Wayne County Gem and Mineral Club News

May, 2016

Always Looking for Places to Dig!

Brachiopod burial ground in Seneca Stone Quarry floor. Size 10 steel toed boots for scale (see page 4)

Website
http://www.wcgmc.org/

May birthstone

EMERALD

Glenn's newest invention, the tire tumbler, is in action at the April workshop AND Green Mineral night

Next Club Meeting
Friday May 13th, 7:00 PM

Presbyterian Church, Maple Court, Newark, NY

PROGRAM: Pennsylvania and New Jersey Minerals and Fossils

Bring your finds from this year's or past year's trips (including fluorescents). Lots found this past weekend in NJ and we hope to be just as successful next weekend in central PA.

Bring contributions for grab bags to sell at GEMFEST. We put 6-8 minerals or fossils into a paper bag and sell for $1: great for starter collections for kids. We plan to put identifying labels in the bags this year so we are compiling material in May. If you have discards or extras to contribute bring them to the meeting.

Lots of field trip information to share at the meeting. **See page 7 for field trip info also.**

Prizes for gamers: You will not want to miss this month's activity!

Club Workshop, Saturday, May 14th

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. May 14th
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. Be prepared to have fun.

Sixteen members went to New Jersey April 23-25. Everyone is getting fortified at the "Sit and Chat Diner" in Franklin, NJ for another day of collecting. *Details of this trip in next month's newsletter.*

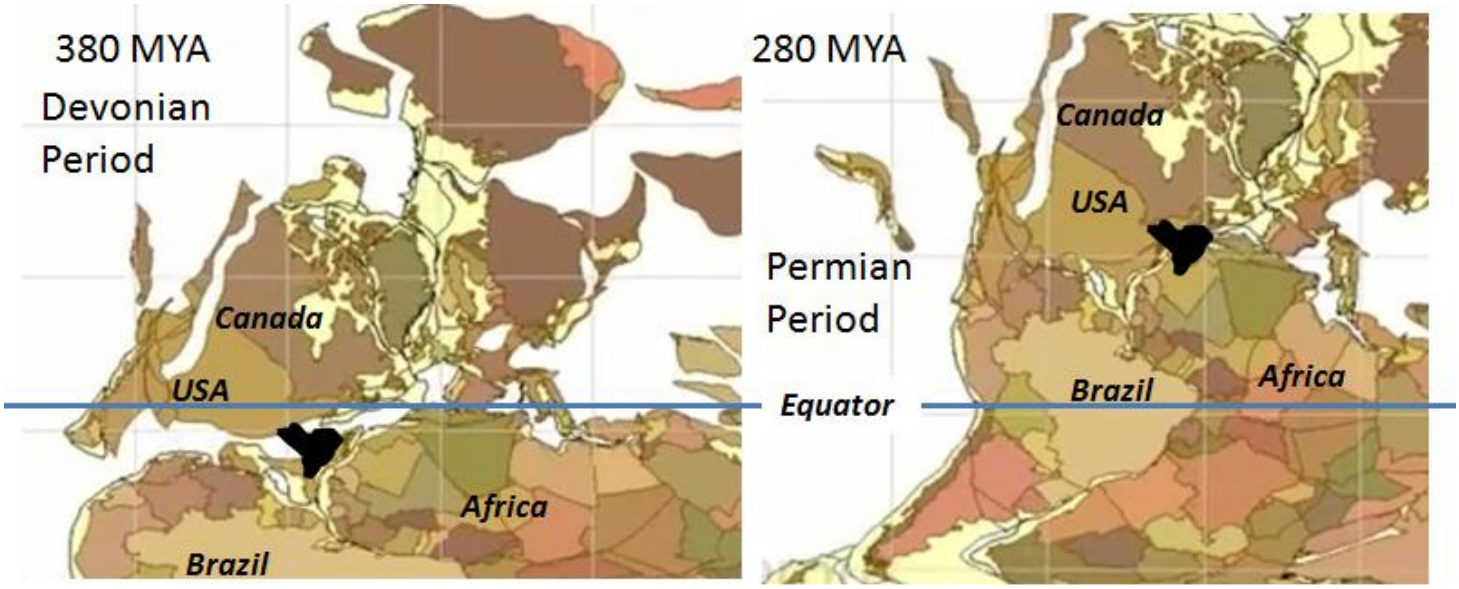
A Little Local History: Geologic History That is

By Fred Haynes

It was not that long ago that Wayne County and the rest of western New York were located just south of the equator while basking in tropical temperatures. A large and shallow inland sea dominated the region with high mountains to the east and a shallow continental margin to the west. The sea was replete with life. Invertebrates dominated the sea bottom, corals and brachiopods filtered nutrients from the seawater to survive, while trilobites, cephalopods (squid), and a host of other scavenger and predator species roamed the benthic (sea bottom) region feeding on them. Numerous species of gastropods (snails) and bivalves (clams) were abundant also. The seas above were dominated by large armored fish (i.e. *Dunkleosteus*) and a multitude of smaller fish. It was the Devonian Period of earth's history. It was the age of fish.

OK, it was a while ago, about 385 million years to be exact. And a whole lot has happened since. The inland sea within the supercontinent called Pangea closed and the Appalachian Mountains rose to heights of nearly 30,000', comparable to the present-day Himalayas. Then, about 200 million years ago the Atlantic Ocean began to form and the continents drifted apart towards their current locations. New York and the rest of North America began its long journey to the northwest. Erosion over the past 150 million years cut the mountains to their core. In much of western New York the Devonian sedimentary rocks deposited in the inland sea were exposed and deeply eroded. Because they had been tilted ever so gently and now dip south at about 1 degree, horizons of common geologic age are exposed in east-west strips across the region.

However, it is not that simple. As we know, much more recently the region was invaded by continental glaciation. Ice sheets over a mile thick covered Wayne County and the rest of New York State. The glaciers advanced and retreated several times over the last 60,000 years, retreating for the final time about 12,000 years ago as giant mastodons roamed the region. The glaciers carved out the Finger Lakes and left vast deposits of sand, gravel, and rock behind as they melted. Moraines, drumlins and many other landforms covered the older rock almost completely. Now these glacial features are themselves being eroded, in places down to the



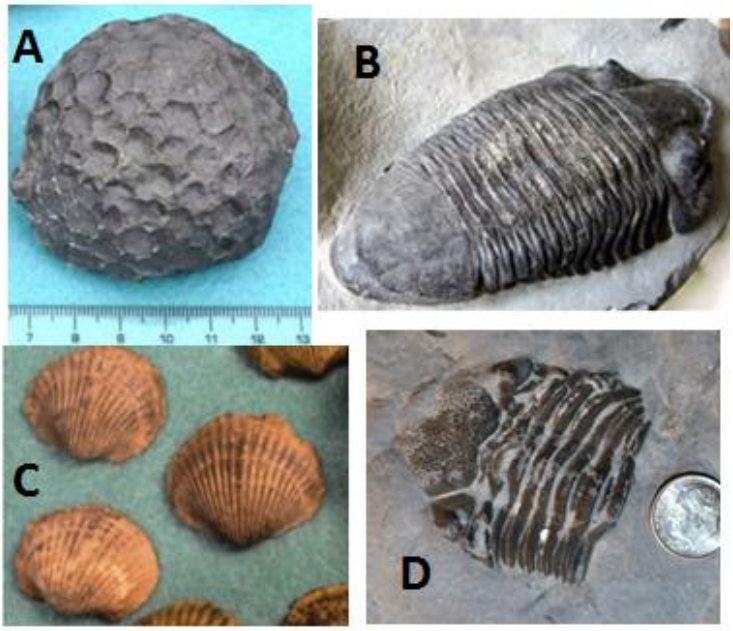
A reconstruction of continents at two different times during the Paleozoic Era of earth's history reveals that New York State resided near the equator when the bedrock of much of present-day Livingston County was deposited before drifting north as the continents of North America, South America and Africa collided into the supercontinent of Pangea (modified from Scienze della Terra Educational Science website, 2003).

bedrock below. Some of the best places to observe the older underlying rock are in valleys and streams that drain into the lakes. The more resistant units form the waterfalls we love to visit. These units are generally limestone and some can be mapped from Buffalo to Skaneateles. The less resistant shale units beneath them contain the fossils that help us understand the environment that existed much earlier.

Paleontologists are geologists who study fossils in an effort to understand earth's geologic history and the evolution of the species that have lived in the past. Although the full section of sedimentary rock exposed in western New York is studied it is the Middle Devonian section (385 million years) that attracts the most attention from paleontologists as well as amateur fossil collectors. There are three main reasons for this. First, the conditions at the time, with a warm quiet inland sea, supported an abundant and diverse assemblage of life. Second, periodic flooding or sediment influx events occurred that permitted rapid burial of and therefore fossil preservation in fossil-rich beds. Finally, one of the planet's five major extinction events occurred at the event of the Middle Devonian Period, or about 375 million years ago. Over a period of some 10-20 million years, over 70% of the planet's species expired with marine species being most affected. The cause of this extinction remains poorly understood and paleontologists continue to study the western New York exposures in the hopes of learning more about what happened to cause the loss of many brachiopods, most trilobites, and a majority of the reef-building corals of the time.

Paleontologists are not the only ones to enjoy the search for fossils. Amateur collectors, either on their own or as members of a number of local clubs, venture out regularly to known locations where the preserved remains of Devonian-age invertebrates can be recovered. Many fossil collectors consider the trilobite to be their favorite as they search the creek beds, road cuts, or shorelines of the Finger Lakes region. Trilobites are Arthropods, and similar to their cousins of today (some insects and crabs for example), they molt. Therefore, it is common to find partial exoskeletons, but rarer to find full specimens preserved. A full find is a cherished piece.

My favorite fossil is a particular colonial coral species, known as *Pleurodictyum americanum*. They are not as common as other corals, but I believe it is their near perfect symmetry that attracts me as well as the fact that they grew on hard substrate (like another fossil) such that their base carries interest as well. And, of course, there are the ubiquitous and varied brachiopods that are found at nearly every site where fossils can be collected. There are dozens of easily identifiable species waiting to be collected.



Wayne County club members collecting Middle Devonian fossils in a creek bed last August. Some of the finds from this and other local trips include A) *Pleurodictyum americanum* coral, B) *Dipleura dekayi* trilobite, C) *Tropidoleptus carinatus* brachiopods, and D. partial *Eldredgeops rana* trilobite. Many of the collecting locations in Livingston and surrounding counties are on private land. Permission should always be sought prior to collecting.

Site of the Month

Seneca Stone Quarry

It happened in a flash. At our April Friday club meeting, trip leader Bill Chapman announced that we had been granted permission to enter Seneca Stone Quarry on the upcoming Monday and wondered who might be free and interested. Apparently we either have a lot of idle folk in the club or a lot of anxious collectors ready to get busy. Eleven folks indicated interest and in a slight mist all eleven converged on the quarry site just south of Seneca Falls ready to collect on Monday morning April 11th.

WCGMC members look for fossils in the Oriskany sandstone at the Seneca Stone Quarry.

After an initial disappointment that quarry operations precluded collecting fish fossils and various invertebrates in the Union Springs Fm. atop the quarry walls (we can return for those at a later date), we all located our large sledges and mauls and went to work extracting brachiopods and large *Favosites* coral colonies from the Oriskany sandstone at the base of the quarry. At the Seneca Stone Quarry, the Oriskany is a 12-15' thick silica-cemented, pure quartz sandstone directly beneath the Onondaga limestone units being actively quarried for aggregate. Locally, this sandstone is peppered with large brachiopods of several different species. The tendency for the brachs to be localized in particular horizons suggests some transport, perhaps during the same shallow marine action that concentrated the sand. The larger brachiopods (see photos below) were identified with the help of Karl Wilson's excellent "Field Guide to the Devonian Fossils of New York" (2014).

How about that for a burial site for brachiopods?

As an aside it is interesting to note that the Oriskany thickens to the south and where it is buried sufficiently it has been a prolific natural gas reservoir. In fact, as much as 50% of all gas production in Pennsylvania in 1950's was extracted from the Oriskany. More recently, the unit is being evaluated for CO_2 sequestration (capturing releases from gas-fired power plants and injecting into nearby suitable subsurface reservoirs).

What is this?
Does anyone know?
~~Next~~ This month we will learn all about it.

OK, how many saw this picture last month and immediately knew what it was. If you thought obsidian you were wrong. If you guessed black onyx, you were also wrong. Now suppose I gave you the hint that the material is soft (2.5-3 on Mohs hardness scale). Would it help to know that the material has a density of about 1.25 gm/cm3, or less than half that of quartz or feldspar? Or that it came from England?

The material is jet, or more specifically Whitby jet because it is found in a Jurassic age deposit near Whitby in western England. Yes, to put it simply it is faceted lignite, the precursor to coal.

But jet differs from coal in that it does not from in organic rich seams during the burial of swamps. Rather it forms when a piece of wood is waterlogged, sinks, and is covered in organic sediments. If heated in isolation it is able to avoid the fracturing (called cleating) that is almost always associated with coal formation.

The absence of fracturing allows cutting and polishing, and even faceting of the soft black organic material. Of course, the products are not ideal for jewelry or other uses where they might be scratched, but they are considered a gemstone and do represent a nice novelty item for a gem collection.

Minerals & Fossils

Tammy and Stephen Mayer

D I A M O N D K P O R I F E R A G
L I N E K R M R S Y V B A U T R Z
O Y O X A A R U B Y R G I U A L U
G K P T H C P Q P G F I R P R E P
A S R P S I L V E R H Q T Z E L L
I T E V U Y M T T V U O R E B P M
R R S M R K C P J O L H O I T N Q
A S L Y X A C R I I P R U L X I P
D U C D H C B S T E T I R O U L F
I E U R T T E E A S G E R H D I P
N X V B I F E C F T E N R A G G E
C V H Y K N I M J L V M T N R P S
Z T R A U Q O B A B L I M G O H Y
U A V J Z A K I L D A Z C R E J F
J H P L G R M S D E V N Y F K P Q
I D I O L I T U A N I P P O N S L
M K O I T T R I L O B I T E N O N

TRILOBITE
CRINOID
PORIFERA
GRAPTOLITE
CNIDARIA
NAUTILOID
BIVALVE
GOLD
SILVER
DIAMOND
GARNET
PYRITE
QUARTZ
PYROPE
CYSTOID
RUBY
TOPAZ
AMETHYST
TURQUOISE
FLUORITE

find the hidden words horizontally, vertically, diagonally, either forwards or backwards

Wayne County Gem & Mineral Club

Gem Fest 2016

23rd annual

Sat. June 4 10-5
Sun. June 5 10-4

$3 Admission
Kids 12 & under FREE

LOCATION

Greater Canandaigua Civic Center
250 N. Bloomfield Rd, Canandaigua, NY

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

UV Bob's Ultraviolet Show: 5 Showings

Gems, Minerals, Fossils, Beads & Jewelry



visit www.wcgmc.org for details

The club will need many helpers with show set-up on Friday, manning show tables and check-in during the event, and show takedown on Sunday afternoon. Come to the meeting on the May 13th and sign-up to volunteer or let your favorite board member know when you can help.

MAY BIRTHSTONE

Emerald

It seems we have been here before! The May gemstone is a repeat of the mineral beryl. Yes, emeralds are a different color than the March gemstone aquamarine, but mineralogically a beryl is a beryl is a beryl.

The striking green color of an emerald is caused by the introduction of just 0.1-0-5 percent chromium substituting into the aluminum spot of the beryllium silicate mineral. A small amount of vanadium is also present. It is truly amazing that just a fraction of a percentage of an element can impart such a striking difference in color. While the richness and intensity in color is paramount in valuing an emerald, the presence of visible inclusions is also important. Emeralds lacking inclusions to the eye are considered flawless and carry more value than those with visible inclusions.

Emerald on calcite from Colombia, *from John Betts online mineral museum*

More than 60% of the world's best emeralds continue to come from the remote jungle regions of Columbia. They have formed in thin seams in Cretaceous age carbonaceous shale and limestone that were invaded by hot beryllium-rich fluids moving along fault zones adjacent to the sedimentary units. When these fluids cooled the beryl was deposited, often associated with calcite which can be etched away. The igneous source rock for the hot hydrothermal fluids has not been located. It may remain buried or its surface exposure may be hidden by jungle soil and vegetation. The chrome is thought to be sourced from the black shales, while the beryllium is delivered by the hydrothermal solutions. The reducing environment of the shales then promotes emerald formation.

With a hardness of 7.5-8, emeralds can survive to weather out of shale and be recovered in nearby placer deposits or in tailings just outside the mine. But emeralds tend to fracture during transport so most must be mined at their source in underground workings, many of which are dangerous and poorly supported. Given that the host rock is estimated to contain only about 1 carat per every 15 cubic meters of rock, it is very hard work.

Emeralds also occur in mica schists and in pegmatites. Perhaps the most famous eastern United States occurrence is in a few small pegmatites in North Carolina.

Can you spot the small green emeralds in this tourmaline-bearing pegmatite rock from the Spruce Pine District in North Carolina? *photo from geology.com*

For more on the mineral behind the emerald, here is a link to the March 2016 WCGMC newsletter.

References:

Lauf, R.J., 2011, Collector's Guide to the Beryl Group, Schiffer Earth Science Monographs, Volume 11, 93 p.

WCGMC Member May Birthdays

Dale Daniels

Patty Haynes

Liz Frey

Rita Lesniak

WCGMC 2016 Field Trip Schedule

last update 4/26/2016)

Collecting season is in full swing and we have a busy spring/summer planned. A successful trip to New Jersey last weekend will be followed by another to Pennsylvania this coming weekend. And there is much more ahead You should always contact the trip leader for details and possible changes. Or come to our monthly meeting and help plan. Additional dates will be added with each newsletter, and on the website. You can always contact our club 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.

April 29-May 1: (Fri.-Sat.-Sun.) - Pennsylvania: Pleasant Mills for wavellite and calcite, etc., Red Hill for fossils, Jerymn and Carbondale for plant fossils, maybe more! (motel in Lewisburg)
Leaders – Bill Chapman, Fred Haynes

May 6 (Friday) – Ridgemont, Ontario for Eurypterids. (details will soon be sent to those going)
Leader – Stephen Mayer

May 7(Saturday) - Penfield Quarry Open House is from 7:00 AM – noon. Be early for safety info. Quarry rules: hard hat, boots, safety glasses, etc. We drive right in. It could not be easier!

May 17 (Tuesday) – Ilion Gorge: A weekday trek to a favorite site in southern Herkimer County. (travertine and more in a very pretty gorge) Details at May meeting. *Leader – Bill Chapman*

May 21 (Saturday)- Penn-Dixie Dig With Experts see https://penndixie.org/dig-with-the-experts/

May 25th weekend: Hickory Hills may be open this weekend for Herkimer picking. Not yet planned.

June 24-26 (Fri-Sun) NYPS trip to Ridgemont and James Dick Quarry in Canada This is a New York Paleontologic Society Trip. Trip is open to WCGMC members. *Contact Fred Haynes*

July 9 (Sat.) – Rickard Hill - Lower Devonian Fossil Dig – Schoharie, NY roadcut in Helderberg Group
Joint trip with the Rochester Academy of Science (they lead) (Details to follow)

August 6th or 7th [TBA]- Green's Landing – Middle Devonian collecting East side of Canandaigua Lake
Joint trip with Rochester Academy of Science (we lead) (Details to follow)

August 13-20 - Niagara Peninsular Geological Society trip to Thunder Bay Area. Currently several of us are planning to attend this week camping/collecting long trip to the northern shore of Lake Superior. Visit http://www.ccfms.ca/clubs/NPGS/trips.htm for some information or contact Fred Haynes

Much more will be planned, particularly into June and July– Watch this space
Fossil Trips proposed include Deep Run, Alden, Indian Creek, perhaps Second Creek in Sodus, and more. Mineral trips to Walworth, Benson Mines, Rose Road, and more

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

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 for details

June 25-26 Gilsum Rock Show and Swap, Gilsum, NH http://www.gilsum.org/rockswap

July 9-10 GemWorld 2016 in Syracuse (SRC Arena, 4585 W. Seneca Turnpike, Syracuse)
http://www.gmss.us/news/gemworld50-coupon/image/image_view_fullscreen for details & coupon

July 16-17 Herkimer Diamond Festival and Gem Show (Herkimer High School, 801 W. German St.)
http://www.herkimergemshow.com/

July 23 WCGMC annual picnic and workshop event ***(note the move from August to July)***

Wayne County Gem & Mineral Contacts

ELECTED OFFICERS

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APPOINTED POSITIONS

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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
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