

The Lake George Gem and Mineral Club -

**Club News,
March, 2009**



Meeting Time 10:00 AM, March 14 at Lake George Community Center. Happy St. Patrick's Day (almost)!

An Introduction to Lapidary

Drew Malin, former President of the Colorado Springs Mineralogical Society, will talk about his various lapidary projects. We will have an opportunity to ask Drew about equipment selection and the advantages and disadvantages of various options. He will also show off some of the results of his craft work. If you've always wanted to explore the mysteries of cutting and polishing rocks and minerals, this is the talk for you!

Reminder: It's wintertime, and in the event of adverse weather or dangerous road conditions, we will cancel the meeting. Watch for email notice of cancellation or call one of the Officers.

Silent Auction: Bring specimens, books, etc. that you can spare to help the Club's treasury!

Coming Events

- "Nature Unleashed-Inside Natural Disasters"**, Denver Museum of Nature & Science ... **Through June 3**
(See DMNS website for information on exhibit and related events.)
- Colorado Springs Mineralogical Society Silent Auction & Bake Sale**, 10AM-2PM, ... **March 7**
Embassy Suites, 7290 Commerce Center Dr., Colorado Springs. Contact Linda Laverty, 719-964-6222, or chilipepper24@juno.com for info.
- International Gem & Jewelry Show**, Denver Merchandise Mart, 451 E. 58th Ave., Fri. ... **March 6-8**
12-6; Sat. 10-6; Sun. 11-5; \$7.00 admission.
- Rocky Mountain Micromineral Assoc.** monthly meeting: "Filiform Crystals and Catalyzed Growth", Colorado School of Mines Mineral Museum, Golden, 2PM (Contact Richard.parsons@worldnet.att.net for information.) ... **March 8**
- Columbine Gem & Mineral Society**, monthly meeting, 6:30PM, Mt. Shavano Manor, ... **March 12**
525 W. 16th (at J St.), Salida. Visitors welcome.
- "Paleoclimates: Exploring Past Environments"**, Western Interior Paleontological Society Founder's Symposium; Sat. 8-5, American Mountaineering Center, Golden; ... **March 14-15**
Sun. 8:30-4, National Center for Atmospheric Research, Boulder. For info and registration, go to wipsppc.com or e-mail symposium@wipsppc.com
- Albuquerque Gem & Mineral Show** "Treasures of the Earth", School Arts/Flower Bldg., NM State Fairgrounds, San Pedro entrance. ... **March 20-22**
- Nature- and Science-Writing Workshop**, by Steve Veatch, Florissant Fossil Beds ... **March 21**
National Monument, 9AM-1PM. Cost is \$3 admission to the park. Call 719-748-1156

to register.

- 48th Annual “Nature’s Treasures Gem & Mineral Show**, Fort Collins Rockhounds, Lincoln Center, 419 W. Magnolia St., Ft. Collins; Fri. 4-8, Sat. 9-6, Sun. 10-5. (Go to fortcollinsrockhounds.org or call 970-493-6168 for more info.) ... **March 27-29**
- North Jeffco Gem & Mineral Club Silent Auction**, 7-10PM, Arvada Senior Center, 6842 Wadsworth Blvd., Arvada. Call 303-423-2923 or contact jrknohaug@comcast.net for more info. ... **April 10**
- “The Princeton Expedition of 1877”**, by Steve Veatch, Florissant Fossil Beds National Monument, cost is \$3.00 (admission to park). Call 719-633-4991 for information. ... **April 18**
- Colorado Mineral & Fossil Show (Spring)**, Holiday Inn, 4849Bannock St., Denver (free admission). ... **April 24-26**
- Annual Wichita (KS) Gem & Mineral Show**; information at www.wgmsks.org or call Lyle Koerper at 316-722-7115. ... **April 24-26**
- Cheyenne (WY) Mineral & Gem Show**; contact Donna Durako at 307-634-4229 or bluebarite1@bresnan.net for information. ... **May 16-17**
- Colorado Mineral Exploration Seminar**, Western Museum of Mining and Industry; cost is \$15. Call 719-488-0880 to register; can be used for 0.5 hr. grad. Credit at CSM (tuition extra). ... **May 16-17**
- Cave of the Winds GeoAdventure**, Pillar Institute of Lifelong Learning and Steve Veatch; cost TBD. Call 719-633-4991 to register. ... **June 19**
- “The Fossil Record: an Introduction to Paleontology”**, Cripple Creek Parks & Recreation, cost \$69; call 719-689-3514. Cost includes 2 field trips; can be used for 0.5 hr grad. credit at CSM (tuition extra). ... **June 20**
- Garden of the Gods and Red Rocks Open Space**, Friends of the Florissant Fossil Beds Summer Seminar Series, cost TBD. Call 719-748-1156 to register; can be used for 0.5 hrs. grad. Credit at Adams State College (tuition extra). ... **June 27**
- Dinosaur Ridge Class**, Steve Veatch and others, Cripple Creek Parks & Recreation, cost is \$33, including transportation. Call 719-689-3514 for information. ... **July 11**
- Contin-Tail Rock and Gem Show**, Buena Vista Rodeo Grounds (free admission) ... **August 6-9**
- Lake George Gem & Mineral Club Annual Show**, Lake George (free admission) ... **August 14-16**
- “The History of Scientific Discovery at Florissant Fossil Beds N.M.”** by Dr. Herb Meyer and Steve Veatch, Friends Summer Seminar Series; cost TBD. Call 719-748-1156 to register. Can be used for 0.5 hrs. grad. Credit at Adam State College (tuition extra). ... **August 23**
- 42nd Annual Denver Gem & Mineral Show: “Fossils—Windows to the Past”** ... **September 18-20**
- Field Studies in Paleontology: Exploring the Shelf Road from Cripple Creek to Garden Park, Colorado**, Cripple Creek Parks & Recreation; cost is \$69. Call 719-689-3514 to register. Can be used for 0.5 hr. grad. Credit at CSM (tuition extra). ... **October 3**

Club News

Guests from Divide, Woodland Park, Guffey, and Yorkshire (U.K.) swelled attendance at the Feb. 14 meeting to 40+. Besides presenting members with Valentine’s Day presents, **Steve Veatch** provided colorful details about the recently completed Guffey Project, in a program titled “From Mineral Strike to Meteor Strike—Guffey and the Freshwater Mining District.” Steve also made some announcements:

- The Victor Project is off to a good start, with numerous volunteers preparing to catalogue archeological and mineral specimens stored in the Victor Museum. The results of this and other activities will be presented at the New Mexico Mineral Symposium in the fall. Steve suggested that we need to “dig down till the clams pop out” so that we can report new things about Victor’s history and geology.



About 17 LGGMC members and others met at the Trout Haven Resort on February 26 to organize the Victor Project study groups. Steve made assignments in a variety of study categories, and more meetings are planned in the near future. If you are interested in participating, watch for more information or contact Dan Alfrey to be put on the information list.

- A nature- and science-writing workshop will be held March 21 at Florissant Fossil Beds N.M. (see “Coming Events”). Last year, Joy Zimmerman, a workshop alumnus, won 4th place in an American Federation of Mineralogical Society writing contest.
- Other upcoming events are listed above.

Our Secretary, **Becky Blair**, announced that dealer reservations have begun to come in for the August 14-16 mineral show.

Club tee shirts are available. Talk with Dee Loest (719-748-0399 or RWLPumpman@juno.com) for details. More shirts will be ordered if there is sufficient demand.

A proposed by-law change relating to ½-price dues will be brought to a vote at the March meeting.

V.P. **Dan Alfrey** has entered the RMFMS webmaster contest. Dan circulated sign-up sheets for people interested in helping out with new Club projects, including youth programs, community-service projects, Club history, and staking a Club claim or claims, all of which would enhance our website and Club. See Dan if you would like to help out.

→→ Dan also announced planned **field trips** to the Forever Mine claim (near the GodSend) for amazonite and smoky quartz on **April 11**; and to **Rich Fretterd's** Petro Placer (for topaz) on **July 13**.

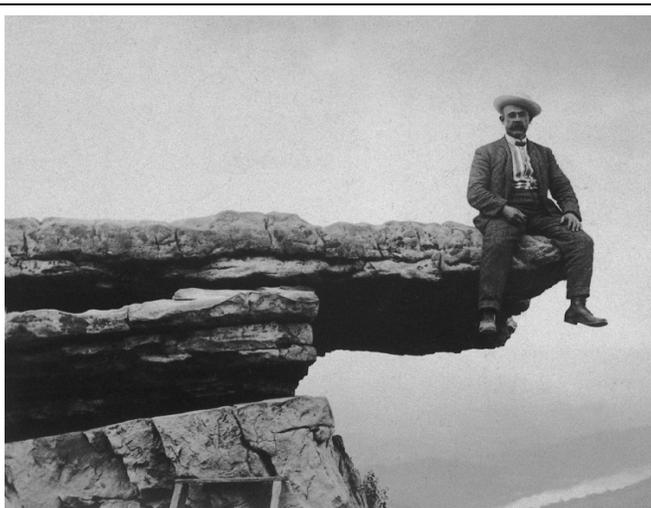
President **John Rakowski** congratulated Steve Veatch for winning the RMFMS scholarship, which allows him to choose recipients of two \$2000 scholarships. He also reminded members of the **March 14 deadline** for applications from high-school seniors for our annual scholarship.

NOTES FROM THE EDITOR

Bob Carnein, Editor

ccarnein@lhup.edu

719-687-2739



For March, I thought I'd write something about a green mineral that has a Colorado connection. Hope you enjoy it!! Once again, if you have questions about minerals and mineralogy, or if you'd like to try your hand at writing for the newsletter, let me know. If necessary, I'll help you to get your article into shape. Just remember that we need to limit the length of articles because some members are on dial-up computer modems.

Pair-uh-dot' or Pair-uh-dough'; It's All Green Olivine

By Bob Carnein

Some members of the LGGMC are probably familiar with the peridot occurrence in extreme southwestern Park County, between Hartsel and Salida. Among others, the Colorado Springs club has a claim there (open to club members only; see Pick & Pack, November, 2008, p. 5). Peridot is one of the birthstones for those born in August. Like many gemstones, it is an unusual form of a very common mineral, or, in this case, a mineral group: the *olivine* group.

The olivine group is what mineralogists call a **solid-solution series**. This means that it comprises two or more minerals whose compositions grade into each other. Other solid-solution series include some of the commonest constituents of Earth's crust: the plagioclase feldspars, the amphiboles, and the pyroxenes. Even rhodochrosite and siderite are gradational in composition.

To show the gradations of composition in solid-solution series, mineralogists use diagrams like the one below (Figure 1). The diagram is triangular because the compositions of all olivines fall somewhere between those shown at the three corners (called **end members**) of the triangle. By far the commonest members of the olivine group fall between **forsterite** (pure Mg_2SiO_4) and **fayalite** (pure Fe_2SiO_4), whose compositions are shown at the lower left and lower right corners of the triangle. These are two of the three end members of the olivine solid-solution series. The shading shows that forsterite and fayalite are completely gradational. "Common olivine" fits somewhere into the left half of this gray area.

Composition has a lot to do with the properties exhibited by olivine. As you may know, Mg (magnesium) has a lower density than Fe (iron). (For example, Mg is mixed with aluminum to make light weight alloys for aviation, beverage cans, and the auto industry.) The specific gravity of a particular sample of olivine thus depends on whether Mg or Fe dominates, and this allows one to use S.G. to estimate olivine's chemical composition (as shown by Figure 2). As you would expect, Mg-rich olivine has a lower S.G. than Fe-rich olivine.

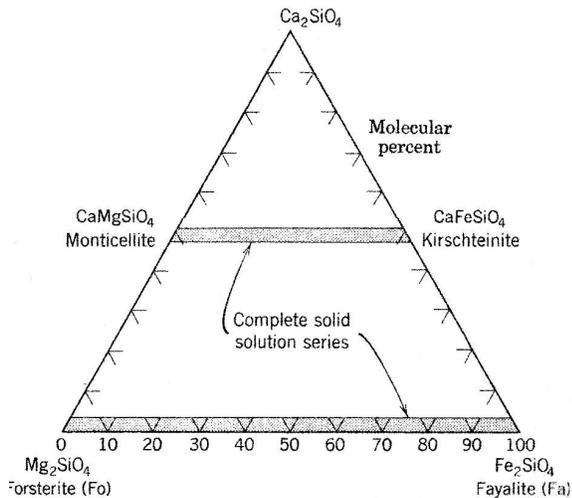


Figure 1. Triangular diagram showing compositions of members of the olivine group. (Klein, 2002, p. 492).

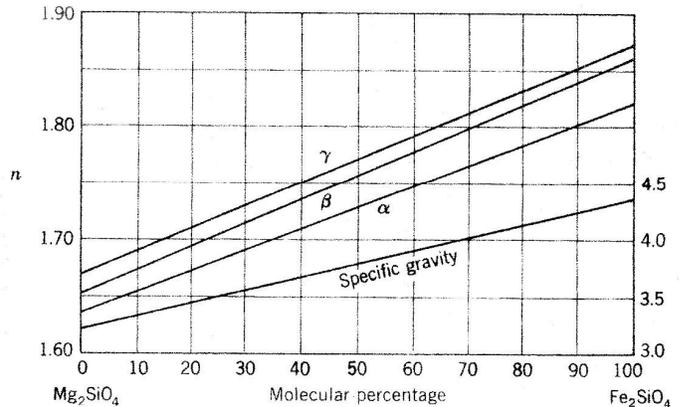


Figure 2. Specific gravity as a function of olivine composition (right scale). Fe-rich to right; Mg-rich to left. (Klein, 2002, p. 493)

Mg-rich olivine also has a much higher melting point than the Fe-rich variety (1890°C vs. 1205°C for the pure end members forsterite and fayalite). This explains the economic importance of Mg-rich olivine as a **refractory**. Currently, olivine is mined for this purpose in North Carolina and Washington.

Composition also has a big effect on color. A little bit of iron goes a long way, in terms of darkening a mineral's color. The dark colors of biotite mica, hornblende, and augite all relate to their iron contents. Magnesium, on the other hand, doesn't impart color to the minerals containing it. As a result, Mg-rich olivines range from very pale yellow to yellowish green and olive green in color, darkening as the iron content increases. Some iron-rich olivine is dark brownish green and may even appear to be black in a hand sample.

In pre-Biblical times, and for many years thereafter, the island of Zebarget (or Zebargad; formerly St. John's Island), in the Red Sea, about 50 miles off the coast of Egypt, produced most of the world's peridot. (According to some, it was Cleopatra's favorite gemstone.) Later, the Mogok gem tract of Myanmar (formerly Burma) supplied stones. Fine peridot crystals, which are generally very rare, have, since 1994, come from a deposit 15,000 ft. above sea level, in the Nanga Parbat region of Kashmir, Pakistan (see images at end of this article). The San Carlos Apache Reservation, in Arizona, is the world's largest deposit of gem peridot and has been an important U.S. source, mainly of small stones, for many years.

To a gemologist, the name *peridot* refers to the gem variety of olivine. The name *chrysolite* has also been used in the past, but some gemologists have used this name for yellow-green varieties of the mineral *chrysoberyl*, so it's best avoided. To add to the confusion, the name *topazium* was used for peridot until the 18th century (Hurlbut and Kammerling, 1991), and some gemologists have used the term "olivine" for demantoid garnet (which is actually a variety of the mineral *andradite*) (Shiple, 1974). As you might guess, gemologists and mineralogists sometimes have trouble communicating! However, the
 Lake George Gem and Mineral Club

American Gemological Institute (AGI) has made a concerted effort to clear up the confusing terms used in the past and to put gemology on a sound scientific footing.

So, which is it: pair-uh-dot' or pair-uh-dough'?? The origin of the name *peridot* is lost in the mists of time. Some think it comes from a 13th century Middle English word, *peridote*, meaning *bright spot* or *bright button*. However, considering that references to the gemstone date back to at least 1500BCE, it isn't likely that the word originated this recently. Many think the word comes from the Arabic *faridat*, for *gem*, combined with the French *peridot*, meaning *vague* or *unclear*. "Vague" and "unclear" seem to be especially appropriate words for this gem name's origins. At any rate, the accepted pronunciation is "pair-uh-dough", not "pair-uh-dot". If you're lucky, maybe you'll have a chance to collect some for yourself right here in Colorado.



References:

Hurlbut, C.S., Jr., and R.C. Kammerling, 1991, *Gemology*, 2nd Ed., New York, Wiley-Interscience, 336 p.

Klein, C., 2002, *The 22nd Edition of the Manual of Mineral Science (after James D. Dana)*, New York, John Wiley & Sons, 641 p.

Shipley, R.M., 1974, *Dictionary of Gems and Gemology*, 6th Ed., Santa Monica, CA, Gemological Institute of America, 230 p.

Lake George Gem and Mineral Club

Box 171

Lake George, Colorado 80827

2009 MEMBERSHIP APPLICATION

Name(s) _____

Address _____ City _____ State __ Zip _____

Telephone () _____ - _____ E-mail _____

Names and ages of dependent members: _____

Annual membership - dues Jan. 1 through Dec. 31 are as follows:

- Individual (18 and over) \$15.00
- Family (Parents plus dependents under age 18) \$25.00

Annual dues are due on or before March 31. Members with unpaid dues will be dropped from the roster after this date. **Anyone joining after August 30 shall pay one half the annual dues.**

I hereby agree to abide by the constitution and by-laws of this club.

Signed _____ Date: ____/____/____

I have previously been a member of Lake George Gem & Mineral Club. Yes __ No __

My interest areas include:

Minerals __ Fossils__ Lapidary __ Micromounts __
Other _____

I would be willing to demonstrate any of the above for a club program or educational activity? If yes, which: _____

Please indicate which of the following activities you might be willing to help with:

Writing _____ Editor _____ Mailing _____ Local shows _____

Club Officer _____ Programs _____ Field trips _____ Refreshments _____

Questions about the club or club activities? **Contact John Rakowski (719) 748-3861**

Lake George Gem and Mineral Club
P.O. Box 171
Lake George, CO 80827

The Lake George Gem and Mineral Club is a group of people interested in rocks and minerals, fossils, geography and history of the Pikes Peak/South Park area, Indian artifacts and the great outdoors. The club's informational programs and field trips provide an opportunity to learn about earth sciences, rocks and minerals, lapidary work and jewelry making, and to share information and experiences with other members. Guests are welcome to attend, to see what we are about!

The club is geared primarily to amateur collectors and artisans, with programs of interest both to beginners and serious amateurs. The club meets the second Saturday of each month at the Lake George Community Center, located on the north side of US Highway 24 on the east edge of town, sharing a building with the county highway shops. **In the winter we meet at 10:00 AM. From April through September, we meet at 9:00 AM, to allow more time for our field trips.**

Our organization is incorporated under Colorado law as a nonprofit educational organization, and is a member of the Colorado, Rocky Mountain and American Federations of Mineralogical Societies. We also sponsor an annual Gem and Mineral show at Lake George, where collectors and others may purchase or sell rocks, minerals, fossils, gems or jewelry. Annual membership dues (Jan. 1 through Dec. 31) are \$15.00 for an individual (18 and over), and \$25.00 for a family (Parents plus dependents under age 18).

Our Officers for 2009 are:

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