

The Petoskey Stone
Oakland County Earth Science Club
November 2023
www.OCESC.com

Next Meeting November 1st, 7pm, at the Church

Our meeting will have status of our current moving plans. Nancy Mathura will give us a **program on Ivory at 8 PM**. It will be a discussion of fossil and modern ivory, the animals involved and the laws governing its sale.

Members may bring ONE or TWO Ivory or bone (scrimshaw, jewelry, etc) objects from his or her collection for consideration, but there will not be any valuation done... (and we will not have time for large collections so please limit what you bring).

Upcoming Shows (<https://www.mwfed.org/calendar>)

Nov. 4-5 Mid Michigan Rock Club Annual Show

Sat, Sun November 4-5, 10am Sat, 11am Sun,

Chippewa Nature Center, 400 S Badour Rd, Midland, MI 48640

Contact: Laura Foster; (989) 513-7254; pop345corn@sbcglobal.net

Nov 4, MMLS annual auction

Saturday, November 4, 7 PM Doors open at 6 PM, public invited.

First Assembly of God church 5650 South Telegraph Rd., Dearborn Heights Michigan

Sales tables open at 6 PM, free admission, free parking. Fossils, minerals, lapidary items, jewelry, and related books.

New York City Minerals

(article on next page)



Left: The Subway Garnet with its identification tag. Right: George Harlow holding the Subway Garnet.



Chrysoberyl in Quartz from 93rd Street at Riverside Drive, Manhattan, collected by Wallace Gold Levison, August 31, 1901. 1/2 x 1 1/2 cm. NYMC #6096.

New York City Minerals

from an award winning article by John Betts, published in Rocks & Minerals magazine, May/June 2009

The landscape of New York City (NYC) was arguably the most exposed and excavated area in the U.S., possibly only matched by that of Philadelphia. Bedrock was exposed for basement excavations of buildings to 30 m deep, cut-and-cover trenches passing through bedrock for subway lines, and the underground railroad, sewer, water and steam tunnels that crisscross the city... During these projects local residents interested in minerals have managed to make many mineral discoveries. Oftentimes the workers themselves were the ones that set aside a unique mineral occurrence...

(Here are a couple examples of fine specimens collected during these excavations)

The Subway Garnet is a dark reddish brown opaque 9 pound 10 ounce Almandine Garnet. Rough Garnet crystals can take on a number of forms, and the Subway Garnet is a combination of 3 forms. As a result, the Subway Garnet is overall round in form, but made up of a many 4 and 6 sided faces

Though it is called the Subway Garnet, this garnet was discovered in Manhattan in August 1885 when a laborer digging as part of a sewer excavation found and unearthed the gem. In reading through accounts from the time, there are mixed details about how the garnet went from the earth to the hands of renowned gemologist George Frederick Kunz – the man who ultimately gifted the gem to the American Museum of Natural History, AMNH.

Levison chrysoberyl

Two important finds of chrysoberyl were made by Wallace Goold Levison (1846-1924), a prolific collector of New York City minerals, active member in the New York Mineralogical Club, the first editor of American Mineralogist (founded in 1916)... The importance of these chrysoberyl finds resulted in repeated stories in mineralogical literature of the time...

The first chrysoberyl find, on the north side of 88th Street east of Amsterdam Avenue, was made June 16th, 1893 in a large block of granite pegmatite that had been excavated during construction.

At 93rd Street in Riverside Park, 9 years later... A large mass of gneiss was exposed to 50 feet high for two blocks. Levison recognized the exposure, cut by veins of lighter gneiss and lenses of quartz and albite, as similar to the formation of his first find of chrysoberyl 350 meters away to the southeast. He repeatedly visited the site during August 1901 when on the 31st of the month a fine chrysoberyl specimen was discovered by a companion who was there to photograph the site for Levison.

The specimen is an elongated plate of garnetiferous smoky quartz 16 cm across by 13 cm high. Embedded in the quartz are six segments of a glassy transparent yellow-green chrysoberyl crystal that must have broken during the quartz intrusion. The two largest chrysoberyl sections measure 25x25 mm and 23x20 mm... The six crystal sections do not represent the full crystal that must have exceeded 60 mm, presumably because other portions were lost in adjacent quartz. The luster and transparency of the chrysoberyl are impressive when the specimen is seen in person...

Both specimens are currently in the collection of the NYMC (Nos. 690 and 691) residing at the AMNH for safe keeping

There is more detail, minerals, including photographs, at the source of this article by John Betts. His site is well worth a visit:

<http://www.johnbetts-fineminerals.com/jhbnyc/articles/nycminerals1.htm>

OAKLAND COUNTY EARTH SCIENCE CLUB
Christ Lutheran Church
5987 Williams Lake Rd.
Waterford MI 48329

Club Web Site—www.OCESC.com

Editor: Laura Sheffer, e-mail: lsheffer1@comcast.net note that the first email ID character is a lower case 'l' as in 'Laura', and the last character is the digit '1' as in '1-2-3'. Or call 248-881-5820

General Meeting: First Wednesday each month, September through June at 7:00 PM Board Meeting: Same day as General meeting, at 6:30 PM General and Board meeting are held at Christ Lutheran Church.

Purpose: To associate the member families, to promote activities that help families learn about Earth sciences and lapidary arts, and to cooperate with other similar organizations.

Grinding classes and workshops are held at the Waterford Recreation Center building- 5640 Williams Lake Rd.

Open hours in the grinding room- Open by appointment on Monday, see below- \$3.00/person/visit. At least Two persons must be present at all times, for safety.

Officers-2021-2022(elections not yet held for 2023)

President Greg Lemke 810-869-0411
Vice President Dwight Keith. 248-818-0042
Secretary Chris Shull. 248-393-3609
Treasurer Bob Albertson. 248-877-1577

Directors-

Bob Albertson(19-21)) 248-877-1577

Rod Krupka(19-21)) 248-627-6351

Eleanor Snyder (Emerita). 248-698-4386
Anne Marie McFadden (19-21).
Roberta Thomas(17-19) 248-497-2191
Katherine Van Hoy(Emerita). 248-563-5309
Linda Whitehead(17-19). 248-765-7344

OCESC is a member of MWF-AFMS

Committees:

Refreshments-vacant
Membership- Chris Shull
By-laws- members review
Classes- J. Glassbrook

Field Trips- Vacant

Library-L. Whitehead
Historian-L. Whitehead
Sunshine-N. Mathura
Publ.- L. Sheffer
Website-D. Whitehead

Grinding room-B. Albertson, J. Glassbrook,

Banquet - C. Shull

Club meeting program- Vacant

ARTICLES AND ITEMS OF INTEREST are welcome! Please send to the Publ. Editor by the 13th of the month.

MEMBERSHIP- \$20 per year, per household or individual. Only new member fees are pro-rated during the first year of membership. Students pay \$7.50 if not covered by family membership. Club name tag is \$10.00 per person. All adults are required to wear their name tag. Make checks payable to "OCESC" and forward to Chris Shull, or submit cash or check to Chris on meeting night.

Upcoming Events check www.rockngem.com and <https://www.mwfed.org/calendar>. for more—

Grinding Room- HOURS, Monday Noon- 3:30, contact Bob Albertson at least one day ahead to schedule.

Bob- 248-877-1577- . Grinding room fee \$3.00 per member, per visit. CHECK IN at the Recreation building desk, first floor. Two persons must be present at all times for safety. Dust mask and eye protection are required by Waterford Parks & Rec. Contact Bob Albertson to let him know you are attending that day.

Bead/Chainmaille Group Meets September through March/April, Saturdays 1-4pm, at the church. Contact Laura Sheffer or just drop by!

Biological fingerprints in soil show where diamond-containing ore is buried

Oct 24, 2023, phys.org

Researchers have identified buried kimberlite, the rocky home of diamonds, by testing the DNA of microbes in the surface soil.

These "biological fingerprints" can reveal which minerals are buried tens of meters below Earth's surface without having to drill. The researchers believe it is the first use of modern DNA sequencing of microbial communities in the search for buried minerals.

The research published in *Communications Earth and Environment* represents a new tool for mineral exploration, where a full toolbox could save prospectors time and a lot of money, says co-author Bianca Iulianella Phillips, a doctoral candidate at UBC's department of Earth, ocean and atmospheric sciences (EOAS).

The technique adds to the relatively limited number of tools that help find buried ore, including initial scans of the ground and analysis of elements in the overlying rock.

"This technique was born from a necessity to see through the Earth with greater sensitivity and resolution, and it has the potential to be used where other techniques aren't working," said Phillips.

When ore interacts with soil, it changes the communities of microbes in the soil. The researchers tested this in the lab, introducing kimberlite to soil microbes and watching how they changed in number and species.

Using these "indicator" microbes and their DNA sequences, the team tested the surface soil at an exploration site in the Northwest Territories where kimberlite had previously been confirmed through drilling. They found 59 of the 65 indicators were present in the soil, with 19 present in high numbers directly above the buried ore. They also identified new indicator microbes to add to their set.

Using this set, they tested the surface soil at a second site in the Northwest Territories where they suspected kimberlite was present, and precisely located the topological outline and location of kimberlite buried tens of meters beneath the Earth's surface.

In future, exploration teams could build up a database of indicator species and test an unknown site to find out if kimberlite deposits are buried beneath the soil. "Microbes are better geochemists than us, and there are thousands of them," said lead author Dr. Rachel Simister, who conducted the work as a postdoctoral researcher in the UBC department of microbiology and immunology (M&I). "You might run out of elements to sample, but you'll never run out of microbes."

The technique has potential application across other metallic deposits. The team's ongoing research shows similar results for identifying porphyry copper deposits.

"You could use this technique to find minerals to fuel a green economy," said senior author Dr. Crowe, EOAS and M&I professor and Canada Research Chair in Geomicrobiology. "Copper is the most important critical element that we'll need more of going forward."

"This is exciting because it's part of a growing recognition of the potential for using microbes at every stage of mining, from finding the minerals, to processing them, to returning sites to their natural states." said Dr. Crowe.

Source: Rachel L. Simister et al, DNA sequencing, microbial indicators, and the discovery of buried kimberlites, Communications Earth & Environment (2023). DOI: 10.1038/s43247-023-01020-z

Below, collectors at the turn of the 20th century New York City. Note at least two women were present.



Undated photo of the Brooklyn Academy field collecting trip to anthophyllite boulders in glacial drift in Brooklyn with the Penitentiary buildings in background. Daniel .S. Martin, NYMC co-founder, is listed on the rear of the photo as one of the collectors. Photo: Staten Island Museum

"After a good dinner, one can forgive anybody, even one's own relations." –Oscar Wilde