



WAYNE COUNTY GEM AND MINERAL CLUB NEWS

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AUGUST 2007



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President's Message

Experiencing July's heat brings the thought to my mind that us rock hounds need to be sun-safe and hot weather prepared whenever we go on our outside excursions. I think that our club's safety chair, Bill Chapman, will agree with me when I remind everyone to wear weather appropriate clothing in layers. Bring an extra jacket or garment for variables in sun, wind, rain, whatever. Check with you're your doctor about any medications you take- they may make you more heat or sun sensitive. Use sunscreen that's less than a year old, as the sunscreen loses it's effectiveness after awhile. Use good sunglasses under those safety goggles is you can. A hat is good, too.

Lastly- drink lots and lots of water, water, water!!!

Your President, Stan

Psilomelane is a Catchall Name

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Psilomelane (sigh-LOW-melane) is a catchall name for hard, black manganese oxides that form crusts like this in various geologic settings. Psilomelane has no precise chemical formula, being a mix of different compounds, but it's approximately $(\text{H}_2\text{O})_2\text{Mn}_5\text{O}_{10}$. It has a Mohs hardness around 6, a blackish streak, and commonly a botryoidal form as shown along the bottom of this photo. This specimen is from the Marin Headlands north of San Francisco, where deep-sea chert is widely exposed. (Because the locality is in the National Park system, I left it where I found it.) It is likely that this former seafloor had at least a sprinkling of manganese nodules on it. If those compounds were mobilized during these rocks' travels in the ancient California subduction zone, this crust would be the result. Manganese oxides are also a major ingredient in desert varnish.



Rhenium-Osmium Studies--Two rare metals yield deep geologic clues

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The better our instruments are, the more things we can see. This is an old truism in science—think of telescopes for the most well-known example—and it continues to be true today. Here's a look at what we can do with two of Earth's rarest elements, rhenium and osmium. Theirs is a story that started in earnest only during the 1990s. Actually, these elements are rare only at the Earth's surface. Rhenium and osmium are part of the platinum group or metals, and like the rest of that group they are strong siderophiles—they love iron. When the Earth first formed, they dissolved in the molten iron, along with cobalt, nickel, phosphorus, and several other elements. Today almost all of the planet's rhenium and osmium are in the iron core, leaving the silicate mantle with just a whisper, less than one part per billion. Until a decade ago, our instruments couldn't even measure these elements reliably. But now that we can detect them in the parts-per-trillion range, we're finding that they are a unique team. Rhenium, which occurs at about 200 parts per trillion outside the core, comes in two isotopes, of atomic weight 185 and 187. Rhenium-187 is very slightly radioactive, turning into osmium-187 with a half-life of 42.3 billion years. (This happens when a neutron decays to a proton, leaving the atomic weight unchanged.) Therefore osmium very, very slowly collects more of the 187 isotope. With its pitifully slow radioactive "clock" and extreme rarity, rhenium would seem like a marginal candidate for study. But rhenium and osmium, practically twins on the periodic table, behave differently when rocks melt and re-crystallize. If there's no iron around, osmium has no preference between melts and solid minerals, but rhenium strongly favors the melt. In geochemist's lingo, osmium is a compatible element while rhenium is strongly incompatible. Therefore, a body of rock in the mantle that undergoes any degree of melting stops its rhenium-osmium clock. And over time, melt extraction also concentrates rhenium from the mantle into the crust and continents, which are the incompatible dregs of billions of years of mantle activity. The extra rhenium changes the apparent date on the clock there. If we tried to use the rhenium-osmium clock as a dating method, these variations would be noise in the data. But because we can already tell the ages of rocks by other means, we can turn that noise into a signal—information about changes related to melting in the mantle and crust. So a careful study of rhenium and osmium can shed light on some deep geologic problems. For one thing, there's more of these metals in the crust and upper mantle than there should be. The reason is that after the core formed some 4.5 billion years ago, more iron rained down upon the Earth in the form of asteroids during the "late bombardment." So in effect, Earth got a final frosting of rhenium and osmium on the crust and upper mantle. Through osmium isotope studies we can examine how this frosting has mixed with the rest of the mantle. We can also look for signs of mixing with the osmium-poor lower mantle and with the osmium-rich core. For a glimpse of some of the complexities, visit articles by geochemist Richard Walker on his mantle studies. Karl Turekian also uses osmium to study the continuing flux of material from space onto Earth. And for a truly cosmic look at rhenium-187, review information published from the Darmstadt Heavy-Ion Laboratory that explores its behavior as a deep probe of the age of the universe. Osmium, is the densest element of them all (22.57 grams per cubic centimeter). Osmium tetroxide smells so bad that the element got its name from the scientific Greek word "osme", or "odor"! High-end pen nibs have osmium tips. Visit the About.com's Metals Guide to locate sources for osmium and rhenium metal, or look up the elements (Re and Os) in the About.com's Chemistry Guide's online periodic table.

UPCOMING WCGM CLUB MEETINGS

August 10, 2007 (Friday) at the Newark Park Presbyterian Church
WCGMC board meeting at 7pm---- Regular meeting at 7:30pm
Don Schiltz--refreshments -- NO door prizes this month.

September 14, 2007 (Friday) at the Newark Park Presbyterian Church
 WCGMC board meeting at 7pm---- Regular meeting at 7:30pm
 ? refreshments ? door prizes

**CLUB NEWS TO dig -
Kudos, too!**

1. EFMLS announced the 2007 Wildacres Retreats to be in September. For info log onto www.amfed.org.efmls
2. EFMLS will be hosting a prize drawing at the October Newark, NY show. Contact Jane Hand, (601) 825-3989, 253 Wanda Dr. Brandon, MS 39042 for tickets!
3. KUDOS' to those 13 WCGMC members who braved the hot weather on July 25th and marched in the Newark, NY Rose Parade. *Did you wear those safety, steel toed boots?*
4. "Diamond Dan" has publications for young people interested in gems & minerals. Call: 585-289-4936.
5. **Plz: submit newsletter articles in writing BEFORE the 22nd of the month.**
7. Bill Chapman can tell you about safety rules, available safety equipment like vests, hardhats, helmets and shoe types needed. Contact Ken Rowe with questions about available club-owned literature and equipment.
9. KUDOS' to WCGMC Program Director, Andrea Kords, a Sweet Potato Gem of a gal, who's coordinating the Gem and Mineral Show to be held at St. Michael's School, in Newark in October 2007.
10. WE NEED VOLUNTEERS FOR SEPT REFRESHMENTS AND DOOR PRIZES!!
11. What about the rock-saw???

WCGM Club's 2007 EFTA Digs!

An informal committee of club members, Bill Chapman, field trip chairman, assisted by Jerry Donahue, Terry Wilson, Don Schiltz, Ken and Roxanna Rowe, and, wife, Pat Chapman, announced the field trips of Brookfield and two Margret Hastings Digs. The 4th dig will be in the Town Of Walworth.

WALWORTH QUARRY! According to club member, Ken Rowe, the details of this particular and annual club event are usually delayed because it is the Quarry who decides when date dig will be. So the details for the 2007 event have not been determined at this time. However, the rule of thumb is that it's expected to be generally like last year's event. This is an EFTA event, but according to our new by-laws, it is also considered a club dig, too. It promises to be a good time for all, as usual. Call any of the above named people or Dave Kords or Bill and Pat Chapman (see front page for phone numbers) for more information. Hope to see ya there!

**SOME FOSSIL COLLECTING
HINTS:**

The most important tool to bring is safety goggles. Some other good paleo-tools are hammers, stone chisels (or an old railroad spike), a whisk broom or old paint brush, many plastic bags and small sandwich bags, aluminum foil for delicate or broken fossils, and plenty of water. Be certain that you've permission to collect at the site. Avoid overcollecting to keep fossil hunting available to everyone. Besides, who really needs a garage full of rocks? Avoid harming the site. Don't be the reason to close it. Bring a map to document where you found fossils or other interesting items as well as to help you to identify your finds later on. Finally, safety is always more important than any fossil. (suffolkgem.com)

**Earth-Wide Events to
Try!****August 2007**

4-5: 58th Annual Gem & Mineral Show sponsored by the **Gem, Lapidary & Mineral Society of Washington, DC.** Bethesda, MD

4-5: 37th Annual Mid-State Gem & Mineral Show sponsored by the **Water-Oak Gem & Mineral Society.** Waterville, ME.

10-12: EAST COAST GEM & MINERAL SHOW at the Better Living Center, West Springfield, MA. Kids under 12 free w/ parents. www.mzexpos.com or Mz0955@aol.com

September 2007

7-8: 40th Annual Fall Rock, Gem, Jewelry Show Cologne Ave, Cologne, NJ

8-9: Jewelry, Gem & Mineral Show VFW Hall, North Adams, MA

8-9: 57th Annual Gem, Mineral & Jewelry Show by **Danbury Mineralogical Soc.** New Milford, CT.

15-16: 42nd Annual Gem, Mineral & Jewelry Show, Central Pa. Rock/Mineral Club, Mechanicsburg, PA www.rockandmineral.org

29-30: 44th Annual Gem, Mineral & Jewelry Festival sponsored by the **Capital Mineral Club.** Concord, NH.

29-30: 51st Annual Franklin-Sterling Hill Mineral, Gem & Jewelry Show, sponsored by the **Franklin-Ogdensburg Mineralogical Society.**

WAYNE COUNTY GEM AND MINERAL CLUB, INC.

MEETINGS: Held 2nd Friday night of each month at 7:30pm at Park Presbyterian Church basement, Maple Court, Newark, NY

WEBSITE: americanhobbyshop.com

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.

****NEW ANNUAL MEMBERSHIP CLASSES**

AND 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!!

Step... Step... One-Two-Three for WCGMC's 13!

Thirteen members of the Wayne County Gem and Mineral Club braved the weather to marching the Rose Parade, enjoyed the annual picnic and had a most enjoyable afternoon on Saturday, July 21st. We missed a lot of you. The day was topped off with a fantastic display of fireworks. The float with the banner looked fantastic in the parade. (Thanks to Ken Rowe and to Roxanna Rowe for this contribution.)

ROCHESTER ACADEMY OF SCIENCE UPCOMING FIELD TRIPS—ACT SOON IF INTERESTED!

Saturday, August 11th - Alden, NY area for pyritized fossils and other minerals from septarian nodules 10 a.m.– 'till whenever.

Saturday, August 18th – Barton Garnet Mines at Gore Mountain in the Adirondacks. 10 a.m. – Barton Mine Rd. off Rte. 28 near North River, NY. <http://garnetminetours.com/> \$5/person. We'll have access to Pit #8 in the old abandoned mine where the public doesn't have access, as well as Pit #1 (no tools allowed) where the public is allowed. Tools are allowed in Pit #8, where specimens of garnet in the hornblende rock may be collected. Hard hats, safety glasses and steel-toed shoes are recommended in Pit #8 - bicycle helmets/sturdy shoes for children. Charge for all rock removed is \$1/pound. Gift Shop/Facilities. Please RSVP asap for head count is pre-required: Chuck Hiler 924-7496 mineraltrips@rasny.org



WCGM CLUB
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Stamp

First class: dated meetings and time valued.

