

Bulletin of the Mineralogical Society of Southern California

Volume 74 Number 3

March 2004

The 793rd Meeting of The Mineralogical Society of Southern California

**"Diamond Exploration and Mining in Canada"
by Dr. Mary Johnson**

Friday, March 12 at 7:30 p.m.
Geology Department, E-Building, Room 220
Pasadena City College
1570 E. Colorado Blvd.
Pasadena

Canadian Diamond Talk for March Meeting

Dr. Mary Johnson will speak on "Diamond Exploration and Mining in Canada" at the regular meeting on March 12. Excitement over the discovery of important diamond deposits in Canada's Northwest Territory continues as new mines are developed. Dr. Johnson visited several of these mines last June, and she will give us an illustrated first hand account of the history and development of these deposits.

Mary Johnson is exceptionally well-qualified to speak on this subject. She is Manager of Research and Development at the Gemological Institute of America, and she has conducted research and published numerous articles on diamonds and other gems. Dr. Johnson earned a B.S. degree in geochemistry from Caltech and a Ph.D. in mineralogy and crystallography from Harvard. We welcome her as a long-time MSSC member and former Society president.

Boron Field Trip

by Walt Margerum

As reported last month, US Borax has invited MSSC to participate in a Field Trip to the Borax pit at Boron. All participants will have received notification prior to the publication of this Bulletin. If for some reason you cannot participate please notify me as soon as possible, since there are several people on the waiting list. All

participants will meet at the US Borax front gate at 9:00 am, Saturday, March 27, 2004. The US Borax front gate is 2 miles north of Hwy 58 at the end of Borax Road. The Borax Road-Highway 58 junction is 30 mi. east of Mojave (Hwy 14) and 8 mi. west of Kramer Junction (Hwy 395). It is desirable that the participants carpool to the maximum extent possible to minimize congestion and reduce waiting time. If you do not arrive within 15 minutes of 9:00 you will be left behind.

In addition to the standard liability waiver form, which has been sent to each of you, US Borax has a safety form.

Both forms will be filled out and signed by each participant. Safety is a major concern of both MSSC and US Borax. Each vehicle will have a monitor to keep track of both people and equipment.

As described last month, hard hats, safety glasses, sturdy boots, and gloves are the minimum personal protective equipment (PPE) required in the pit. No shorts allowed, long pants only! This goes for both men and women! All the above are the responsibility of the participant. If you do not have a hard hat, gloves, or safety glasses please contact me, so arrangements can be made.

Collection sites in the pit will include caravan stops for kernite, borax, and ulexite. There will be no climbing of high walls, and all collecting activity will be in designated areas. US Borax will do some preliminary work where needed to assist the collecting. Only hand tools, rock hammers, chisels, etc. will be allowed. Many of the minerals to be collected are fragile, so be sure to bring wrapping material, boxes, etc.

If the above conditions seem draconian, careful reading will disclose they are just common sense precautions that should be followed on any field trip.

As I said last month this is a great opportunity for MSSC, and I again want to thank US Borax, and especially Joe Siefke.

Don't forget to bring plenty of water, and food for snacks and lunch. They will not be provided by MSSC or US Borax.

Are Your Dues are Overdue?

Walt Margerum, Treasurer

If you have not paid your 2004 dues this will be your last Bulletin, and you will no longer be a MSSC member. Those who are delinquent will find a reminder sticker on the cover of this bulletin. Please send your check made out to MSSC to the Mineralogical Society of Southern California, P.O. Box 41027, Pasadena CA 91114-8027; attn: Treasurer.

Tucson Show Report

by Janet Gordon

Tucson is such a big event that it is beyond a comprehensive report, but MSSC members were actively participating as collectors, exhibitors, dealers, and officials. The gold theme prompted many excellent displays, including a spectacular assembly of California gold by Wayne and Dona Leicht. It's popularity compared favorably with that of the "Ship of Gold" display, which had coins and formidable gold bars recovered from the sunken Central America. Wayne also treated visitors to an authoritative talk on California gold mining and collections.

Among the many fine exhibits, Bill Besse's Gadsden Purchase theme display included fine self-collected vanadinite from Santa Cruz Co., Arizona, and an accompanying Mineralogical Record article. Bill and Elizabeth Moller exhibited impressive self-collected minerals from around the world. Dawn Minette displayed a dazzling set of azurite crystals complete with the story behind their acquisition. Dawn won "Best of Species" for gold in the toenail category. Jane and Casey Jones displayed some beautiful, extra-large barite from the Meikle Mine in Nevada. There was also a case of fine minerals from Kay Robertson's collection. The judging was facilitated by Bill Besse, who served as a clerk, and by Ron Pellar, who clerked and filled in for an absent judge.

In a trip down memory lane, an impressive case of previous year's Lindstrom trophy winners was a major attraction. It included Ann Meister's tetrahedrite from Park City, Utah, that won in 1990 and a neptunite from San Benito Co. that landed the trophy for the Mollers in 1997.

For those interested in mineral education, Pete Modreski and his USGS colleagues were distributing free CD-ROMs titled Minerals in Your World. This educational CD allows the browser to choose products and see what minerals are used to produce them or to choose a mineral and find its uses. Also

included are photos of minerals and maps of their occurrences. The CD was produced by the USGS, the Mineral Information Institute, and the American Coal Foundation. It's a great resource for teachers, students and anyone interested in minerals. It can be used easily with your favorite web browser.

Minutes of the February Meeting

The 792nd meeting of the Mineralogical Society of Southern California was held on Friday, February 20th in the Geology department of Pasadena City College. President Jo Anna Ritchey brought the February meeting to order at 7:30pm.

Jo Anna then introduced the speaker for the evening, MSSC's own Dr. Janet Gordon who is Professor Emeritus of Geology at Pasadena City College. Janet gave a terrific talk on her trip to New Zealand and the various complex geologic aspects that can be observed there. Interesting geologic features shared with us

included the Alpine fault, the line at which the Australian plate and the Pacific plate meet at the base of New Zealand Alps. We also learned that the subduction rate of the oceanic plate causing the volcanic activity is 60mm per year. A variety of local New Zealand facts were discussed; apparently some areas of New Zealand experience over 3 meters of rain a year and Auckland has more boats per capita than any place in the world. Beautiful pictures were also shown of waterfalls, glaciers and beaches along with a delightfully deceiving crater lake with extremely low pH.

After the talk, show chair, Justin Butt then discussed the plans for this year's MSSC show. It was decided that this year the show would take place on the weekend of October 16th and 17th at the Long Beach Convention Center.

Treasurer, Walt Margerum made the announcement that MSSC dues are now overdue.

The door prize this month was won by MSSC member Jeff Caplette. Jeff chose a fine Dioptase specimen from the door prize box.

Jo Anna Ritchey then brought this month's meeting to a close at 8:35pm.

Respectfully submitted by Ilia Lyles, Secretary

Book Review -

Barren Lands: An Epic Search for Diamonds in the North American Arctic by Kevin Krajick

464 pages, W H Freeman & Co.; 1st edition (October 2001) ISBN: 0716740265

How can you lose writing a book about the remote arctic, untold riches to be discovered, obsessed prospectors, corporate spies, and greed? Much of Kevin Krajick's book is a fascinating read, and he is an accomplished writer who began covering the Canadian diamond rush for Discover magazine.

The beginning of the book includes an interesting history and detailed description of the region of the arctic known as the barren lands that are the focus of the story, and I found this part particularly enjoyable. The remainder of the book interweaves the story of Chuck Fipke, Stewart Blusson and their associates and competitors with the history of diamond mining around the world. This leads to rather uneven story telling, but it includes interesting narratives about the Great Diamond Hoax of 1872 in Colorado, the history of diamond collecting in Arkansas, and the discovery and development of famous diamond mines in southern Africa.

Although one cannot read the book without appreciating the tenacity and daring of Chuck Fipke, I found him an increasingly unlikable character. The book bogs down in excessive descriptions about his antics when his accomplishments and failures

are actually much more interesting.

No story involving riches is without power struggles, and plenty of these are described. However, those involving Cecil Rhodes in Africa and those between DeBeers and other mining companies just about everywhere are more interesting than the quarrels between Chuck Fipke and his partners and relatives.

Barren Lands is classed as non-fiction, but it feels more like "infotainment." It claims to be carefully researched, and the author obviously spent a lot of time interviewing the principals of the story. However, there are no references and this is frustrating for those who would like to find out more about some of the historical facts presented. Some geological works are mentioned, but science is given the short end of the stick in this adventure tale. Also, much of the story is told in dialog that one can only assume that the author made up from what he learned about events after the fact. There is no distinction between this dialog and actual quotes.

Despite these short comings, I expect most mineral collectors will enjoy spending some time with this book. Read it with a grain of salt and anticipate that you will want to skim through some parts.-J.G.

Crystallography in a Nutshell: The 6 Crystal Systems

by Janet Gordon

Introduction

In my years of teaching students to identify minerals, the observable crystallographic information of a specimen was the physical property that students most often ignored. Yes, the students did recognize the hexagonal prisms of quartz, the cubes of galena, and dog tooth calcite. But asking me if an obviously orthorhombic strontianite crystal is smithsonite (a hexagonal mineral) is a typical example of neglecting crystallographic information and disregarding a powerful mineral identification tool. It is true that some folk's eyes glaze over at the mere mention of crystallography because they envision an abstract science full of arcane terms that is far too closely related to mathematics. Yet, at the hand specimen level, crystallography is relatively simple, and the terms can be kept to a minimum. This is the first of an occasional series of short articles about crystallography designed to encourage mineral collectors to enjoy and utilize this science in their hobby.

The 6 Crystal Systems

Natural science is replete with hierarchial schemes, and in crystallography the 6 crystal systems are at the top of the pile. They are the broadest crystallographic categories to which minerals can be assigned. The system names are triclinic,

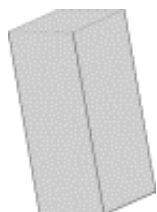
monoclinic, orthorhombic, tetragonal, hexagonal, and isometric. Some crystal drawings below will help to introduce them in their simplest shapes. More complicated shapes and their crystallographic axes will be included in later installments

The triclinic system can be thought of as representing crystals built without benefit of a carpenter's square. None of the angles at corners in this most simple example of a triclinic crystal is 90° . All three directions at the corners are inclined, hence the name triclinic. If you set this crystal on a table, it would appear to tip no matter which direction you looked at it from. Another way of putting it is that none of the faces on this illustrated crystal are rectangular. Plagioclase is an abundant triclinic mineral, but the triclinic nature of axinite is more obvious.



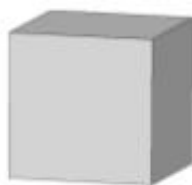
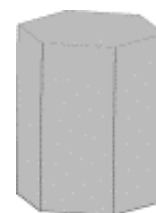
The monoclinic system has two 90° angles at each corner of this simple example and one angle that is inclined instead of square. The system is named for this one inclination. In the example drawing, 4 of the faces are rectangular and 2 are parallelograms. Gypsum is a conspicuously monoclinic mineral, as are augite and colemanite.

In the orthorhombic system everything is squared up or orthogonal. Our example would be a good cereal box. All of the angles at the corners are 90° , and the faces are 3 pairs of rectangles with each pair being different. None of the rectangles can be a square with four equal sides. Barite, aragonite, andalusite, and cerussite are common orthorhombic minerals.



The tetragonal system can be thought of as being named for the 4 equal sides of square (tetra means four). Our tetragonal example is distinguished from the orthorhombic one in that the top and bottom are squares in tetragonal and that the four remaining faces are identical rectangles. Wulfenite, vesuvianite and rutile are tetragonal.

The hexagonal system in its simplest incarnation has identical hexagons for the top and bottom and 6 identical rectangles making up the prism sides. It may not be obvious that rhombohedral crystals (think calcite cleavages) belong in this system, but more familiarity with the hexagonal system will make this clear. Calcite, quartz, apatite, and beryl are some of the many hexagonal minerals.



In the isometric system we have equal measurements ("iso" means equal), and all isometric shapes can be formed by modifying a cube. In the illustration, all the angles at the corners are 90° , and each of the 6 faces is an identical square. Galena, halite, fluorite,

magnetite, and pyrite are isometric minerals.

Mineralogy "Term of the Month"

What is tenebrescence? Tenebrescence is the ability of a mineral to temporarily change its color. Also known as reversible photochromism, it was the subject of a recent interchange in the Mineralogical Society of America's MSATalk list server. It can be gleaned from the discussion that the variety of sodalite known as hackmanite illustrates this property spectacularly. There is a website showing this remarkable effect at

<http://simplethinking.com/greenland/tenebrescence.shtml>

Also, Phil Brown from the University of Wisconsin at Madison provided the following description: "Hackmanite can be collected in the Bancroft Ontario area. Upon cracking open samples, the new fracture surface looks like it has been smeared with grape jelly. Exposure to sunlight for a few minutes causes the color to fade completely. It can readily be brought back with UV light. I used a sample regularly as part of a 'Mineral Magic' show that I did for grade school students when my children were younger."

If there is anyone who is interested in pursuing this as a Kid Rock activity for our next show, please contact Janet Gordon.

2004 Calendar of Events

March 5-7, Hayward, CA, Mineral & Gem Society of Castro Valley Centennial Hall; 22292 Foothill Blvd., Hours: Fri. - Sat. 10 - 6; Sun. 10 - 5, Ron Miller (510) 538-2397.

March 6-7, Arcadia, CA, Monrovia Rockhounds. Los Angeles County Botanical Gardens, 301 N. Baldwin Avenue, Hours: 9-4:30 both days, Jo Anna Ritchey (626) 359-1624.

March 6-7, Ventura, CA, Ventura Gem, Mineral, Lapidary, & Fossil Show, Seaside Park - Ventura Co. Fairgrounds, 10 W. Harbor Blvd., Hours: Sat 10-5 Sun 10-4. Ventura Gem & Mineral Society's show includes a kids' "petting zoo" of dinosaur bones and casts, grab bags, and a variety of kids' activities. Approximately 15 dealers of fossils, minerals, and lapidary items plus exhibits and demonstrations. Jim Brace-Thompson (805) 659-3577 / jbraceth@adelphia.net.

March 12-14, Petrified Wood Identification Seminar presented by Walt Wright at the Buena Vista Museum of Natural History, 2018 Chester Ave., Bakersfield, CA 93301. Friday, 5-9 pm "get acquainted" and lecture; Saturday, 9-5, Wood Seminar; Sunday, 8-12 am, Wood Seminar. For more information call the Museum at 661-324-6350 or Ed Isch at 661-589-4954. Class size is limited. Payment of \$50 reserves your space.

March 13-14, San Marino, CA, Pasadena Lapidary Society, San Marino Masonic

Center, 3130 Huntington Dr., Hours: Sat. 10 - 6; Sun. 10 - 5, Marlene Kyte (626) 794-0519.

March 13-14, Spreckles, CA, Salinas Valley Rock & Gem Club, Parade of Gems, Speckels Veteran's Memorial Hall, 5th & Llano Streets, Hours: 10-5 both days, Bill McFalda (831) 442-9964 / WildBell@prodegy.net..

March 13-14, Turlock, CA, Mother Lode Mineral Society, Stanislaus County Fairgrounds, 900 N. Broadway, Hours: 10 - 5 both days, Bud McMillin (209) 527-8000 Hm 524-3494.

March 13-14, Vallejo, CA, Vallejo Gem & Mineral Society, I 80 & Hwy. 37(across from Six Flags Marine World), Hours: 10 - 5 both days, Phyllis Malicki (707) 745-3255.

March 20-21, Angels Camp, CA, Calaveras Gem & Mineral Society, County Fairgrounds, Hours: Sat. 10 - 5; Sun. 10-4, Earl Klein (510) 632-9373 Marlynn Blake (209) 795-7202 / bomar@goldrush.com.

March 20-21, San Diego, CA, San Diego Mineral & Gem Society, Al Bahr Shrine Center, 5440 Kearny Mesa Road, Hours: Sat. 9:30-5; Sun. 10-4, Wayne Moorhead (858) 586-1637.

March 27-28, Roseville, CA, Roseville Rock Rollers Gem & Mineral Society, Placer County Fairgrounds, 800 All America City Blvd., Hours: Sat. 10 - 5; Sun. 10-5, <http://www.rockrollers.com>.

March 27, MINERALS OF ARIZONA, Twelfth Annual Symposium, sponsored by the Arizona Mineral and Mining Foundation, and the Arizona Department of Mines and Mineral Resources. Saturday, March 27, 8 am to 5 pm, Arizona Mining and Mineral Museum 15th & Washington, Phoenix, Arizona. \$35 fee includes registration, abstracts, lunch, refreshments at breaks. Registration must be received no later than March 24. Send checks to Arizona Mineral and Mining Museum Foundation, PO Box 41834, Mesa, Arizona 85274. Info: Museum: 602 255 3795. They are working on a field trip for Sunday, March 28. Registrants will be notified when the field trip info has been developed.

April 3-4, San Jose, CA, Santa Clara Valley Gem and Mineral Society, Santa Clara County Fairgrounds, 344 Tully Road, Hours: Sat. 10 - 6; Sun. 10 - 5, John Eichhorn (408) 749-0523 / johneichhorn@earthlink.net

April 3-4, Torrance, CA, South Bay Lap & Mineral Society, 55th, Nature's Treasures, Torrance Recreational Center, 3341 Torrance Blvd., Hours: 10-5 both days, Omer Goeden (818) 389-9279 / sageit@aol.com

April 10-11, Paradise, CA, Paradise Gem & Mineral Club, Veteran's Memorial Hall, Skyway & Elliot, Hours: Sat 10-5 Sun 10-4, Anita Carter (530) 872-1983

April 23 - 26, The 2004 Desert Symposium will be held at California State University's Desert Studies Center at Zzyzx, on the shores of Soda Lake south of Interstate 15 between Barstow and Baker, California. The symposium will feature current research on archaeology, anthropology, paleontology, geology, ecology, biological sciences, and environmental issues. Field Trip, Saturday afternoon, Sunday and Monday, April 23, 24, 25, will focus on tectonic structures: faults in the Mojave Desert that range in age from Miocene to Recent. For more information: Bob Reynolds (909) 781-9318, e-mail bob.reynolds@lsa-assoc.com, William Presch, wpresch@Exchange.FULLERTON.EDU.

May 28, Mariposa, CA, CFMS and Mariposa Gem & Mineral Club, Mariposa County Fairgrounds, One hour from Yosemite National Park, California State Mining and Mineral Museum, P.O. Box 1192, Mariposa, CA 95338, (209) 742-7625 / minealmuseum@sti.net



World famous natural history gallery!!

- Mineral & gold specimens
- Rare & Exotic Fossils
- Jewelry (fine & funky)
- Unusual Seashells & Corals
- Unique one of a kind gifts
- Books (new and rare)
- Display stands

KRISTALLE, est. 1971

Wayne and Dona Leicht

875 North Pacific Coast Highway
Laguna Beach, California 92651-1415

(949) 494-7695; FAX (949) 494-0402
e-mail: leicht@kristalle.com - <http://www.kristalle.com>
Visit our booth at most major mineral shows!

Tuesday-Saturday: 10-5; Sunday: 12-5 or by appointment-FREE PARKING!!