

The Lake George Gem and Mineral Club -

Club News, MARCH, 2013



Regular Meeting of the Lake George Gem & Mineral Club
Saturday, March 9, at 10:00AM
Lake George Community Center

LGGMClub member and USGS geologist **Pete Modreski** will present a talk titled "**A tour through Colorado pegmatites: 23 pegmatites in 5 days**". Don't miss this—Pete honors us about once a year, and his talks are interesting and thought provoking (and I don't think the talk will actually take five days)!

Dues are due...see membership application at the end of this Newsletter

Coming Events

- "Porcupine Cave: the Highest Pleistocene Fossil Locality in North America"**, by Dr. Lou Taylor of the DMNS, Canon City Geology Club, 6:30PM, First United Methodist Church, northwest corner of 9th and Main Sts., Canon City. ... **March 11**
- Columbine Gem and Mineral Society**, monthly meeting, 6:30PM, meeting room, Shavano Manor, 525 W. 16th (at J St.), Salida. ... **March 14**
- "Ice worlds and their fossils"**, Western Interior Paleontological Society annual symposium, Green Center, CSM, Golden; admission charge. For info, visit symposium@westernpaleo.org. ... **March 16-17**
- Pueblo Rockhounds**, monthly meeting, 7:30PM, Westminster Presbyterian Church, 10 University Circle, Pueblo. ... **March 21**
- Colorado Springs Mineralogical Society**, monthly meeting, 7PM, Colorado Springs Senior Center, 1514 N. Hancock, Colorado Springs. ... **March 21**
- Ft. Collins Rockhounds Gem & Mineral Show**, (admission charge) McKee 4-H Bldg. at the Ranch (Larimer Co. Fairgrounds), I-25 Exit 259, Loveland. ... **March 22-24**

Club News

 For those of you who missed it, there was a nice article about **John Rakowski** in the Feb. 21 issue of "The Flume".

 Here's something cool coming up in June, for the benefit of the Victor Lowell Thomas Museum and other groups:

June 22-23, 2013
FIRST ANNUAL

VICTOR GEM



AND

MINERAL SHOW

Gem & Mineral Vendors
Join Us In
Historic Victor, Colorado
Pre-register by April 1: \$20 per 10x15 space
Register at VictorColorado.com

Register Early for the Best Space!

 Five geologist Club members, **Andy Weinzapfel, Steve Veatch, John Rakowski, Paul Combs**, and **Bob Carnein**, are collaborating on what we hope will be a new book about Teller County geology. At a recent meeting in Cripple Creek, we decided on major topics and divided up at least some of the writing work. We hope the book will be of interest to the general reader who wants to know more about Teller Co. geology. It will include field guides to major routes crossing the county, as well as descriptions of other resources. But it will not be a collecting guide. If you have any suggestions about things you would like to see in such a book, please contact one of us. We won't promise to include them, but the book is at the "very flexible" stage now, and we may have forgotten something. And, don't hold your breath—we estimate it may take a couple of years to put this together.

 Thanks to **Bob Carnein** for his talk on Cripple Creek geology and minerals at the February meeting.

 According to **Dick Lackmond**, the new "Prospectors" series starts on the Weather Channel on Tuesday, March 26, at 6PM. Featured subjects will include our own members, **Rich Fretterd** and **Joe Dorris!** Don't miss this great new show!

 Dr. **Joel Duncan** will be our speaker on April 13. Come hear about the asteroid-impact hypothesis first-hand!

 Dr. Barbara Smigel (admin@bwsmigel.info) has what looks like a very thorough online gemstone course, that's available at no charge (go the link above). Thanks to **Dick Lackmond** for the "heads up".

 Here's another contribution from prolific Colorado Springs Earth-Science Scholar **Zach Sepulveda**.

Twilight of the Mammoths by Zachary Sepulveda

Perched upon a grassy hill ancient hunters prepare to make a kill...
Blaring trumpets shatter the air
Terrified voices echo despair
Hurling towards their own demise
A chance at life, their fate denies

The blood of giants spills forth upon the grass
Brought forth by razor-edged volcanic glass
Marching closer to defeat with each fresh laceration
Panicking behemoths flee from inevitable damnation

Perfectly adapted to a dying world
Their fate was sealed when their blanket of ice unfurled
Their fragile world was brought to bear before the fury of the sun
And before they even knew it, their time on earth was done.



About the author: Zachary Sepulveda recently moved to the Pikes Peak region from San Diego, CA. He became interested in paleontology by visiting the La Brea Tar Pits in Los Angeles as often as he could. He is a junior member of the Colorado Springs Mineralogical Society and is part of the Pikes Peak Pebble Pups and Earth Science Scholars Program. Zach is 15 years old and is in 10th grade at Palmer Ridge High School in Monument, Colorado.

 I'm sorry to report that, despite contacting both teachers and guidance counselors and some early expressions of interest, we have received no applications for our annual scholarship. If you know a high school senior in Park or Teller counties who plans to major in the Earth sciences in college, ask them to get in touch with **Bob Carnein** asap.

 **Dan Alfrey** presented a 30-minute slide show and talk for the Ute Pass Kiwanis of Woodland Park, covering Club activities and Area Treasures, on Jan. 23. Dan & his wife Jennifer were past members of Kiwanis and served on the Board. Field trip-coordinator, **Richard Kawamoto** attended also, and brought his specimen Display Case on hand. Dan brought along several books & publications of area treasures. The presentation was well-received by all!!

 **Richard Kawamoto, John Rakowski, and Dick Lackmond** are planning field trips for this summer, and they need member input. Contact one or all of them with your suggestions and to volunteer to lead trips.

 Here are this month's "Bench Tips" from Brad Smith, including a link to information about the gigantic diamond deposit in eastern Siberia (ironically, associated with a huge impact site!).

BEZEL SETTING PROBLEMS

When bezel setting a cab that has rather sharp corners, have you ever had problems pushing the metal down at the corners? It's a common problem often causing a wrinkle in your bezel and a grimace on your face.

In order for a bezel to capture the stone, the top edge of the bezel must be compressed and become shorter to lay down onto the stone. With a round or oval stone, this naturally happens as you push and burnish the bezel. But when setting a stone with corners, the tendency is to push the long sides of the bezel down first. No compression occurs along the sides, and all excess metal is left at the corners. Compressing everything there is difficult. Often the only way to remove the extra metal at the corner is to make a saw cut and fold the two sides in to touch.

If you want a smooth bezel all around the corners, the simple solution is set the corners of the bezel first. Then push in and burnish the sides. In this way, the necessary compression is distributed along the length of all sides and not forced to occur at the corners. With the corners set first, the top edge of the bezel can easily be compressed along the sides.

CHEAPER & BETTER PICKLE

Most jewelers use a granular pickle mixed with water. The active ingredient is sodium bisulfate. This can be purchased from local stores as a common pool chemical used for adjusting the acidity of the water. It's sold under various names, so be sure to check the list of active ingredients for a brand that is 95% or more sodium bisulfate. An added benefit is that the pool chemical is more pure in form than what is sold for jewelry use and does not cause the often found brown grime floating on the top of a pickle pot.



Finished bezel corner



Cheap pickle

NEWS ITEM - Trillions in Diamonds

Russia has just declassified news that will shake world gem markets to their core: the discovery of a vast new diamond field containing "trillions of carats," enough to supply global markets for another 3,000 years.

The Soviets discovered the bonanza back in the 1970s beneath a 35-million-year-old, 62-mile diameter asteroid crater in eastern Serbia known as Popigai Astrobleme. For more information, go to:

<http://www.csmonitor.com/World/Global-News/2012/0917/Russia-reveals-shiny-state-secret-It-s-awash-in-diamonds>

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More Bench Tips by Brad Smith are at [facebook.com/BenchTips/](https://www.facebook.com/BenchTips/) or see the book "Bench Tips for Jewelry Making" on Amazon.

Earth-Science Scholars/Pebble Pups Corner

Earth-Science Scholars and Pebble Pups meet on the **third Tuesday of each month at 6PM in the Lake George Community Center.** Here's this year's schedule:

March: "Minerals and How We Identify Them"—B. Carnein

April: "The Amazing World of Crystals"—B. Carnein

May: "Orienteering"—D. Alfrey

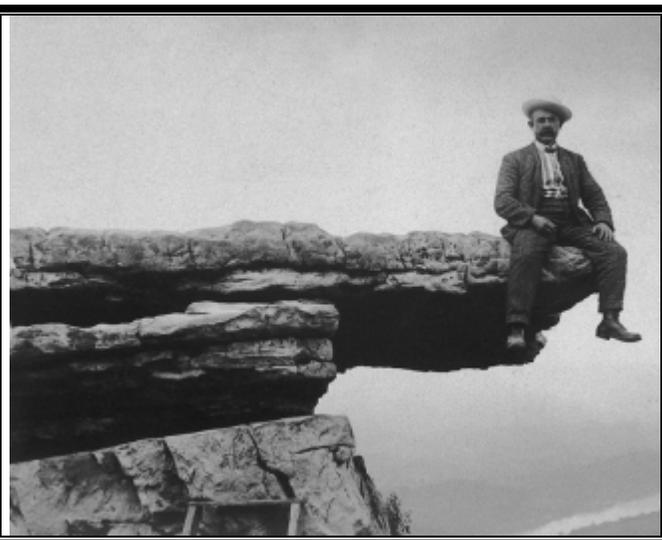
Please see the Club website for more information.

Be sure you check regularly at www.LGGMClub.org for details and updates.

Remember, new students and their parents are always welcome; Earth-Science Scholars and Pebble Pups are welcome on LGGM Club field trips!

NOTES FROM THE EDITOR

Bob Carnein, Editor
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This month, I'm continuing the series about the minerals of the Mohs hardness scale, with number 6: orthoclase.

Ordinary Orthoclase

by Bob Carnein

This is the sixth installment of a series of articles about the minerals of the hardness scale developed by the Austrian mineralogist Friedrich Mohs in 1824 (Klein and Hurlbut, 1999). Previous articles appeared in the **March, 2011** (talc), **November, 2011** (gypsum), **February, 2012** (calcite), **November, 2010** (fluorite), and **October, 2012** (apatite) LGGMC newsletters, which can be found at the Club's website.

Orthoclase is number 6 on the hardness scale. As described in an article in the November, 2012 newsletter, it's one of a group of minerals known collectively as the **potassium feldspars**. Included in this group are orthoclase, microcline, and sanidine. Luckily, all 3 have the same hardness, and so all can be used interchangeably for the person trying to test for this property. However, the three minerals are crystallographically distinct (that's why they have 3 different names), and, chemically, they are a part of a large group of 20 or so minerals known as the **alkali feldspars**. Orthoclase, microcline, and sanidine are all KAlSi_3O_8 , with limited calcium or sodium substituting for the potassium.

The K-feldspars are monoclinic (orthoclase and sanidine) or triclinic (microcline), but the distinction is hard to see in a hand sample. They are extremely common in rocks of Earth's continents, occurring in silica-rich igneous rocks (e.g. granite, syenite) and, as phenocrysts (large crystals), in volcanic rocks (e.g. rhyolite, trachyte). Locally, they occur in the Pikes Peak and Cripple Creek granites and in the Wall Mountain Tuff.



Pinkish microcline in Pikes Peak Granite (field of view is about 2 cm across (Carnein photo))



Colorless sanidine crystals in Wall Tuff. Field of view is about 1.5 cm across (Carnein photo)

Common metamorphic rocks (gneiss, schist) and sedimentary rocks derived from all of the above (arkosic sandstone and conglomerate) are also likely to contain K-feldspar. Local examples include the metamorphics lumped under the name "Idaho Springs Formation", and the sandstones and conglomerates of the Fountain Formation. Well formed crystals are common in the pegmatites of the Pikes Peak Granite and in the Wall Mountain Tuff (though crystals in the latter are quite small—commonly a few mm. across). They make the tuff "sparkle" in sunlight because of their cleavage.

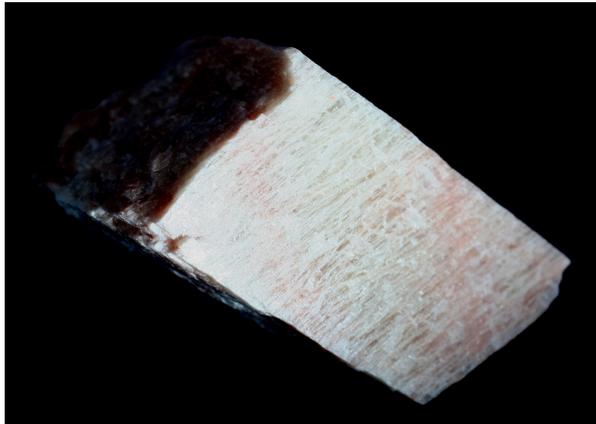
Lake George Gem and Mineral Club

March, 2013

Besides their common hardness, all 3 K-feldspars have 2 good to perfect cleavages that intersect at nearly 90°. All have a vitreous (glassy) luster when fresh, but all are subject to alteration by hydrothermal solutions. This alteration may produce a reduction in hardness and a greasy or pearly luster. The colors and diaphaneity of the three are quite varied. Microcline is usually translucent and may be white, gray, tan, reddish, or green to blue (amazonite). The same is true of orthoclase, except that green or blue varieties are rare. Sanidine is commonly colorless and transparent, though colored varieties are sometimes used to make attractive gemstones.



Microcline, showing 2 cleavages at About 90°. (Carnein photo)



Microcline, showing glassy reflection on cleavage surface. View is 5 cm across. (Carnein photo)

In pegmatites, microcline may occur as huge crystals (reportedly up to 50 x 36 x 14 meters and weighing over 17,500 short tons in the Devils Hole mine, Fremont Co., CO) (Rickwood, 1981). Such deposits have been important sources of feldspar for earthenware, stoneware, and porcelain manufacture. To make porcelain, finely ground microcline is mixed with clay (kaolin, which forms by deep weathering of K-feldspar), quartz, and other components. When heated to about 1200 to 1400°C, the K-feldspar fuses and binds the mixture together. Fused K-feldspar is also a common component of glazes used in porcelain ware.



Amazonite, Mannebach twin, from Sidama, Ethiopia. Field of view is 8 cm across. (Carnein photo)



Amazonite cabochon. Locality unknown. Field of view is 9 mm across. (Carnein photo)

In addition, K-feldspar is used to manufacture glass and as a gemstone (e.g. amazonite, moonstone, sanidine). Moonstone exhibits a property called *adularescence* (or "schiller"), a

bluish or whitish sheen that moves across the surface of the stone. This may produce a "cat's eye" or a 4-rayed star. The effect results from interference of light reflected off submicroscopic intergrowths of orthoclase and albite (Hurlbut and Kammerling, 1991). The yellow color of some gem sanidine results from trace amounts of iron.



Orthoclase var. moonstone crystals, Pili mine, Camargo, Chihuahua, Mexico. Field of view is 2.5 cm. across. (Carnein photo)



Moonstone cabochons, unknown locality. Field of view is 3 cm. across. (Carnein photo)

Note: For the beginning collector, the distinction between the K-feldspars and the plagioclase feldspars is a perpetual headache. Part of the problem stems from the fact that they all have the same hardness, luster, and color variations. However, if both are present in the same rock, they commonly can be distinguished by differences in color and luster (plagioclase alters more readily than K-feldspar). In addition, under low power (10X) magnification, many plagioclase crystals exhibit striations on cleavage planes. Learning to recognize striations is a skill that every freshman geology student must acquire.

References Cited

Hurlbut, C.S., Jr., and R.C. Kammerling, 1991, *Gemology*, 2nd Edition: New York, John Wiley & Sons, Inc., 336 p.

Klein, C., and C.S. Hurlbut, Jr., 1999, *Manual of Mineralogy (after James D. Dana)*, 21st Edition, Revised: New York, John Wiley & Sons, Inc., 681 p.

Rickwood, P.C., 1981, The largest crystals: *American Mineralogist*, vol. 66, p. 885-908.

All specimens illustrated are in the author's collection.

DUES ARE DUE! DUES ARE DUE! DUES ARE DUE! DUES ARE DUE!

Lake George Gem and Mineral Club

Box 171

Lake George, Colorado 80827

LGGMClub.org

2013 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. **Any new member joining on/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

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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 October, 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 2013 are:

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