WAYNE COUNTY GEM AND MINERAL CLUB NEWS

VOLUME 36 No. 08 August 2010

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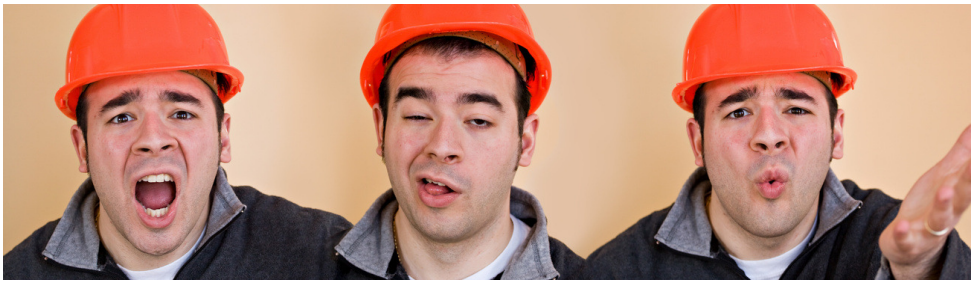
President's Message

Greetings Adventurers,
Many a trail has led us away from our front door this year. Spectacular sights, unexpected pleasures & shared sorrows have dotted the landscape of our summer. Research has been part of my learning experience since the club collected specimens from PA. Large chunks of lycopod trees were collected by several members. We suspect a machine operator in the pit set them aside for us since we were there the month before. The quarry owner is trying to run a business & is grinding these into bits of gravel. Luckily, we found an operator there who set some of these aside to help those of us who study & collect these treasures to share with them with others. The tree section too large for the showcase in the Syracuse show made it onto a cart where people got to examine it up close. An excellent trilobite display donated from the Joy & Clyf Bourne collection dominated another display case of fossils collected this year. Canada was a great trip. After the Rose Quartz Pit, I started checking real estate ads. Never wanted to leave. Glenn, Eva Jane, Linda & Susie will never forget Airport Rd where the GPS sent them. Scary, boulders & steep one-way travel is not what they had in mind that day but they came through it unscathed and have their own tales of adventure to tell. Check the website www.wcgmc.org for upcoming digs and events. Things change all the time. Unfortunately, we have to reschedule the NH dig the latest word is.
Finally, be safe and courteous to one another. No one can replace you.
Pat

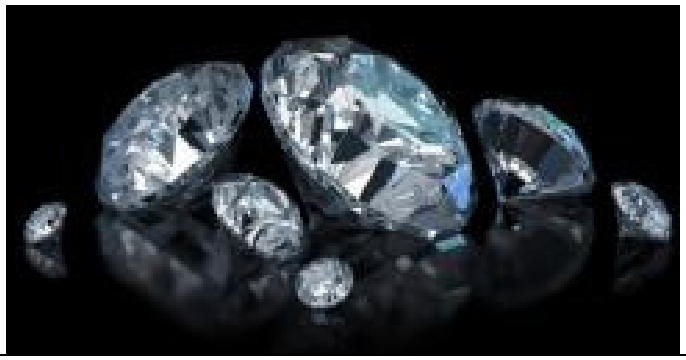
Election of Officers Upcoming

Disgruntled with the present administration? Got a new idea? Want to be heard more? Run for office. Several positions are open - 2 Board Members, Pres., V.P., Secretary & Treasurer. The Newsletter Editor, Trip Director & Mini-Miner Coordinator appointments are due for renewal also. Call Pat at 607-868-4649 or e-mail her at batnpill@empacc.net for further information.



Finding Diamonds: Scientists' Work Improves Odds

ScienceDaily *(July 15, 2010)* — http://www.sciencedaily.com/releases/2010/07/100714141536.htm



While prospectors and geologists have been successful in finding diamonds through diligent searching, one University of Houston professor and his team's work could help improve the odds by focusing future searches in particular areas.
(Credit: iStockphoto/Evgeny Terentev)

Kevin Burke, professor of geology and tectonics at UH, and his fellow researchers describe these findings in a paper appearing July 15 in *Nature*, the weekly scientific research journal. Burke's team found that kimberlites, which are rare volcanic rocks that include diamonds, owe their origin to occasional pulses of hot mantle rock -- called mantle plumes -- that have risen through the entire thickness of the Earth's mantle from deep down next to the core, or innermost part, of the planet. This core/mantle boundary lies at a depth of about 2,000 miles. While the idea there might be mantle plumes rising from the core/mantle boundary was first suggested about 40 years ago, it is only within the past few years that evidence of plumes coming all the way from this boundary to the Earth's surface has been clearly demonstrated by Burke's group.

"Our approach is new, because it combines observations of the Earth's deep interior from seismology with evidence of how tectonic plates have moved about on the Earth's surface during the past 500 million years," Burke said. "I have been interested in mantle plumes from the core/mantle boundary since they were first hypothesized in 1971. About 10 years ago, I realized there might be a link between the seismically defined structure at the core/mantle boundary and volcanic rocks at the Earth's surface that had been suggested to be linked to mantle plumes. I immediately realized how the existence of that link could be tested, and it was then that I came in contact with Trond Torsvik in Norway, who proved to be uniquely qualified to carry out the required tests."

Torsvik, a professor at the University of Oslo in Norway, and Burke developed the conceptual ideas for this research. Additional members of the team were Bernhard Steinberger at the Helmholtz Centre Potsdam in Germany, and Lew Ashwal and Sue Webb from the University of the Witwatersrand in South Africa. The research consisted of applying and interpreting the results of mathematical analysis, much of it applying spherical geometry to the Earth's surface, to publicly available data-sets put together mainly by Ashwal, Webb and Torsvik.

The present structure of the Earth's mantle has been increasingly understood by researchers in seismology during the past 25 years, and Burke and his colleagues' work has helped confirm the seismologists' results. The work of the Burke group, however, also describes the structure as it was in the past, revealing the history of deep mantle structure over the geologically long period of 500 million years. That, Burke said, is new. Continued on Pg. 3

Finding Diamonds … continued from pg 2

"Establishing the history of deep mantle structure has shown, unexpectedly, that two large volumes lying just above the core/mantle boundary have been stable in their present positions for the past 500 million years," he said. "The reason this result was not expected is that those of us who study the Earth's deep interior have assumed that, although the deep mantle is solid, the material making it up would all be in motion all the time, because the deep mantle is so hot and under such high pressure from the weight of rock above it."

As for how this improves the odds of finding these precious gems, Burke explained that geologists interested in diamonds have known for more than 50 years that rare diamond-bearing kimberlite volcanic rocks are highly concentrated in ancient cratons within areas of the Earth's continents. This has concentrated the search for diamond-bearing rocks within an area amounting to no more than about 10 percent of the entire area of the world's continents. The new work has shown that most of the kimberlites have been erupted into one or the other of those old cratons only under certain conditions. These findings will enable the search for diamonds to be further concentrated.

Ultimately aiming for a better integrated understanding of how the solid Earth of the crust and mantle works, the group hopes to obtain further results within months. They hope to better establish how plate motions at the Earth's surface have evolved over the last 500 million years and how to work out just how those movements have related to both the stable and the moving parts of the Earth's mantle during the same interval.

Geology Quiz

1. What mineral is 7 on the Mohs hardness scale?

a) Quartz b) Feldspar
c) Apatite d) Fluorite

2. Which of these is an igneous rock?

a) Gneiss b) Basalt
c) Hornfels d) Graywacke

3. Where is almost all of the Earth's crust created?

a) Mid-ocean ridges b) Continents
c) Island arcs d) Hotspots

4. The Jurassic is what kind of time unit?

a) Era b) Epoch
c) Period d) Age

5. Which type of eruption is the most violent?

a) Plinian b) Stombolian
c) Hawaiian d) Vulcanian

Geology Quiz Answers:

1. Quartz is 7

[The Mohs scale consists of these ten standard minerals:1. Talc, 2. Gypsum, 3.Calcite, 4. Fluorite, 5. Apatite, 6. Feldspar, 7. Quartz, 8. Topaz, 9. Corundum, & 10. Diamond.]

2. Basalt

Gneiss and hornfels are metamorphic rocks, and graywacke is a sedimentary rock.

3. Mid Ocean Ridges

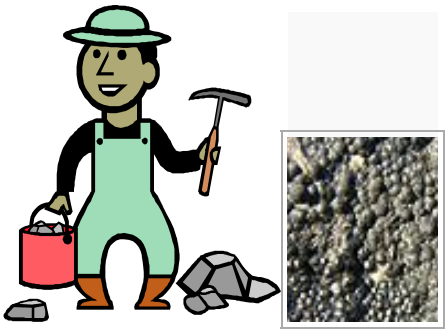
The mid-ocean ridges are creating oceanic crust at a total rate of about 1 cubic kilometer per day. The same amount disappears into the mantle in the deep-sea trenches, where subduction occurs. Hotspots and volcanic island arcs aren't creating crust so much as piling fresh rock on top of it. And the continents, while they break apart and recombine over geologic time, don't really grow except as bits of oceanic crust get attached to them.

4. Period

The Jurassic Period consists of three epochs—the Early, Middle and Late Jurassic—each of which encompasses several ages. The Jurassic is part of the Mesozoic Era, which is part of the Phanerozoic Eon. Today is also in the Phanerozoic, in the Cenozoic Era, Quaternary Period, Holocene Epoch.

5. Plinian

Plinian eruptions are the strongest kind. Huge amounts of gas and fragmented lava come from the vent, raising an eruption column that can reach the stratosphere and cause heavy ashfall for great distances around the volcano. This eruption type is named for Pliny the Elder, who died while studying the great eruption of Vesuvius that destroyed Pompeii in the year 79. The Pinatubo eruption of July 1991 was of this type.



(Editor's Note:Correction to article submitted by mini-miner Joshua DiMora)

$_{92}$U = Uranium

Uranium is used in nuclear power plants. Some power plants use coal, gas, and oil. It only takes 5 uranium pellets the size of a swallow pill to power 1 house an entire year! Some Uranium is used in bombs. All uranium is radioactive. So since it's radioactive it is very harmful.

Africa witnessing birth of a new ocean

Geologists working in the remote Afar region of Ethiopia say the ocean will eventually split the African continent in two, though it will take about 10 million years. In 2005, a 60 km long stretch of the earth opened up to a width of eight metres over a period of just ten days.
http://www.ags.gov.ab.ca/news/geology_news.html 8-7-10

Canada

By Pat Chapman

We passed many things – a gas station was not one of them. Hauling a trailer was new to Bill & I and you're never quite prepared for the drag you put on your truck. Dave Millis prepared digs for us everyday. Thanks you very much Dave! We started the night we set up camp at the Old Keene Dump. No rest for the wicked.

The Old Keene Dump is the result of a bankrupt mineral company whose load was dumped by the railroad when they couldn't be paid in advance. Picture a monstrous pile to dig through and you've got it. After we found identifiable minerals by daylight, darkness befell and the blacklights came out. Our gang were like kids in a candy shop.

We visited an average of 2 sites a day and caught the local Bancroft Mineral Show on Sunday. Breakfast & dinner were communal events with more food than we could possibly eat in one week. Laughs and insights into our individual quirks were gained. Now we know who the pyromaniacs are in our group thanks to the nightly bonfires and abundant cuttings. If you're missing a connection with people and need to refocus, this is the type of trip you'd want. We turned off the phones, the Wi-Fi, etc. We still enjoyed the benefit of electricity – no need to go completely primitive. Diggings were plentiful and the finds rewarding & our smiles say it all.

WAYNE COUNTY GEM AND MINERAL CLUB, INC.

MEETINGS: Held 2nd Friday night of each month at 7:00pm at Park Presbyterian Church basement, Maple Court, Newark, NY

WEBSITE: **www.wcgmc.org**

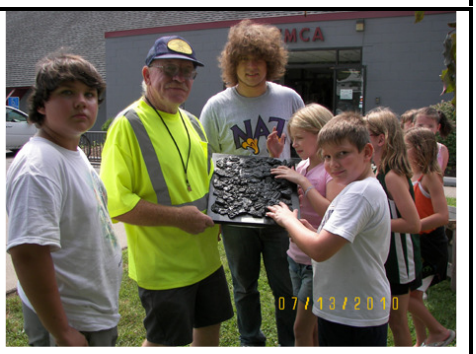
ORGANIZED: 1973 **INC.**1976
Affiliated with the AFML and EFMLS of Mineral Societies since 1973.

OFFICERS: Elected at the October meeting, taking office In November for a 2-year term.
FISCAL YEAR: Oct. 1st to Sept. 31st.
DUES (due Oct 1st):
$10.00 JUNIOR or STUDENT
(18 yrs> with no parents in the club)
$15.00 REGULAR or ONE SINGLE ADULT
(Over age of 18 years old)
$20.00 FAMILY MEMBERSHIP
(Includes 2 adult votes and children)
Send due, SASE with your info to:
WCGMC, P.O. Box 4, Newark, NY14513

OBJECTIVE: TO STIMULATE INTEREST IN THE EARTH SCIENCES, IN COLLECTING AND CLASSIFICATION OF MINERALS, AND IN THE ART OF GEM CUTTING.
The public is welcome!!

WCGMC EDUCATORS AT WORK

Bill Lesniak at the Alasa Academy summer rock classes where they assembled & labeled egg cartons of specimens.



The William Chapman Collection complete with sluice visited the Geneva YMCA in July for fun & education.

Did you hear about that new restaurant on the moon?

Great food, no atmosphere…

Stamp

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First class: dated meetings and time valued.