THE CAPITAL ROCKHOUNDER

Publication of the Capital District Mineral Club, Inc.
Chartered by the Education Department of the State of New York
P.O. Box 12814, Albany, New York 12212-2814

FEBRUARY 2005

February Meeting

The February Meeting of the Capital District Mineral Club will be on Thursday, February 3, 2005. We will once again hold our meetings in "Room B" on the concourse level (go down the escalator - the one on the left I think) at the state museum after coming in the main enterance on Madison Avenue, in Albany, NY. The doors will only be open from 7:00pm to 7:15pm. A word of caution, since it is can be very cold outside and the door is located in a "wind tunnel", please wear warm clothing including a hat, mittens, and a scarf. The actual meeting will begin at 7:30pm give or take a few minutes.

The speaker will be our very own Richard Stein speaking on "The Many Faces of Calcite".

Review of January Meeting

Well, the January Meeting was cancelled due to snow and ice, so there's not much to discuss here. Apparently there was a telephone tree. If anyone was not told of the cancelled meeting, and actually showed up during the height of the snowstorm, we offer our apologies. For the future, if you would like to receive such cancellations via E-mail, please E-mail me at: schmanie@albanyrockclub.com with instructions to only contact you if the meeting is cancelled, or whatnot.

Also, the new President, Vice-President, Treasurer, President of the Board, and Secretary positions have not been announced yet due to the cancellation of this meeting.

Trustees Meeting

The Trustee Meeting was cancelled due to an impeding blizzard which dumped about a foot of snow on us. Shoveling was not fun, however snowshoeing was. A new Trustee Meeting will be announced by Bob Ballad in late February.

Website

I added a special UPDATE section to the main page of the website. I am going to try to keep it up-to-date with information that is important for members to know. Go easy on me until late February when I get back from my trip. I can only make adjustments on my home computer from the way it is set up.

I am hoping to list all future cancellations of the meetings, new side meetings, etc. in this section.

February Shows

Jan. 29-Feb.12 — Tucsan, AZ. Annual show; Martin Zinn Expositions; Located in the following hotels: 1) The Inn Suites Hotel, 475 N. Granada; 2) The Mineral & Fossil Marketplace, 1333 N. Oracle Rd.; 3) Clarion Hotel-Randolph Park, 102 N. Alvernon Way; 4) Smuggler's Inn, 6350 E. Speedway; 5) Ramada Limited, 665 N. Freeway; the times will be 10am-6pm daily; free admission; more than 400 dealers from all over the world; Contact Martin Zinn Expositions, Box 999, Evergreen, CO 80437, (303) 674-2713; E-mail: mz0955@aol.com.

Feb. 5-6 — Panama City, FL. 14th annual show; Panama City Gem & Mineral Society; American Legion Fairgrounds, 15th St. and Sherman Ave.; Sat. 9am-5pm, Sun. 9am-4pm; free admission; Contact: Al Zar, (850) 763-0109; E-mail: Aquezpie@aol.com.

Feb. 11-13 — Merritt Island, FL. Annual show, "Symphony of Gemstones" Central Brevard Rock & Gem Club; Kiwanis Island Park, 950 Kiwanis Park Rd.; Fri. 1pm-6pm, Sat.-Sun. 10am-5pm; Contact George E. Tolson, (321) 783-4795.

Feb. 19-20 — Apache Junction, AZ. 40th annual show, "Rocks Alive" Apache Junction Rock & Gem Club; Apache Junction High School Cafetorium, corner of Ironwood Dr. and Southern Ave.; Sat. 10am-5pm, Sun. 10am-4pm; Contact Richard Robertson or John Frary, (480) 288-8573; Website: www.apachejunctionrockclub.org.

Feb. 19-20 — Georgetown, TX. 34th annual show; Williamson County Gem & Mineral Society; Community Center, San Gabriel Park, Bus. Hwy. 81N; Sat. 10am-6pm, Sun. 10am-5pm; adults $2, ages 6-12 $1, children under 6 free; Contact Donald Buell, P.O. Box 781, Buchanan Dam, TX 78609-0781, (512) 793-2740.

Feb. 19-20 — Seattle, WA. 39th annual show, "Presidents' Gemboree" West Seattle Rock Club; Alki Masonic Temple, 4736 40th Ave. SW; Sat.-Sun. 10am-5pm; free admission; Contact: Audrey Vogelpohl, (206) 932-3292; E-mail: avogelpohl@comcast.net; Website: www.westseattlerockclub.org.

Feb. 19-20 — Stockton, CA. 54th annual show, "Earth's Treasures" Stockton Lapidary & Mineral Club; classes, seminars; San Joaquin County Fairgrounds, Bldgs. 3 and 4, 1668 South Airport Wy.; Sat. 10-5, Sun. 10-4; Contact Laurie Haines, (209) 838-0108; E-mail: Lhaines99@aol.com.

Feb. 25-27 — Palm Springs, CA. Annual show, "Palm Springs Rockfest and Earth Science Fair" Rockfest USA; Palm Springs Market Fair, I-10 exit, Ramon Rd.; Fri.-Sun. 9am-5pm; ages 13 and up $5, ages 7-12 $3, ages 6 and under free; Contact W.R. Russ, 4515 E. Joan De Arc, Phoenix, AZ 85032, (602) 684-7381 or (620) 929-7802; E-mail: pghrockfest@hotmail.com.

Feb. 26-27 — Boise, ID. Show and sale; Idaho Gem Club; Western Idaho Fairgrounds, Glenwood and Chinden Blvd.; Sat. 10am-7pm, Sun. 10am-5pm; Contact Charlie Smith, (208) 628-4002.

Feb. 26-27 — Albany, NY. The 12th Annual James Campbell Memorial Gem, Mineral & Fossil Show and Sale; New York State Museum at the Empire State Plaza, Madison Avenue, Albany, New York; Sat.-Sun. 10am to 5pm; free parking; admission $5.00 which includes both the Gem Show and the Flower Show; Contact: Mike Hawkins, (518) 486-2011.

Feb. 26-27 — Everett, WA. 52nd annual show; Everett Rock & Gem Club; Washington National Guard Armory, 2730 Oakes Ave.; Sat. 10am-6pm, Sun. 10am-5pm; free admission; Contact: Mel Buhr, P.O. Box 1631, Everett, WA 98206, (425) 338-2184.

Feb. 26-27 — San Francisco, CA. Show; Crystal Fair; Laguna Ave. and Marina Blvd.; Sat. 10am-6pm, Sun. 10am-4pm; Contact Jerry Tomlinson, (415) 383-7837; E-mail: sfxtl@earthlink.net, Website: www.crystalfair.com.

Not Handsome But Ugly and Handy

By Don Kauffman

How many times have we heard, "Beauty is only skin deep"? On countless occasions of course. How many times have we seen a truly ugly specimen up for sale? Most of us would answer, "Never." Is there a purpose to having an ugly rock in your collection? Read on.

How many ugly rocks do you have in your collection? Remember how many of those perfect specimens collected on your first field experiences turned into ugly, useless, space consuming masses once you got them home. Now you hope for someone interested in reseeding a field, constructing a rock garden, filling a pothole, or exporting those excess ugly stones to some rock poor country. A solution for redemption is as near as your local mineral club. There is a chance you may discover one of interest, ugly as it is. You may find some value by entering that ugly rock in a contest.

A recent contest at a club holiday party found true redemption for one ugly rock. A dirt covered and rust-stained monstrosity has been spared an uncertain future on another dump pile. The mass is believed to be some kind of concretion; perhaps a large composition of siderite and other minerals.

Such nodules appear to be rather common western Pennsylvania occurrences. Our counties of Allegheny, Butler, Indiana, Jefferson, Venengo and Westmoreland are notable with sites for collecting of siderite nodules. Nodules found in those six counties vary from 1 to 6 inches in diameter.

The theory behind nodule formation is that conglomerates of minerals were created in mud under marine conditions. Later that mud was encased or raised on shales that solidified. Collectible minerals such as barite, calcite, chalcopyrite, quartz, sphalerite, and wurtzite are then deposited in shrinkage cracks by mineral-laden groundwater. Clay in the form of kaolinite has also been found coating linings of nodules.

Some nodules have been referred to as "clay-ironstone". The contest winner appears to fit that description. It is a dead-weight, 52-pound concretion. Its internal composition cannot be determined without slicing it in half. There is a high probability is that it contains a primitive iron core. The 10 by 15-inch semi-spherical mass appears to have a tightly compacted clay or limonite outer shell. Had the complete concretion been located, overall size would have been a massive sphere. Most such concretions, however, occur in a flattened state.

Mr. Ugly did not come from the greater western part of our state, but from a coal region of Northumberland County. This mundane mass was found on a dump pile off Rt. 61 near Strong. Strong is a tiny "blink and you've missed it" village about 5 to 5-1/2 miles east of the coal town Shamokin, just between Kulpmont and Mt. Carmel. The actual original locality of this huge concretion is unknown. But a previous visit to Shamokin area's Bear Valley strip mine offers a clue.

In 1996, while visiting relatives, we were told about formations in a strip mine not far from town. It had been frequently visited by college geology classes. With this in mind, some research has shed light on origins of concretions similar to the one found three years later.

The area we visited is known as "Whaleback". Due to effects of rock folding, faulting, and weathering, a shale formation there appears to look like the back of a breaching whale rising

between gaps in the valley floor. The valley floor consists of conglomerates, mudstone, and inter-bedded shale with siltstone. But the real eye-catcher is hundreds of concretions on towering shale walls behind this natural spectacle.

The 40 to 50 foot high walls behind Whaleback contain countless siderite concretions; it is said that range is from centimeters to a meter in diameter. They are most noticeable beside geologically folded bedding planes. Formed during the great Alleghenian Orogeny, many are elongated and flattened, such as the one I discovered five miles to the east.

We were able to find slices and whole concretions at the base of the high wall. To our left, perhaps fifty yards away, was a beautifully formed syncline with a distinctive anthracite exposure in one of the major Pennsylvanian-age coal bearing areas of the state.

Somehow it all tied together, but how and why my ugly concretion traveled to the dump near that tiny village in Northumberland is a mystery. None-the-less it has turned into an interesting conversation piece and part of my varied collection.

To paraphrase Canada's Red Green, if collectors don't find a rock handsome, you just may find it ugly and handy enough for a club contest.

Reference:
Geyer, Alan R., 1976, Mineral Collecting in Pennsylvania. Commonwealth of Pennsylvania, p. 31, 54-55, 121-125, 211-215.

Is That Fossilized or Petrified?

By Amy Sternstein

We've all heard of petrified wood, but is there such a thing as fossilized wood? Can wood be fossilized but not petrified? What exactly is the difference anyway? Let's explore…

I thought I would start by giving the definition of a fossil, but this is not as easy as it seems. Every source described it differently! In fact, one source even said that "there is no precise definition of a fossil." So all I can do is try to combine the main concepts of all the definitions and say that fossils are the preserved remains of organisms or the preserved traces or evidence of activity of organisms from the geologic past. So there!

There are three main types of fossilization. The first is **preservation with little or no change**. Examples include unchanged seashells and bones, frozen mammoths, mummified ground sloths (caused by drying out before decay could occur), and preservation in peat bogs and tar pits.

The second main type is **preservation with change**. This includes several different processes. *Carbonization* occurs when only a thin film of carbon, showing the outline and surface details of the organism, is all that is preserved. *Molds and casts* are created when sediments surround the organism and then harden, while the original organism dissolves away. Preservation in amber is considered a special kind of mold, as the original tissues have decayed away, leaving a hollow cast. The process of *permineralization* occurs when minerals from groundwater fill in the small empty spaces in bones, shells, or plants. The original structure may be left in place unaltered. The process of *mineralization*, also called *replacement*, occurs when groundwater and dissolved minerals remove and replace the structural compounds of bones, shells, or plants.

The third main type of fossilization is **evidence of activity**. Examples include tracks, burrows, coprolites, and eggs.

The trees of the Petrified Forest in Arizona are outstanding examples of the process of permineralization. Most ancient trees decomposed and disappeared. But some fallen trees were buried by sediment and volcanic ash before the decay process occurred. Groundwater dissolved silica from the volcanic ash and carried it through the logs. This solution filled cells, crystallizing as the mineral quartz. The process was often so exact that the petrified wood often shows every detail of the logs' original surfaces and, occasionally, the internal cell structures. Iron-rich minerals combined with quartz during the petrification process to create a rainbow of colors.

So now we know that petrification is a specific subset of fossilization, thanks to the process of permineralization!

To make matters even more complicated, there is also opalized petrified fossilized wood. Opal forms when silica-laden groundwater passes through cracks, joints, and cavities. The silica gel precipitates out of the solution, creating thin veins, sheets, or nodular masses. Opal may be found in petrified shells, bones or plants. Since opals are silicon and water - the same basic ingredients that make petrified wood - most silicon-based petrified wood is really opal of various forms and qualities.

So is ALL fossilized wood also petrified? Actually, no. Trees that are around 100 million years old have been found preserved in Cretaceous oil sands in northern Alberta, Canada. These trees are preserved in their near-original condition in a thick black oil. The cell walls appear to be perfectly preserved, but they are not petrified. The trees can be cut with an ordinary carpenter's saw. Don't try that with petrified wood!

References:

(1) Petrified Wood - The World of Fossilized Wood, Cones, Ferns, and Cycads, by Frank J. Daniels (1998)
(2) Discovering Fossils, by Frank A. Garcia and Donald S. Miller (1998)
(3) The Fossil Book, by Carroll Lane Fenton and Mildred Adams Fenton (Revised Edition, 1989)
(4) Rocks & Fossils, by Arthur B. Busbey III, Robert R. Coenraads, Paul Willis, and David Roots (1996)
(5) Essentials of Geology, by Frederick K. Lutgens and Edward J. Tarbuck (1989)
(6) http://www.petrified.forest.national-park.com/info.htm
(7) http://www.yourgemologist.com

The Peridot Asteroid

By William S. Cordua

One of the most exotic gemstones is from outer space - the rare meteorites called pallisites. These are flashy mixtures of translucent green to yellow olivine (peridot) found as large crystals in a matrix of iron-nickel alloy. When cut and polished the contrast between the olivine and metal is startlingly beautiful. No wonder they are so pricey.

The first pallasite was described in 1772 by Pyotr Pallas. It was a 1,600 pound mass that fell in Siberia. Pallasite is also known in quantity from Kiowa County, Kansas, from the Imilac pallasite that fell in desert of Chile and the Salta pallasite of Argentina.

How do such meteorites form and when do they come from? Such a mixture of silicates such as olivine and metal is presumed to be found in the earth along the core-mantle boundary. How could rocks from the core of a planet get into outer space?

Modern models of asteroid and planet formation suggest asteroids perhaps 50-200 km in diameter may form a layering similar to that of the earth. The accumulation of that much material, including heat producing radioactive substances, would cause the body to melt and the denser iron and other metals to sink to the center of the body. The less dense silicates such as olivine would not sink so deeply, and, with other minerals, form the outer layers of the asteroid. This is also what happens in a blast furnace, when the melted rock separates into the denser iron and lighter materials that will cool to slag. Thus some larger asteroids have the equivalent to the crust, mantle and core of the earth.

In the earth, though, the outer core is still molten, because our planet is so much larger, and still has abundant heat-producing radioactive materials in its interior. The asteroids, on the other hand, would have completely cooled and crystallized. Along their core - mantle boundaries, the separation of the silicates and metals would not be perfect - what natural process ever goes perfectly? Perhaps some late pulse forced cooling iron up into the mush of olivine crystals. Thus the pallasite is born.

The next step is getting the materials out of an asteroid and to earth. Here we use the fact that asteroids, over the length of geologic time, have tended to collide violently with each other. A big enough collision between two asteroids will fracture both, sending pieces flying. These fragmented planetoids are the source of meteorites, including pallasites. Those unfortunate enough to be pulled in by the earth's gravity, after a journey for millennia in space, will fall as meteorites. Since only a tiny part of an asteroid will be a core-mantle boundary, pallasites should be scarce, and they are.

Some asteroid collisions may not be quite so destructive. It is possible that a less violent collision may strip away most of an asteroid's mantle, leaving an olivine studded metallic mass - an asteroid whose surface is covered with peridot gemstones. That would be quite a find.

How could we find such an asteroid, out of the millions stretched through billions of cubic kilometers of space? It's not as impossible as it seems. The mixture of olivine and metal would give off a distinctive spectrum that can be detected with sensitive instruments on earth or in satellites. Some known asteroids do give spectral data showing olivine at the surface. These are termed A-type asteroids, such as 246 Asporia. Some are 30 to 65 km in diameter. It is astonishing to think that some may be peridot encrusted. Of course other large asteroids may have pallasite layers within if they escaped a collision large enough to blast them to splinters. Then the pallasite "ore" would have to be recovered by interplanetary "hard-rock" mining.

So as prospectors were drawn west by visions of " El Dorado" or the "Mother Lode", perhaps future space explores will blast off in search of the peridot asteroid.

References:

McSween, H.T., 1999, Meteorites and Their Parent Planets, 2nd ed., Cambridge University Press, 310 p.
Scott, E.R.D, 1977, Formation of olivine-metal textures in pallasite meteorites: *Geochimica et Cosmochimica Acta*, v. 41, p. 693-710.

Drawn by Ernest Barnhart, Rock Buster News,
1998, Central PA Rock & Mineral Club

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The purpose of our club is:

- To promote and encourage the study of mineralogy and other applied sciences.
- To cooperate with educational and scientific institutions in order to bring about a better and more general understanding of earth sciences.
- To provide a program with suitable speakers for scheduled meetings.
- To sponsor, direct, and assist in the planning of excursions to mineral localities and other places of geological interest.
- To cooperate with organizations whose purposes are similar to those stated in the foregoing items.