Wayne County Gem and Mineral Club News

March, 2014 **Always Looking for Places to Dig!**

Dalmanites limulurus (trilobite) from the Rochester Formation in upstate NY. This is the target of our first field trip (see below).

Website
http://www.wcgmc.org//

Wollastonite (white) with diopside (green) from Lewis Mine, Willsboro, NY (See story on page 5)

Photo from mindat.com

Ready, Set, Go
Our first two field trips for 2014

Saturday March 22, 2014
Long Pond Road, Erie Canal, Rochester, NY

New member and paleontologist Stephen Mayer of Romulus will lead us to this historic site along the north side of the Erie Canal near its intersection with Long Pond Rd. This site must be visited before the canal is re-opened as the Rochester shale exposure hosting Silurian age Dalmanites and Trimerus trilobites becomes submerged during the spring/ summer season. Don't expect to go home with a car full of complete trilobites, but those found can be of high quality. Strophemenid and orthid brachiopods have been found there also.

[Watch the website in mid-March for details of time and meeting location or contact Stephen directly at smayer5@rochester.rr.com or 585-943-5058]

Tuesday April 1, 2014
Ace of Diamonds Mine, Middleville, NY

Opening day for Herkimer season and we are prepared to follow our leader, Bill Chapman, and collect the first "diamonds" of the season. Tell your boss you need the day off and come join us.

[Come to our March meeting or call Bill for details]

see Page 6 for more 2014 Field Trip Information

Next Meeting: March 14, 2014
7:00 PM, First Presbyterian Church, Newark, NY

Rock, Mineral, and Fossil "Quiz"

What makes hexagonite purple?, and other neat things. We will have a set of questions, supported with specimens and some projection slides and we'll learn neat stuff together about NY minerals and fossils. If you have a favorite specimen that would lend itself to a question and some group learning, bring it along and challenge those present!

Oh, and we'll talk field trips again, building on the list we prepared in February (see page 6). If you have a special site you'd like to visit, come and tell us.

Mineral Musings
by Fred Haynes

If Time is Relative, Geologic Time is Exponentially Relative

The geologic time scale is a difficult concept for humans to appreciate. We live less than 100 years, the Vikings came to America 1000 years ago, our current calendar just passed the 2000 year mark, and Stonehenge dates almost 5000 years old. That, we say, was a long time ago. But these are mere seconds on a geologic clock. Even the final Ice Age advance that generated upstate New York's topography and fertile soil ended a mere 12,500 years ago.

Now think about this. Dinosaurs roamed and dominated much of the planet for the entire Mesozoic Era. For over 160 million years (MY) they lived, and died until going extinct about 65 million years ago. By comparison, humans have been inhabitants for just under one million years. And all but the last 6000 years or so of that is referred to as the Stone Age, the period before metal was worked and likely before crops were cultivated.

When we go to Penn Dixie, we split shales and dig up trilobites that lived about 380 MY ago in ancient seas. And then we can read about the New York State Fossil, the Eurypterid, that lived in shallow tidal pools about 420 MY ago. We know that was a long time ago, but do we appreciative how long ago?

When we travel to Herkimer county to dig "diamonds, do we stop to think that the host dolostones are half a billion years old, a proverbial drop in the bucket of geologic time. In human terms, the earth was already an aging grandfather when the Silurian Eurypterids or the Devonian trilobites were scavenging for food. Or when they were finding a proper place to die so as to be preserved for several hundred million years until you come digging on a sunny Saturday in June.

By studying radioactive isotopes, and counting fission tracks in apatite crystals, geologists have learned that the major phase of much of the metamorphism in the Adirondacks occurred in what is called the Grenville orogeny and that this took place 1.1 billion years ago. That is ancient by any standard, but consider that studies of asteroids and other extraterrestrial matter indicate that the earth is 4.5 Billion years old. The oldest dated material on earth are zircons from a 3.0 BY old sedimentary conglomerate in Australia. These detrital zircons date at 4.35 BY, indicating an origin from host material that is otherwise gone. Next summer when you visit the Adirondacks, contemplate this: the earth had been around for 3.4 billion years, or 75% of its long life, when the Grenville orogeny was metamorphosing the rocks under your feet.

And, next time you prepare to swing your 16 pound sledge to expose that vug, or just to break the darn rock to see what might appear, you might want to pause a moment and reflect on just how much older that rock is than you. Or not.

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46th Gem, Mineral, and Fossil Show
Lapidary: "The Magic of Cut Stones"
Sponsored by
Buffalo Geological Society

March 22, 2013 10:00 – 6:00 PM
March 23, 2013 10:00 – 5:00 PM

"The Fairgrounds", Market and Grange Bldgs., Hamburg NY

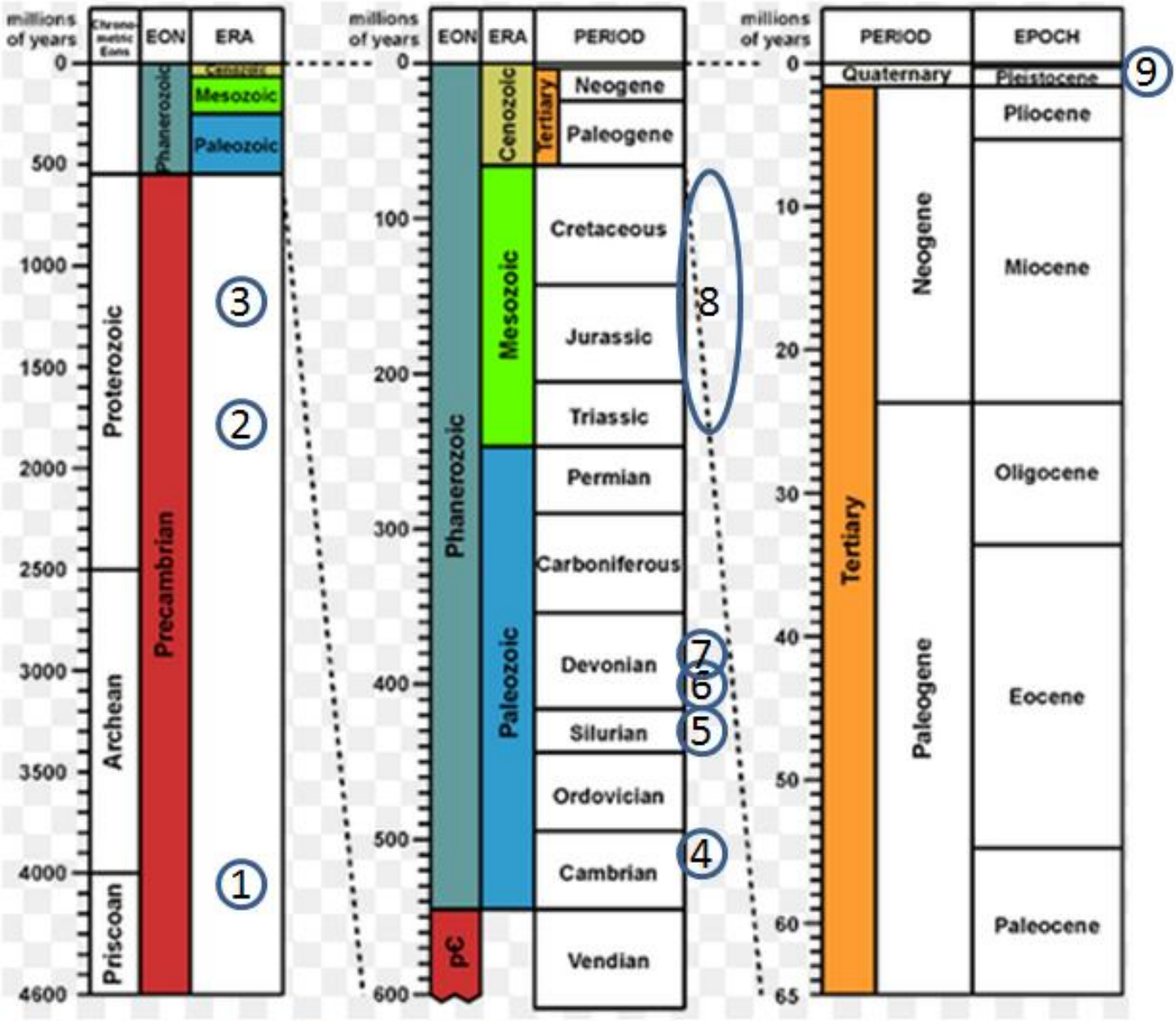
Ace of Diamonds Mine, April 1

45th Annual
Gem and Mineral Show
Sponsored by
Che-Hanna Rock & Mineral Club

March 22, 2013 9:00 – 6:00 PM
March 23, 2013 10:00 – 4:00 PM

Athens Township Vol. Fire Hall
211 Herrick Avenue, Sayre, Pa.

The Geologic Time Scale -- A really really long time



Modified from A. MacRae, 1998, as in Humboldt.edu

Some important upstate New York geologic facts and other noteworthy events:

1. The oldest rocks in Canada are in the Nuvvuagittuq greenstone belt on the eastern shore of Hudson Bay in northern Quebec.. They date at 4000 MY or 4 Billion Years old!
2. The impact event that created the mineral complex in Sudbury, Ontario is 1800 MY old.
3. The Adirondack Mountains date to the Grenville orogeny (1100 MY))
4. Herkimer diamonds occur in Cambrian Period dolostones (500 MY)
5. The Lockport dolostone in Walworth and Penfield Quarries is Silurian in age (420 MY)
6. The hydrocarbon-rich Marcellus shale is Lower Devonian (400 MY)
7. Western NY fossil collecting focuses on the Middle Devonian Hamilton Group (380 MY).
8. Dinosaurs lived from ~230 MYA until the Cretaceous extinction event 65 MYA. There are no Mesozoic rocks in upstate NY and therefore no dinosaur bones to be found.
9. The recent 2MY of geologic time, the Pleistocene Epoch, is referred to as the Ice Age in North America. The Finger Lakes and the many drumlins of Wayne County formed during the Wisconsin glacial period which ended 12,500 years ago.

MY – Million Years, MYA – Million Years Ago

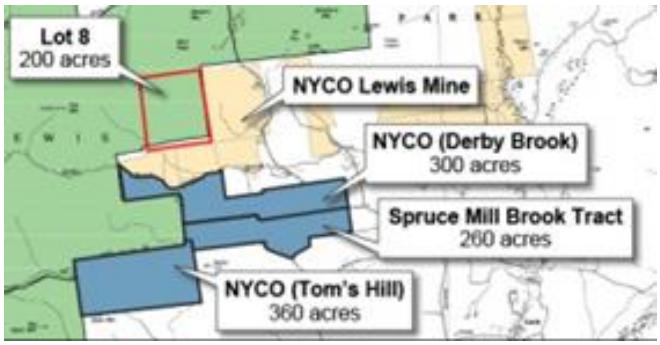
Mineral collectors appreciate the golden amber grossular garnet and green diopside offset by the brilliant white of the matrix wollastonite. Students of SUNY-Plattsburg learn about contact metamorphism from Dr. Mary Roden-Tice during field trips to the locale. Economic geologists appreciate the mine as one of only two active wollastonite producing mines in the United States, both of which are in New York State *(the Valentine Mine near Harrisville is the second)*. But to many New Yorkers, the Lewis Mine of Willsboro Township in Essex County, New York went about its annual production of about 60,000 tons of wollastonite (~10% of the world's production) in quiet anonymity.

The west face of the Lewis Mine in Willsboro, NY. The lighter units are nearly pure wollastonite. The darker units are comprised of garnet and diopside.
(AP Photo, July 9, 2013)

But in November of 2013, all New York State residents who voted in the state election learned about the Lewis Mine in Essex County when they considered Proposition #5 on their ballots. In that proposition, the mine's operator sought permission to conduct exploratory drilling on a 200-acre parcel of land adjacent to their active mine, land that had been previously incorporated into the Adirondack Preserve. In exchange the state would get funds to add as much as 1500 acres of other forest land to the preserve. The proposition passed with a 52.3% majority of New York state voters supporting the initiative, although the state has yet to rule on the request and the details remain to be negotiated.

An aerial view of the current mine development defines the issue. The Lewis Mine has followed the wollastonite-rich seam as far as the current land position will allow creating a sharp north-south demarcation between the western pit wall and the Adirondack Preserve. NYCO claims that without permission to explore, and ultimately mine, into the western 200 acre parcel, the mine's life is probably about 3-5 years. They estimate an additional decade of life to the reserves if allowed to extend the mine to the west. NYCO is committed to restore the region at the conclusion of the mine's viability.

Satellite view of the NYCO Lewis Mine with the location of the parcel in question.



Parcel (Lot) 8 outlined in red. A portion of the land to be considered for return to the Preserve is shaded in blue. Other lands to be considered are off this map.

The wollastonite occurs within a contact zone with the majestic anorthosite massif that dominates the central highlands of the Adirondacks. At the mine, the anorthosite is overlain by a thin mafic gneiss which is in turn overlain by the wollastonite ore. The ore consists of only three minerals: wollastonite, grandite garnet, and diopside. Grandite garnet is a term used for the solid solution between grossular and andradite. The mineralogy and setting clearly indicate a contact metamorphic origin, where the siliceous carbonates were "cooked" to temperatures at or above 400-450°C by the adjacent anorthosite intrusion.

Pure wollastonite ($CaSiO_3$) is bright white, but impurities like iron, magnesium, potassium, sodium, aluminum and other elements can impart a cream, grey, green or even brown color. The wollastonite mined at both the Lewis Mine and the Valentine Mine is very pure and thus very white which adds to its utility and value. During crushing, wollastonite breaks into lath- or needle-shaped acicular particles parallel to its cleavage surfaces. This acicular character makes it an excellent reinforcement material when added to plastics, paint films, and ceramics. The wollastonite in plastics and ceramics serves much the same purpose that steel rods do in concrete.

Wollastonite (white) and grandite garnet (brown) from Lewis Mine in Willsboro, NY

In addition, wollastonite is used as a replacement for asbestos in products like insulation, paint, roofing tiles, and it is gaining use in friction devices such as brakes and clutches. It is a very popular additive to a host of ceramic products as it helps to reduce warping and cracking during firing and can provide added strength to the end product. It is used as a flux in steel making, and as a hardening and reinforcement agent in paints. When wollastonite is added to stucco-type products the resulting surface is not only brighter and more attractive, but also more resistant to cracking and weathering.

References:

Valley, J.W., and Essene, E.J., 1980, Calc-silicate reactions in Adirondack marbles: the role of fluids and solid solutions, GSA Bulletin, Part I p. 114-117, part II, p. 720-815.

Vitre, R. L., and Van Gosen, B.S., undated, Wollastonite – A Versatile Industrial Mineral, USGS Information brochure

various New York State daily newspaper reports of the past several months

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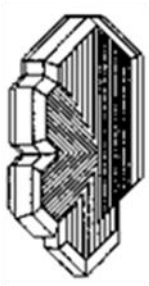
WCGMC Library Display, Newark, NY

The club has reserved the glass display case just inside the main door of the Newark Library for the month of May. We intend to display representative specimens of minerals and fossils we have collected in New York State. In addition we will include information on the bedrock geology, mineralogy, and paleontology of upstate New York. Naturally, we can use this opportunity to advertise our big June show.

If you have a unique or interesting mineral or fossil that you can offer for the club display, please bring it to the March meeting or let Fred Haynes know so he can think how to incorporate it into an educational and fun exhibit. Fred's contact info is on page 8.

41st Rochester Mineralogical Symposium



April 24-27, 2014

Radisson Hotel
Rochester Airport
175 Jefferson Road
Rochester, NY 14623

Check the RMS link at www.rasny.org for details of the 4 day event including the list of speakers and registration information

Wayne County Gem and Mineral Club 2014 Field Trip Schedule

last update (2/25)

This list is tentative and subject to change. As the spring/summer progresses, updates will be provided in the monthly newsletter, on the website, and at club meetings. You can always contact our leader, Bill Chapman, if you are uncertain whether you have the latest information.
This month's activities are in red. Don't forget the monthly evening meeting on Friday March 14th.

March 22 (Saturday) – Long Pond Road Park (Marina Drive) West Rochester Leader – Stephen Mayer
Targeting Dalmanites and Trimerus trilobites in the Silurian Rochester shale alongside the Erie Canal

April 1 (Tuesday) – Ace of Diamonds Mine, Middleville, NY Leader – Bill Chapman
Opening day at the Herkimer diamond locale, getting them before others!

April 12-13 (Sat-Sun) - Mt. Pleasant Mills and St. Claire, PA Leader – Bill Chapman
Wavellite, calcite, etc. at National Lms. Quarry, white fern fossils in St. Claire and likely more

May 3 (Saturday) – Green's Landing, east side of Canadaigua Lake Leader – Stephen Mayer
Horn corals, trilobites, multiple brachiopods in Middle Devonian section

May 10 (Saturday) - Hickory Hill together with Che-Hanna Club Leader – Bill Chapman
Herkimer area dig, small added fee likely for new exposures

May 17 (Sat.) - Penn-Dixie Fossil Park, Hamburg, NY Leader - ??
Dig with the Experts, $30 fee ($25 for members) for details: www.penndixie.org or 716-627-4560

May 31-June 1 - (Sat-Sun) - St. Lawrence Country Trip #1 Leader – Fred Haynes
Rose Road in Pitcairn, Fine area, Benson Mines (exact schedule depends on availability)

June 21-22 (Sat-Sun) – St. Lawrence County Trip #2 Leader – Fred Haynes
Selleck Road (tremolite, fluor-uvite), Powers Farms (dravite), and probably more

June 29 (Sunday) - Alden, NY for pyrite nodules and pyritized fossils

July 19 (Saturday) – Canandaigua Lake excursion, multiple sites, very kid friendly

WE WON'T STOP HERE, but for now this is what is tentatively slated for 2014

SHOWS and OTHER EVENTS TO KEEP ON YOUR RADAR

March 22-23 there are two: Buffalo Geological Society - Fairgrounds in Hamburg, NY
Che-Hanna Rock and Mineral Club - Sayre, PA

March 29-30, Western MA Mineral, Jewelry, & Fossil Show, Clarion Hotel, Northampton, MA
www.westernmassmineralshow.com

April 24-27 Rochester Mineralogical Symposium in Rochester, NY

April 26-27 SuperDig in Sterling Hills and Franklin, NJ and associated show

JUNE 7-8 OUR SHOW IN NEWARK

July 12-13 Syracuse Rock and Mineral Club, Syracuse

July 31- Aug 1-2 Bancroft Jamboree, Bancroft, Ontario, Canada

Aug 8-10 Springfield, MA Gem and Mineral Show

Aug 22-24 St. Lawrence County Club Show, Madrid, NY

Mineral Crossword: Fun for all Ages (WCGMC PUZZLE 1)

	1 B	E	2 R	Y	3 L			4 B	5 A	T		6 O	7 H	I	O		8 T				9 C		10 T	
	A		O		11 I	N	D	E	X		12 U		A				13 O	14 S		15 C	U	16 B	I	17 C
18 B	L	A	C	K					19 E	O	N		20 L	I	C	H	E	N		R		L		A
	M		K		21 L	O	22 D	E			A		I					23 A	G	A	T	E		M
	A						I		24 P		K		25 T	R	I	26 M		I		Z		A		B
27 I	T					28 L	A	T	E	R	I	T	E			A	29 L	L	O	Y		30 C	A	R
S		31 P	32 E	I			M		R		T			33 C	O	R	E	S				H		I
O			R			34 N	O	R	I	T	E					L			35 G	N	U			A
36 T	O	37 P	A	Z			N		D						38 S		39 O	I	L			40 S		N
O		Y			41 E	42 N	D		43 O	44 R	45 P	I	46 M	E	N	T			47 U	V	I	T	E	
48 P	O	R	E	49 S		O			50 T	O	E		A		O				E			A		
E		O		51 A	I	R				S	A		R		52 W	53 R	54 E	N		55 W	56 C	G	M	57 C
		P		L		58 M	I	59 L	L	E	R	I	T	E		60 U	P		61 S	A	L	E		H
62 S		E		T		A		I			L		I		63 N	B	A		64 T	S	A			A
O					65 A	L		66 M	O	67 H	S		68 T		A	L		69 O	A	T	M	70 E	A	L
71 S	C	H	O	R	L			E		E			E		72 B	E			73 R	E	S	T		K

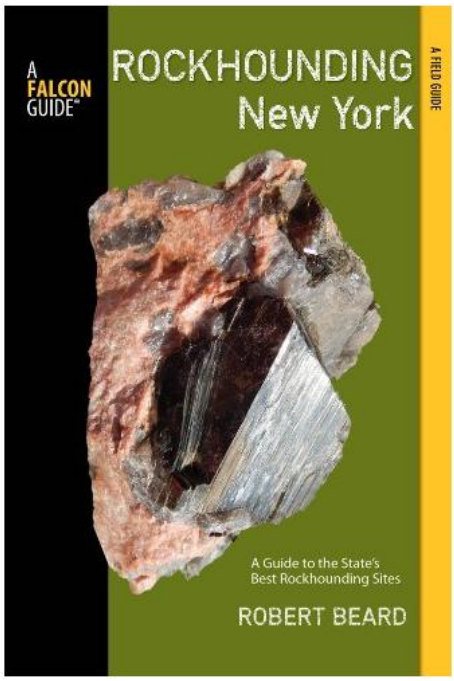
Did anyone do the crossword from February? Here is a completed puzzle.
Let me know if you want more puzzles in future issues.

BOOK REVIEW

Rockhounding New York:
A Field Guide to the State's Best Rockhounding Sites

By Robert Beard
Falcon Guides (2014)

With this informative guide, you can explore the mineral-rich state of New York, from the beaches to the mountains. The book describes the states' best rockhounding sites and covers popular and commercial sites as well as numerous little-known areas. Although the technical and mineralogical data on the 98 sites is a bit brief, this handy guide does include maps and directions to each site and enough rockhounding information to at least prepare you for your visit.



Brief sections in the front of the book review the state's bedrock geology and natural resources and there is also a short section on basic rockhounding

The book contains a healthy number of both mineral and fossil sites. I count 33 fossil sites from the 98 total sites covered in the 276 pages. Many of these are in the Alleghany Plateau region of western NY. Another third of the locations are mineral sites in the Adirondacks. The book does include many of the classic sites we have all come to love, but there are many smaller and lesser known sites included also. I bought mine online for less than the $19.99 price printed on the back (even with shipping).

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Club meets 2nd Friday of each month.
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

Mark your calendar:
June 7-8, 2013
Wayne County Gem and Mineral Club Show
St. Michael's School, Newark NY
More details in the months ahead

The Public is always welcome!
First Class: Dated Meetings & Time Valued
Wayne County Gem and Mineral Club
P.O. Box 4
Newark, New York 14513