

Bulletin of the Mineralogical Society of Southern California

Volume 81 Number 4

April 2010

The 864th Meeting of The Mineralogical Society of Southern California

Diamond Occurrences in North America

By

Walter Lombardo

Friday, April 9, 2010 at 7:30 p.m.

Geology Department, E-Building, Room 220

Pasadena City College

1570 E. Colorado Blvd., Pasadena

Featuring:

--March program brief

--Report on the 45th Pacific Micromount Conference

--Impact of Station Fire from a geologist's point of view

--Idaho's new license plate

April 9 Program

Diamonds Occurrences in North America

By Walter Lombardo

Diamonds are found on a variety of rock types and from a wide range of geologic ages. In a relatively short time, Canada has become one of the world's leading diamond producers. Several diamond-bearing pipes are known in the United States, and more are suspected. This talk will cover the geology of diamond host rocks, indicator mineralogy, areas of known diamond fields, and areas of future potential (including California).

Walter Lombardo is a geologist with over 30 years of experience working with or in the mining industry. For 16 years he managed the Southern Nevada Office of the Nevada Division of Minerals, a state agency which oversees the mining, oil, gas, and geothermal industries. He also worked as geologist for American Borate Company (Death Valley), Cyprus Gold (California Mother Lode), and Desert Research Institute in Las Vegas. More recently he was Manager of North American Exploration for War Eagle Mining Company, where he was involved in projects in Indiana, Illinois, Kentucky and the Czech Republic. In August 2009, Walt relocated Nevada Mineral & Book Company (an earth science bookstore and natural history gallery) to Orange, California.

Walter Lombardo can be reached at Nevada Mineral & Book Company, 342 S. Tustin Street, Orange, CA 92866, phone (714) 633-1549 and www.geologicpublications.com

Report on March Program

Bruce Carter gave a program on "Why Study Mineralogy." This was the presentation he might give at the first class meeting of a Mineralogy class (he taught this subject for 15 years before becoming division dean).

He began by defining "mineral" and showed that there are about 4500 minerals known. Most of the talk was focused on items published in the February 13th issue of Science News. He showed advertisements for emeralds and diamonds and then discussed crystal shapes and how they grow, illustrating dendritic growth, mineral "roses," etc.

The first article described armored gastropods living near deep sea vents and their

unique shells consisting of a strong aragonite shell overlain by a squishy layer of protein and surfaced with scales of iron sulfide to blunt the claws of predatory crabs. He continued giving illustrations of minerals precipitated by living organisms, mainly using examples from items in the magazine.

The breaking of minerals is an important consideration for biologically precipitated minerals such as the thick calcium carbonate shells of clams on rocky beaches. Teeth made of hydroxyapatite have structures making them extremely tough, and the same mineral in bones has a variety of structures making them strong but light (at least in birds). Magnetite is another mineral that is biologically precipitated in organisms from bacteria to homing pigeons.

He also included biohydrometallurgy processes by microbes, the stability of deep sea vents, the "mineralogical evolution" of the Earth, the nature of scientific insights and evolutionary biology. In conclusion, mineralogy is a fascinating field of study on the cutting edge of modern science. A simple perusal of any popular science magazine will give abundant examples of this.

The 45th Pacific Micromount Conference

By Robert Housley



Thanks to near perfect teamwork by the organizing committee consisting of Ann Meister, Sugar White, Jo Anna Ritchey, Al Wilkins, Gene Reynolds, Garth Bricker, and myself, the 45th Pacific Micromount Conference came off without a hitch, and was arguably the most successful in recent years. We had 47 registered attendees including 12 from out of state, and came out in the black financially. As it has been for the past several years it was jointly sponsored by the MSSC and the San Bernardino County Museum.

The Conference opened on Friday afternoon with on-site registration and microscope set up. We also opened the \$1 sales table stocked with all new material early Friday afternoon. Then after an excellent pot luck dinner on Friday evening, the program started with the talk "What's New in Minerals" by Sugar White. The new finds that Sugar can bring to our attention each year always

enthrall and amaze me, and of course her slides of them are first rate.

On Saturday morning we opened at 8:00 am with the give-away tables also stocked with an exceptionally large amount of high quality material. One could almost feel the excitement in the air as people looked through it and made selections. Almost unbelievably, by 5:00 pm on Saturday it was all gone! The Saturday program began at 10:00 am with a presentation by Paul Adams describing an extended collecting trip he made a few years ago to some of the classic mines in La Paz County Arizona. It certainly made me long to follow in his footsteps.

After a good lunch of Subway sandwiches served at the museum, we set out the silent auction specimens and then began the verbal auction of micro specimens. There were some really good things including a specimen of the new mineral "eurekadumpite" and the bidding was vigorous.

At 3:15 we had our afternoon talk by Joe Marty entitled "Recent Esther Vacation mineral collecting in the Southwest." In it, he made the first public announcement describing 7 new tellurium minerals we have recently found on Otto Mountain, a small hill just northwest of Baker, California. These minerals and their names have been approved by the International Mineralogy Association (IMA) and manuscripts describing them have been submitted to American Mineralogist. Following Joe's announcement, the names and descriptions have now also been posted on Mindat. These new minerals are ottoite, thorneite, timroseite, paratimroseite, housleyite, telluroperite, and markcooperite.

The finale on Saturday evening was a scrumptious buffet dinner also served at the museum. If the talks and minerals are not tempting enough, the food alone is worth more than the cost of the registration.

The field trip on Sunday was to Otto Mountain and we met in Baker at 10:00 am. The weather was perfect and 15 people participated. We first went to the Aga Mine where khinite was initially discovered in 2004 and several of the new minerals were subsequently found. Everyone was able to drive to this stop. After lunch, most of us continued on to the Bird Nest which involves a steep rocky uphill hike. Most people went home with a lot of material, but it is hard to know what was found. The rare minerals can only be recognized when the material is examined under a good microscope. I know I found some good stuff, so I hope other people did.

"Urban Haven Reduced to Wasteland"

Los Angeles Times, Headline Read

By Bruce Carter

We arrived home from three weeks in Brazil to find that the largest fire in Los Angeles' history was raging in the San Gabriel Mountains above the San Gabriel Valley. Now one week old, it is still only about 50% contained and has burned about 150,000 acres. Today's front-page article in the Los Angeles Times bemoans "the loss of the picnic areas and campgrounds as well as the raw solitary beauty that has long been a refuge for residents of our sprawling city." The fire has destroyed one of the most heavily used parts of a forest visited by 3 million to 5 million people every year. One resident of Tujunga is quoted: "People are here because they love nature and have a strong bond with it. Now all that has been lost, I think that we are a grieving community."

For me, the feelings are especially strong because, as best as I can tell from the current fire maps, more than 60% of my PhD thesis area has been burned over. Years ago, I hiked every ridge top and canyon, camped in the cool forests, soaked my feet in the shady pools in the canyon bottoms and reveled in the marvelous views or the nearby lowlands during the course of an intensive 6 year field study of the geology of the western San Gabriel Mountains.

Even today, years later, I still have vivid images of every part of the area. For 45 years, the detailed geology of that area has been a prominent part of my professional activity, conducting field trips with students, showing the geology to visiting researchers from many different parts of the world, and even briefly helping train astronauts in preparation for their work on the Moon.

Pick any point within this part of the San Gabriel Mountains and I could give you a detailed description of the terrain, the vistas, the vegetation, the wildlife and my personal experiences hiking through that spot in addition to the geology that was my main reason for being there. Indeed, I have an intimate knowledge of every part of the roughly 50,000 acres of my thesis area that has now been affected by the fire. As I sit in my home in Monrovia listening to the noise of the constant air traffic to and from the fire, I find myself mentally revisiting countless canyons, ridges, groves of trees, thickets of brush and mountain tops I once know so well but hadn't thought about for years.

And always, I wonder what each area looks like now. Is it the "moldering wasteland," or the "scene of broken rock, white ash and charred timber" described in the article? Or did the fire somehow skip over that area and leave an island of surviving vegetation that will help reseed the surroundings in future years. No, I have not lost my home, but actually it feels as if I have lost at least as many memories from the western San Gabriel Mountains that has been one of my primary areas of study for most of my life.

I think about the shady canyon bottom lined with dozens of tall stalks or Humboldt Lilies each with 6 to 10 large showy orange and black blossoms hanging among the glossy green leaves. Of the old miner's cabin still standing in the upper reaches of a remote canyon. Of the exciting encounter with a mountain lion, with a baby great horned owl that tried valiantly to scare me before I turned and walked away, with a coyote so busy digging that he virtually ignored me as I walked by. And I think of the many rocky viewpoints where I rested and enjoyed the views and the numerous shady stands of shrubs and trees where I paused to cool off, eat lunch or update my notes.

On the other hand, not all my thoughts are ones of sorrow for the lost beauty and environmental

degradation of the burned area. In fact, I find many positive thoughts, even excitement mingling with the thoughts of loss.

Most immediately, this means that for the next few years, access to difficult and remote areas will be much easier than normal. Chaparral brush-covered slopes are a major obstacle to access in this rugged terrain. John Robinson in *Trails of the Angeles* remarks “chaparral has been damned as too low to give shade, too high to see over and too thick to go through. Anyone so foolish as to venture off road or trail and crawl through this brush maze will soon come to believe there is a personal hostility in the unyielding branches and scratchy leaves.” Even John Muir states in *Mountains of California*: “This range ... overlooks the Los Angeles vineyards and orange groves from the north, and is more rigidly inaccessible in the ordinary meaning of the word than any other that I ever attempted to penetrate.”

While this is a selfish thought, it is also true that many chaparral species benefit from periodic burning, re-sprouting after a burn and sometimes even requiring a fire to induce germination of their seeds. Ultimately, the removal of older plants and dead brush will renew the vegetation and lead to healthier ecosystems. In the long term, fire is just a part of the normal cycle that will see vegetation re-sprout and come back in a healthier condition. In the meantime, the fresh sprouts and new plants in the next few years will provide much more food for animals like deer and rodents and lead to a resurgence of wildlife in the burned area.

Down in the canyon bottoms and on the north-facing slopes the oaks, alders, sycamores and laurels will grow back over the following years, but the saddest part of this cycle is that in some of the lower areas, the conifers will not come back, and previously forested areas will be permanently replaced by chaparral. Over the years I have occasionally come across old rotten tree stumps in the brush, marking areas where the transition from conifers to chaparral has previously taken place.

This is the mark of our changing climate, which has gradually become warmer and drier over the past 10,000 years. Mature trees can often hang on in spite of drier conditions even though new trees can't survive. When the large trees in these areas are destroyed by fire the area will permanently revert to chaparral. Anthropomorphic climate warming, of course, will only accelerate this trend, and our beautiful conifer forests will retreat to higher elevations mainly after a fire burns the lower elevation trees.

As a veteran southern Californian, the distinctive smell of smoke and the drifting fall of fine white ash is a familiar association with our frequent brushfires. We returned to find a dense layer of ash on my car (turning on the wipers made a thick cloud of dust) and on sidewalks and patios. Even the spider webs in the back yard had a ghostly look from all the ash adhering to them. This ash fall is responsible for a massive transfer of nutrients from the mountain slopes down into the nearby ocean waters and soils of the valleys and thus contributes to the fertility of our southern California soils and waters.

The Times article also refers to the roads littered with fallen rocks and debris unmoored by the loss of vegetation. During the next winter's heavy rains, this loose material threatens to become a slurry of mud and rocks roaring down hillsides and canyons. These mudflows will potentially become a major threat to homes built at the base of slopes and mouths of canyons below the burn area.

On the other hand, it is just this process that removes weathered surface material and exposes new fresh rocks from below. The removed material contributes to the soils in the valleys below, and the newly exposed rock in turn begins to weather to produce more soil. Records of the Los Angeles County Flood Control District indicate a degradation rate of 0.06 inches per year in parts of the south side of the San Gabriel Mountains. At this rate, 5000 feet would be eroded in one million years. It may seem like a long time to wait, but I can't help thinking about all the great new rock exposures and minerals that will be revealed as this process proceeds.

In summary, there is both good and bad in the aftermath of this enormous fire. But in the destruction of so much lies the basis of a new rebirth. It is hard to see all the former beauty laid to waste-but this charred landscape is the first step in the biological regeneration that will soon lead to still more vistas of beauty. No, it won't happen in my lifetime, but I will see the start, and my kids and grandkids will once again be able to experience the charm of this beautiful range if they choose to explore it as I have. And I will be able to see this transformation in my mind's eye, even if only the beginning. Because I know that ecosystems are not static. Sometimes the change is hard, but I know that I can now enjoy the first steps as the ecosystem once again shapes itself into the thing of infinite beauty I remember.

Several pegmatites of interest to mineral collectors occur in the gabbroic rocks in Pacoima Canyon. The largest of these is exposed about a hundred meters up the south wall of Pacoima Canyon about ½ km above the mouth of the North Fork. The largest of the pegmatites is exceptional for its content of well-formed crystals of allanite, apatite, beryl, uranothorite and zircon.

The pegmatite crops out in a roughly horizontal zone of irregularly bulging lenses that show sharp to gradational contacts with actinolitized titanomagnetite norite and biotite gabbro or diorite. Chief minerals of the pegmatite are oligoclase, pinkish-brown perthite, white quartz, hornblende, biotite; minor rare minerals include allanite, zircon, beryl and uranothorite. Perthite is in very coarse subhedral crystals often in pods with quartz. Quartz veinlets cut the perthite-quartz pods. Hornblende is in black crystals of greatly different sizes, some as large as 3 feet long and 1 foot thick. Biotite crystals, some of which appear to cut across quartz, are in parallel bundles as much as 5 feet long. Apatite, in quarter-inch crystals is abundant. The rare minerals are present in very small amounts and uranothorite was found in only one perthite-quartz pod on the hill slope about 100 feet above Pacoima Canyon road. Allanite is in thin tabular crystals, a fraction of an inch to 18 inches in length. Euhedral purple zircon crystals occurring as doubly terminated square prisms range from microscopic size to 8 inches long. Very pale green beryl is extremely rare. Discontinuous sheaths of very coarse-grained hornblende-biotite-oligoclase metagabbro commonly extend around the pegmatite pods.

Idaho's New Special Plates for Motor Vehicles Celebrate Its Gem State Status



Sources from Idaho said that Idaho now has mineralogical-themed license plates (see above picture from http://itd.idaho.gov/Transporter/2010/010110_Trans/010110_NewPlates.html). According to the sources, “the campaign to get the plate was organized by several of the gem and mineral clubs in Idaho as an effort to celebrate Idaho's mineralogical heritage as the "Gem State" and to recognize its important gem mineral occurrences and the active lapidary community here (including the lapidaries that were involved in cutting the largest faceted gem on record). The proceeds of the plate are being placed in a fund that will be used to support earth science education children in Kindergarten through 6th grade.”

Attention all Field Collectors!!

MSSC member Richard Horstmeyer came across an article in internet that mentioned about some new policy in the making regarding public land use might impact mineral/fossil field collectors. The article can be found at <http://www.washingtontimes.com/news/2010/mar/02/white-house-land-grab/>

In 2010 “we are changing our spots”!



MAY 14 - 16 ~ POMONA, CA

**West Coast GEM, MINERAL
& FOSSIL SHOW**

Bldgs. 7 & 9 at the Fairplex in Pomona

- Just north of I-10 & east of 57, south of Arrow Hwy.
- Main parking lot on north side of White Ave., near McKinley Ave.
- Use Fairplex Dr. (exit 43) from I-10

Retail & Wholesale

Martin Zinn Expositions, L.L.C. with ILD Productions, Inc.

P.O. Box 665, Bernalillo, NM 87004, Fax: 303-223-3478, mzxpos@aol.com, www.mzxpos.com

2010 Calendar of Events

April 9, 10 & 11, Vista, San Diego County Council Antique Gas & Steam Engine Museum 2040 N. Santa Fe Avenue Hours: 9-5 daily

April 10-11, Lancaster, Antelope Gem & Mineral Society Lancaster High School 44701 - 32nd Street West Hours: 9-5 daily

April 10-11, Mariposa, Mariposa Gem & Mineral Society Mariposa Co. Fairgrounds Hwy #49, 1.8 miles South of Mariposa Hours: 10-4 daily

April 10-11, Paradise, Paradise Gem & Mineral Society Elks Lodge 6309 Clark Road Hours: Sat 10-5; Sun10-4

April 16, 17, 18, San Jose, Santa Clara Valley Gem & Mineral Society Santa Clara County Fairgrounds 334 Tully Road Hours: Fri 9-5, Sat & Sun10-5

April 17, Carlsbad, Eighth Annual Sinkankas Symposium on Feldspar, by San Diego Mineral & Gem Society and Gemological Institute of America. Contact Anne Schafer at (858) 586-1637 for available seat.

April 24-25, Newbury Park, Conejo Gem & Mineral Club Show Borchard Park Community Center/dd> 190 Reno Rd. & borchard Rd. Hours: Sat. 9-5 - Sun. 10-4:30

April 24-25, Santa Cruz, Santa Cruz Gem & Mineral Society Santa Cruz Civic Auditorium Church St. & Center St. (corner) Hours: 10-5 daily

April 30 - May 1-2, Bishop, Lone Pine Gem & Mineral Society Tri-County Fairgrounds (Robinson Bldg.) Corner of Sierra St. & Fair Drive Hours: Fri. 6-9, Sat. 9:40-4, Sun. 10-3

May 1-2, Anaheim, Searchers Gem and Mineral Society Brookhurst Community Center 2271 West Crescent Ave. Hours: Sat. 10 - 5, Sun. 10-4:30

June 18, 19, & 20, Whittier, Combined AFMS/CFMS Show, Hidden Treasures Southern California University of Health Sciences 16200 E. Amber Valley Dr. Hosted by the North Orange Co. Gem & Mineral Society