophyllite, an industrial mineral that is primarily used in ceramic formulations due to its excellent thermal stability. It also has applications in insecticides and in brick making. The pyrophyllite mines in Moore County, NC have been in operation for over 150 years.

The open-pit mine in Glendon exploited a lens of relatively pure pyrophyllite that ranged from 100-300' wide, extended perhaps 1000' on strike and was tilted at about 45 degrees. As pyrite was an undesirable impurity for the miners, the layers richest in pyrite, which paralleled the purer unit, were not removed and have been targeted by collectors whenever the mine owners have permitted clubs like M.A.G.M.A. to organize digs.



Glendon (red dot) within the Carolina Slate Belt of the Piedmont Terrain in central North Carolina. Figure from Rogers (2006)

The pyrophyllite deposits occur in the Carolina Slate Belt in central North Carolina. The name is a bit of a misnomer as there is not much slate around. However low-grade regional metamorphism has imparted a slaty cleavage to much of the rock in the region and the name persists. The rocks, however, are dominantly of volcanic origin and about 550-600 million years old. They were detached from North America some 500-400 million years ago only to become re-attached about 300 million years ago (Rogers, 1999) as part of the Alleghanian mountain building period, the third and final mountain building event of the Appalachian Mountains.

But the story of the pyrophyllite is more complicated than just migrating crust and continental collisions.

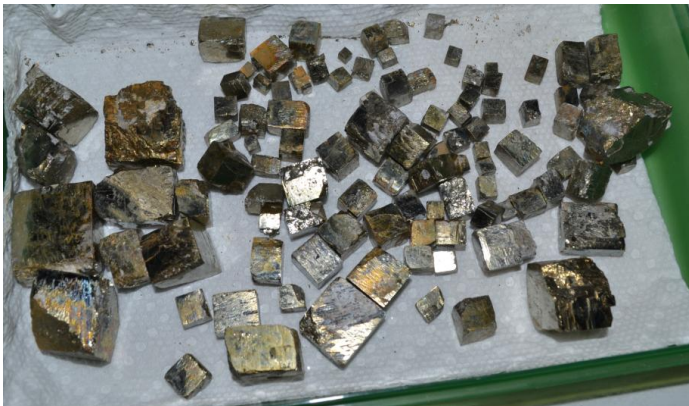


Look who is collecting pyrite in Glendon, NC in October of 2010. Photo from M.A.G.M.A. webpage

Pyrophyllite is $\text{Al}_2\text{Si}_4\text{O}_{10}(\text{OH})_2$. Large and pure deposits of the aluminum sheet silicate are not particularly common and require a fairly unique geologic history. First, hydrothermal alteration within the volcanic rocks must act to leach other elements, like potassium, calcium and sodium from feldspar. This leaves a high aluminum, high silica rock, but at the near surface conditions where widespread leaching can occur the product would be a clay mineral like kaolinite.

To generate pyrophyllite requires a second event. The leached rock must be buried deeply enough to undergo metamorphism. At temperatures of 350-400°C and about 2 kilobars pressure (or at 6-8 km) pyrophyllite and quartz become a stable mineral assemblage (Sykes and Moody, 1978). This level of metamorphism, termed "greenschist", occurred when the Slate belt region was plastered onto the North American plate and buried in the aforementioned Alleghanian orogeny (mountain building event) some 250 million years ago (Rogers, 1999).

Of course, a third event is necessary also. The metamorphosed rocks must be exhumed by erosion. And this is exactly what has been happening for the last quarter of a billion years in central North Carolina as the core of the Appalachians and the Piedmont is being slowly exposed.



Pyrite cubes of all sizes (largest are 2" on a side) from one day of collecting in Glendon, NC: Fool's gold from the collection of Bill Lesniak. No implication intended.

OK, that is fine, but what about the wonderful pyrite cubes that can be extracted from the weathered zones which parallel the massive pyrophyllite? Well, they too owe their existence to the hydrothermal event that leached the original volcanic rocks. Anyone who has visited Yellowstone or Lassen National Parks is aware that sulfur is a common

component of hydrothermal fluids. In addition, iron can be released by the leaching of any mafic (iron-magnesium) minerals in the rock. If the pair combine in a low oxygen environment pyrite can be produced, either during the original hydrothermal activity or during the metamorphism that followed.

Another interesting element that can be concentrated in volcanic fluids is fluorine (F). Although not common in the slate belt pyrophyllite occurrences, lucky collectors can be rewarded by finding brilliantly purple fluorite hiding in vugs in the metamorphosed volcanic rocks. If the WCGMC members who ventured to Glendon in 2010 found any fluorite they are holding out on me. And they all know fluorite is a favorite of mine! Maybe we need to see if we can get back to the Carolina slate belt, perhaps on the way to the Lower Mantle for bridgmanite?



Small, but beautiful: A one quarter inch wonderfully edged fluorite cube from Glendon, NC.

Photo from M.A.G.M.A. website and 2012 field trip.

References:

M.A.G.M.A. website, 2010, visit field trip page

<http://www.wncrocks.com/magma/magma.html>

Rogers, J.J.W., 1999, History and Environment of North Carolina's Piedmont, published by J.J.W. Rogers

http://www.geosci.unc.edu/files/documents_PDF/piedmont_hist_env.pdf

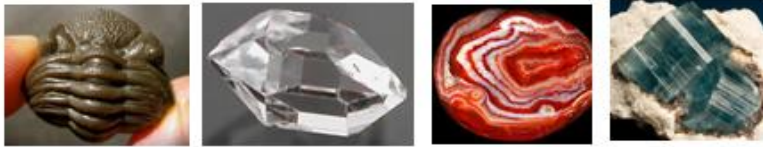
Rogers, J.J.W., 2006, The Carolina Slate Belt, in *Stone Quarries and Sourcing in the Carolina Slate Belt*, Research Rept. #25, UNC Res. Lab of Archeology, 15 p.

Sykes, M.L., and Moody, J.B., 1978, Pyrophyllite and metamorphism in the Carolina slate belt, *Amer. Min.*, v. 63, p. 98-108.

What is your Favorite Mineral or Fossil?

In the November issue of WCGMC News I wrote about my favorite fossil, the tabulate coral, *Pluerodictyum americanum*. I'd love to hear from others about their favorite fossil, mineral, or lapidary project. What is it and why? Did you collect it yourself? Was it a WCGMC trip? Is there a story associated with its acquisition? Are you looking for more?

Write up a short message yourself if you wish or just send me the details in an e-mail and I will write it up. Or we can visit at a meeting or over the phone and I will "interview" you for the input. A picture would be great also.



The Buffalo Geological Society, Inc.

47TH ANNUAL

Gem Mineral Fossil Show

Sat, March 21, 2015 • 10am-6pm | Sun, March 22, 2015 • 10am-5pm

\$5 Per Person • Special 2 Day Admission \$7 • Scouts in Uniform & Children 12 Yrs & Under FREE



A GREAT FIELD TRIP FOR THE FAMILY
& a real learning experience
ALSO SHOWING
Displays & Information

- NYS Museum
- NYS Parks & Recreation
- NYS Dept. of Environment & Conservation
- Penn Dixie

MINI-MINE & GRANDPA'S CORNER
for the youngest Geologists & Scientists.
Bead Stringing, Sand Art & more...

Demonstrations • Beads • Jewelry • Private Gem Collections • Unique Gifts

DRAWINGS & REFRESHMENTS

BRING THIS CARD FOR GRAND PRIZE DRAWING!



Rochester Lapidary Society

March 14: Mark your calendar

The Rochester Lapidary Society has cordially invited Wayne County Gem and Mineral Club members to an open house on March 14th. This is a Saturday workshop at the Rochester School for the Deaf. The hours would be from 11 AM to 3 PM. On display will be numerous faceting machines, lapidary saws, cabochon making machines and a sphere making machine. Come see what a typical workshop is all about for someone that likes to abuse rocks and make little pieces out of big pieces. Current and finished projects will be on display. Bring a rock to cut or polish.

Visit their website for directions and a map to the workshop at Westervelt Hall, 1545 St. Paul Street in Rochester:

<http://www.rochesterlapidary.org/>. Contact Ed Smith (dsmith340@rochester.rr.com or 585-370-2773 for details.

Your editor is going public: "coming out." Or whatever you say when you have been a closet website builder. For the past year or so I have been making entries into an unannounced website. Many are copies of notes from past WCGMC News, but the format of the web permits me to add pictures and develop categories and sorting criteria to help folks search. Finally, and with some help with format, home page design, etc. from my youngest son who was home from college, I believe my website is ready for prime time use. I have much more to do and add, but the mineral and fossil menu items are coming along. So: without further ado, I introduce:

<http://fredmhaynes.com/>

If you visit, please let me know what you liked and what you did not like. If you find an error, by all means inform me so I can correct it. Linda already did! Pass along ideas, particularly if they relate to club activities.



Look what Scott Jones brought to the January club meeting, little trilobites from Genus *Tricolor goodcookie*. One of them is: (var. *redeye*). Can you pick it out?

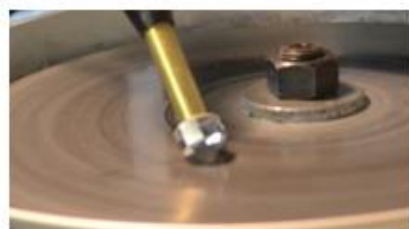
The Wayne County Club in action: When you cannot dig, you saw and polish !



Cut and ready for polishing.



Glenn's crosses. Can you spot the sodalite and serpentine?



Bill says it is a diamond. I'm thinking it is quartz.



Just a Lake Ontario stone, until you slice it to expose a cephalopod.

January 10, 2015



Linda's work, very pretty.



Bill faceted a Cave-in-Rock fluorite. The 1" apartite in calcite from near Wilberforce, Ontario is just for scale!

Albany Mineral Show



Feb. 14-15
10AM-5PM
\$5/day
<12 free

New York State Museum
260 Madison Ave. , Albany

Co-Sponsored by:
Capital District Mineral Club
New York Academy of Mineralogy



Che-Hanna Rock & Mineral Club 46th Annual Gem and Mineral Show

Sat. March 28 9:00 – 5:00
Sun. March 29 10:00 – 4:00
Adults \$3, Students 1\$, Under 8:free

Athens Township Vol. Fire Hall
211 Herrick Ave., Sayre, PA

Exhibits, UV Mineral Programs, Dealers with Minerals, Gems, Fossils, much more
<http://www.chehannarocks.com/show.html>



Ron, a retired mineral dealer, sold his best specimens and moved the remainder to a farm with a pond in Florida. He decorated the pond with the stones he had retained and converted the pond into a natural swimming hole. He set up picnic tables and horseshoe courts, and planted fruit trees around the pond.

One evening Ron grabbed a 5-gallon bucket and headed to the pond area to pick some fruit. As he neared the pond, he heard voices and shouting and laughing with apparent glee. As he came close he saw it was a group of young women skinny-dipping in his pond. He politely made the women aware of his presence and they all went to the deep end.

One of the women shouted out to him "We're not coming out until you leave!"

Ron frowned, "I did not come down here to watch you ladies swim naked or make you get out of the pond naked."

Walking closer and holding the bucket up high Ron said, "I'm here to feed the alligator."

The moral, you ask: Mineral dealers can think fast.

WCGMC -- Initial 2015 Field Trip Schedule

last update (1/27/2015)

This list is tentative and is here just to tell everyone we have started to plan for another busy season. We want to hear from our many diggers where they would like to go and when. Come to a meeting and participate in the planning. As the snow melts and spring becomes a reality, this list will firm up and additional dates will be added with each monthly 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. Time to pay dues! Red dates are fairly firm.

April 1 (Wednesday) – Ace of Diamonds Mine, Middleville, NY Leader – Bill Chapman

Opening day at the Herkimer diamond locale, getting them before others!

Visit <http://www.herkimerdiamonds.com/>

April 4 (Saturday) – Long Pond Road Park (Marina Drive) in Rochester Leader – Stephen Mayer

Targeting Dalmanites and Trimerus trilobites in the Silurian Rochester shale along the Erie Canal

April 18 or 19 (Sat. or Sunday) – TBA, probably a fossil site in the Finger Lakes Region

April 25-26 (Sat.-Sun)- Super Dig Weekend in Sterling Hill, New Jersey (*fluorescent minerals*)

Visit www.uvworld.org to register or <http://www.sterlinghill.org/visitor/schedule.php#events>

May 1-2-3 (Friday-Sunday) - Tentative trip to St. Lawrence County or Pennsylvania, specifics to be worked, but we will try to be in the field on this weekend

May 16 (Sat.) - Penn-Dixie Fossil Park, Hamburg, NY

Dig with the Experts, \$30 fee (\$25 for members) see: <http://www.penndixie.org> or 716-627-4560

Later in the Summer

Fossil Trips proposed include Deep Run, Green's Landing, Alden, Indian Creek, Syracuse, Second Creek in Sodus, and more

Mineral trips proposed include Ontario (Bancroft, Eganville, possibly Cobalt), Ilion, Penfield, Walworth, West Pierrepont+Powers, Rose Road, and more

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

February 7: Club workshop in Wolcott (10:00 AM – mid afternoon)

February 14-15: **Capital District Mineral Show**, Albany, NY <http://www.nysm.nysed.gov/programs/minerals/>

Note, this is not the same time as the Flower Show, which is the following weekend. (see page 6)

March 14: Joint workshop with **Rochester Lapidary Club** (Rochester) – see info on page 5

<http://www.rochesterlapidary.org/events.htm>

March 21-22: **Buffalo Geological Society**, Grange and Market Bldgs., Hamburg, New York (see page 5)

March 28-29: **Che Hanna Rock & Mineral Club** 46th Annual Gem & Mineral Show, Sayre, Pa (see page 6)

<http://www.chehannarocks.com/show.html>

April 11-12: **Southern Tier Geology Club** Annual Show, Johnson City, NY, Johnson City Senior Citizens Center; 30 Brockton St.; Sat. 9-5, Sun. 10-4; adults \$3, children (under 12) free

April 24-27 **Rochester Mineralogical Symposium** in Rochester, NY (more details next month)

<http://www.rasny.org/minsymposium/mineralsymp.htm>

Wayne County Gem & Mineral Contacts

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

Jerry Donahue – VP Chester145322@yahoo.com
585-548-3200

Eva Jane Weiler – Secretary gwexterior@gmail.com
315-594-8478

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

Board of Directors

Ken Rowe gotrox88@localnet.com 315-331-1438

Susie Hoch smhrockfinder@rocketmail.com
585-794-7287

Linda Schmidtgall lees@tds.net 315-365-2448

Laurie Frey Lmcfaul328@aol.com 315-483-9894

Bill Chapman – Field Trip Chair

batnpill@empacc.net

607-868-4649

Fred Haynes – Newsletter Editor

fredmhaynes55@gmail.com

585-203-1733

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

Mini-miner meeting at 6:30 PM.

Regular meeting at 7:00 PM

Park Presbyterian Church, Maple Court, Newark, NY

Website – <http://www.wcgmc.org/>

Dues are only \$15 individual or \$20 family for a full season of fun. Send to WCGMC, P. O. Box 4, Newark, NY 14513

The Public is always welcomed
First Class: Dated, Meetings & Time Valued



Wayne County Gem and Mineral Club
P.O. Box 4
Newark, New York 14513