
Littleton Gem and Mineral Club

January 2019 Newsletter.

LGMC January Meeting! Will be Friday, Jan 18th, at 7:30PM.
Guest Speaker Kevin Singel author of "Finding Gold in Colorado"



Letter from the President

Happy New Year!

Every year, early January is a time for me to reflect on the past year or two; review what I've learned and apply those lessons to my personal values and goals. An integral part of my character is personal growth through learning and having fun doing it.

Several years ago, during a milestone birthday, Ann & I joined LGMC as part of her personal challenge to do the same number of new experiences as her age. It was an incredible, rewarding and very busy year. We joined LGMC for the same reason that most people do to go on field trips and find crystals. Little did we realize that this would lead to learning and experiencing much more than finding cool rocks! There are many members who have volunteered to take us under their wings and teach us that the club offers much more.

- Jim Hooten taught us about the minerals and history of local collecting areas during our field trips.
- Keith Sheel patiently taught us cabbing and faceting over many hours, days, months and mistakes.
- Nick North and Larry Havens have expanded our knowledge of the beautiful minerals from around the globe.
- Maxine Sheel taught us the culture, history and legacy of the club.
- John Kleber has set an example of selfless volunteering to teach his skills and knowledge of faceting, wire wrapping, gathering grab bag specimens and managing our club booth at the Denver Show.
- Board members taught me the purpose and importance of our annual mineral silent auction to funding our club activities.

There are many other members who have volunteered their warm friendship and comradery (even when we are competing for that exceptional field specimen) at our club activities. Our members are what make our club special and fun!

Thank you to everyone who has volunteered and selflessly contributed their time and energy to making our club fun, educational and unique. I encourage everyone to actively participate as committee members, officers and volunteers so that we keep our club relevant, fresh and special to our members and community.

My personal goal during the coming year is to continue learning and emphasize LGMC's mission statement purpose as an educational organization. My first step is to encourage all members to explore the educational opportunities that the club offers in the Faceters & Cabbers Group, Mineral Study Group, field trips, speakers at the club meetings and Denver Show. If you're already involved let's work together to make our programs even more engaging and fun.

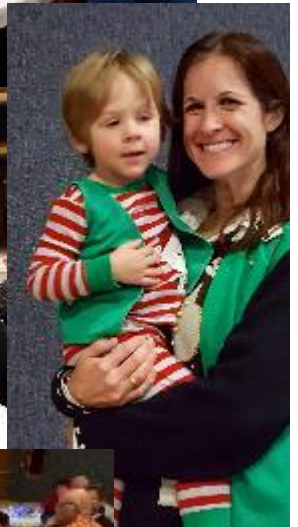
I'd also like to recognize 2 members who volunteered recently and were elected to leadership roles for the coming year; Kollin Olsen (President Elect) and Lynette Warren (Trustee). I look forward to working with you and the other Board members in the coming year. Welcome!

Ron Wankner - President, Littleton Gem & Mineral Club

Christmas Party Pictures!



A special thanks to Lynette Warren, Karen Runner, Anne Wankner and Maxine Sheel for making the party center pieces. They were beautiful!





Santa came to see who had been nice and who had been naughty



A BIG THANKS TO Ian Duncanson FOR BEING SO GOOD!



Congratulations to the 2018

Odiorne Award winner Bill Davis with his Fluorite from New Mexico!

LGMC Summary Minutes, Board Meeting

LGMC Summary Minutes Board Meeting, November 19, 2018

Location: Church

Called to order at 7:02 pm by President Travis Leach.

In Attendance: Travis Leach, Stacey Lestina, Charlie Wall, Larry Havens, Lesley Sebol, Dan Lovitt, Ian Duncanson, Nick North, and Kollen Olsen.

Minutes of the October meeting were approved as published.

Treasurer's Report: Lesley reported the financial activity for the period 9/29/18 to 10/31/18. Deposits were from auction revenues and dues.

Expenses: reimbursement to Havens and Hooten for door prize purchases from Dan Unruh and silent auction respectively. Additionally, eight checks were sent to silent auction sellers.

Motion to accept treasurer's report by Duncanson; second by Olsen; motion carried.

Reminder: Any club member may ask the Secretary to see the treasurer's report at any regular club meeting.

Old Business:

Church transition: no definite closing date has been set, but it is most likely that we will be able to meet in the present facility through May.

New Business: Planning for the Holiday Party – as noted last month, the food focus this year will be a chili cook-off. Stacey will devise a judging process whereby 2 awards will be made. One voted on by the members at large, and the other, voted on by past, present and future presidents. We will begin eating at 6:30, and board members were asked to come early to help with table set-up. Maxine Sheel reported that 2 members have stepped up to make the table centerpieces.

Programs: Stacey reported that Phil Persson will present in March. Lesley Sebol's proposal that starting in November we experiment with mini-silent auctions at our regular meetings, using pieces from our inventory of donated materials worked well in its first iteration last Friday. We will continue the auctions in a trial phase.

Faceters/Cabbers: 3rd Tuesday of every month at the church.

Mineral Study Group: Meeting at Nick North's home, topic – minerals of England.

Next Board Meeting: The Old Board/New Board dinner/meeting will be held the 2nd or 3rd Saturday in January.

Meeting adjourned 8:21.

Respectfully submitted, Larry Havens, Secretary



CAN WE BE FRIENDS?

Have you joined our club's Facebook group yet? Get social with the LGMC page and easily track upcoming meetings, special events, and club activities. Post pictures of your rock collections talk with other rockhounds and share your passion for gems & minerals with the world!

Join us at <https://m.facebook.com/LittletonGemMineralClub/> or tag us @LittletonGemMineralClub

see you on Facebook!
Nicole Bolger

Upcoming Geology Events:

Calendar of Coming Events, 2019

Thurs., Jan. 17, 7:00 p.m., Colorado Scientific Society monthly meeting, two presentations on Kilauea's 2018 eruption - new methods and perspectives for monitoring volcanic eruptions. Don Becker, USGS, is a videographer who was sent to Kilauea to film and document the 2018 eruption and earthquakes; and Jeff Sloan works in the USGS UAS (Unmanned Aircraft Systems; i.e., "drones") program and will show how they were used at Kilauea. We may expect to see a lot of great video "footage" of the eruption. Shepherd of the Hills Church, 11500 W. 20th Ave., Lakewood; social time with refreshments begins at 6:30 p.m. Anyone is welcome to attend. See <http://coloscisoc.org/>.

Sun., Jan. 20, 12 noon, monthly meeting of the Florissant Scientific Society, "Still Crazy (About Franklin) After All These Years", by C.R. (Bob) Carnein. All are welcome to attend; shared potluck lunch (optional) at noon, program begins at 1 p.m. At UCCS (University of Colorado at Colorado Springs) campus; contact Beth Simmons, cloverknoll@comcast.net, for exact room & building location & directions. This will be a version of the same program that Bob presented at our Friends of Mineralogy meeting in November.

Feb. 14-17, Tucson Gem and Mineral Show. These are the dates of the Tucson Gem and Mineral Show in the Tucson Convention Center; other shows in town, indoor and in outdoor booths, take place then and earlier at locations at multiple locations.

Fri.-Sat.-Sun., Feb. 22-24, Denver Gem & Mineral Guild Jewelry, Gem, and Mineral Show, Jefferson County Fair Grounds, 15200 W. 6th Ave., Golden, CO. Free parking & free admission; hours 10-6 Fri. & Sat., 10-5 Sun.

Thurs., Feb. 21, 7:00 p.m., Ken Balleweg (Consulting Geologist), "The Beulah marble: Ornamental stones of Colorado", and Don McGurk (Rocky Mountain Map Society), "Geographies Unrealized, The Story of Four Cartographic Myths of North America." Monthly meeting of the Colorado Scientific Society, Shepherd of the Hills Church, 11500 W. 20th Ave., Lakewood; all are welcome.

Thurs., Mar. 14, 7:30 p.m., Friends of Mineralogy, Colorado Chapter, bimonthly meeting; topic TBA.

Thurs., Mar. 21, "A Cook's Tour of Colorado's Glacial Landscape" by Dr. Vince Matthews. Monthly meeting of the Colorado Scientific Society, Shepherd of the Hills Church, 11500 W. 20th Ave., Lakewood; all are welcome.

Fri.-Sat.-Sun., Mar. 22-24, Fort Collins Gem & Mineral Show; at Thomas M. McKee Building, at The Ranch/Larimer County Fairgrounds, 5280 Arena Circle, Loveland, CO (I-25 exit 259); hours 4-8 Fri., 9-6 Sat., 10-5 Sun. Sponsored by the Fort Collins Rockhounds Club.

Fri.-Sat.-Sun., Apr. 12-14, Colorado Mineral and Fossil Spring Show, Crown Plaza Hotel /Convention Center, 15500 E 40th Ave., Denver, Colorado, 10-6 Fri. & Sat., 10-5 Sun., free parking & admission.

Thurs., May 9, 7:30 p.m., Friends of Mineralogy, Colorado Chapter, bimonthly meeting; topic TBA.

Sun., May 19, Friends of Mineralogy, Colorado Chapter, Silent (+Vocal) Auction. Noon to 4 p.m., Clements Community Center, 1580 Yarrow St., Lakewood CO. All are welcome to attend.

Fri.-Sat.-Sun., May 31-June 2, Pikes Peak Gem & Mineral Show, Norris-Penrose Event Center, 1045 Lower Gold Camp Road, Colorado Springs, CO 80905. Sponsored by the Colorado Springs Mineralogical Society.

For more lecture series during the year see:

Colorado Beer Talks (2nd Tuesday, 6-8 p.m.), Windy Saddle Café, 1110 Washington Avenue, Golden, “Golden’s grassroots version of TED talks, Expand your mind with a beer in your hand”, <http://goldenbeertalks.org/>.

Colorado Café Scientifique in Denver, monthly lectures on science topics held either at Blake Street Station or Brooklyn’s, Denver; open to the public, no charge other than refreshments you may choose to purchase; see <http://cafescicolorado.org/>.

Colorado Scientific Society (3rd Thursday, 7 p.m.), see <http://coloscisoc.org/>. Meets at Shepherd of the Hills Church, 11500 W. 20th Ave., Lakewood CO, except when noted.

CU Geological Science Colloquium (Wednesdays, 4 p.m.) see <http://www.colorado.edu/geologicalsciences/colloquium>

CSU Dept. of Geoscience Seminars (Fridays, 4 p.m.), see <https://warnercnr.colostate.edu/geosciences/geosciencesseminar-series/>

Van Tuyl Lecture Series, Colorado School of Mines, (Thursdays, 4 p.m.): <https://geology.mines.edu/eventscalendar/lectures/>.

Denver Mining Club (Mondays, 11:30), see <http://www.denverminingclub.org/>.

Denver Museum of Nature and Science, Earth Science Colloquium series, 3:00-4:00 p.m., VIP Room unless noted, day of the week varies. Museum admission is not required; see <http://www.dmns.org/science/research/earth-sciences/>

Denver Region Exploration Geologists Society (DREGS; 1st Monday, 7 p.m.), <http://www.dregs.org/index.html>.

Florissant Scientific Society (FSS); meets monthly in various Front Range locations for a lecture or field trip; meeting locations vary, normally on Sundays at noon; all interested persons are welcome to attend the meetings and trips; see <http://www.fss-co.org/> for details and schedules.

Nerd Night Denver is a theater-style evening featuring usually 3 short (20-minute) TED-style talks on science or related topics; held more-or-less monthly at the Oriental Theater, 4335 W. 44th Ave., Denver; drinks are available; for ages 18+. Admission is \$6 online in advance, \$10 at the door. See <https://www.nerdnitedenver.com/>.

Rocky Mountain Map Society (RMMS; Denver Public Library, Gates Room, 3rd Tuesday, 5:30 p.m.), <http://rmmaps.org/>.

Western Interior Paleontological Society (WIPS); beginning January 2019, WIPS will meet on the 1st Monday of the month, 7 p.m., at Lowry Conference Center, 1061 Akron Way, Denver. See <http://westernpaleo.org/>.

Selected upcoming LGMC and Earth Science Events

Sun Jan 13th Board Meeting, The Bistro at Aspen Grove, 1pm NE corner of Aspen Grove (Santa Fe Drive and Mineral).

Fri Jan 18 **LGMC January Meeting, 7:30pm**

January refreshments – Susan Duncanson. The other person that signed up cannot make the meeting if someone would like to bring snacks that would be great!

We can always use more if you would like to bring some.

We are still in need of volunteers to bring snacks for upcoming meetings, please sign up at the welcome table at the January meeting. Thank you!

Next months volunteers are Mel Whitcomb and Shelley and Charlie Wall.

Tue Jan 22 Minerals Study Group, at 7pm. We still study minerals from Morocco, which is the country in the Northwest corner of Africa, across the water from the Strait of Gibraltar. Morocco is at a triple junction, which is an intersection between 3 tectonic plates, so there is a good diversity of geology there to create minerals. If you have any minerals from there, we can look at those together, or see what others might have collected. All are welcome. We will meet at the home of Steve and Cheryl Cable, 7571 S. Cove Circle, Centennial, CO 80122. For directions, e-mail Steve at stevecableisthinkingofyou@gmail.com, or call him at 303-868-9931.

Tue Jan 15th Faceters and Cabbers group will meet at 7:30PM at Columbine Hills Church. Be sure to bring any cool rock gifts which Santa may have put under your tree! All Littleton members and guests are welcome to join us.

New Places to Look for Diamonds

Diamonds are usually found in kimberlite, an igneous rock containing chunks of diamond-bearing rock from the earth's mantle. They also occur in surface placer deposits formed by the weathering of kimberlite. They may be rarely found as tiny crystals in certain meteorites. Now a new geological occurrence has been reported from the Kukchetin block in northern Kazakhstan. Here diamonds are found in gneisses formed by the metamorphism of sedimentary rocks.

The Kokchetev block is about 800 kilometers west of Novosibirsk, Siberia and 1000 km. north of Tashkent. It is a fault-bounded block of high-grade metamorphic rock formed approximately 530 million years ago from rocks deposited as sediments about 2 billion years ago. The diamonds are found as perfect cubes and octahedrons about 0.0005 inches in diameter enclosed inside garnet and zircon crystals. Other minerals found here as inclusions in garnet and zircon are titanite, phengite (a type of mica), K feldspar, quartz and kyanite. None of these minerals are traditionally thought to be associated with diamonds. In addition to these minerals, the gneisses contain pyroxene, plagioclase, biotite, chlorite, calcite and graphite.

The diamond-bearing rock was once a sediment deposited on land about 2 billion years ago. It was then buried deeply, metamorphosed and uplifted back to the surface. A major question is whether the diamonds actually grew during metamorphism or whether they had been deposited in the original sediment from an

eroded kimberlite somewhere else. This is an important question, because diamonds had never before been seen growing within rocks of the earth's crust.

Sobolev and Shatsky (1990) studied this question with some care and showed that the diamonds did indeed grow in the rock during metamorphism. They cite a number of pieces of evidence for this. First, the diamond crystals' shapes are such that they could not reasonably have survive any degree of transportation as a sediment. Also, the diamonds are intimately intergrown with minerals such as garnet that were known to grow in this rock during metamorphism. Plus, the associated minerals show that the rock was subjected to temperatures of 900 - 1000 degrees C and pressures of over 40,000 atmosphere. This puts them within the stability field of diamond. This also implies that the sediments were buried to depths of over 100 kilometers (60 miles) within the earth. After metamorphism the rocks were uplifted to the surface. The diamonds, which should logically have converted to graphite, survived by being insulated within the garnet and zircon crystals.

There are several interesting implications to this find. First is what I will refer to as the "elevator concept". To make the diamonds, these sediments had to be pushed down into the earth over 60 miles then brought all the way back up to the surface. The forces and causes of such large vertical movements are unknown. Geologists for years have focused on the large horizontal movements of blocks associated with plate tectonics. A small group of geologists, most notably Russian, have argued that large vertical movements were also important. These little diamond crystals are proof that their arguments are justified. I predict that in future years geologists will be thinking more and more about large up and down movement of crustal blocks. The second implication is that if diamonds can be found in a particular rock in one place, they will be found in the same kind of rock elsewhere. These diamonds are very tiny, hence easily overlooked. Most geologists studying high grade gneisses would also not be expecting to find diamonds. A truism in geology is that you usually find only what you are looking for. Now geologists will be on the look-out for diamonds in high grade gneisses in other parts of the world and I think they will find them. Some logical places I would look are in the gneisses of the Adirondacks in New York, of the Beartooth block in Wyoming and, yes, of the Minnesota River Valley around Redwood Falls.

Even though these diamonds are too small to see without extensive magnification, they are important for what they tell geologists about the complex history of this marvelous planet.

- Dr. Bill Cordua, University of Wisconsin-River Falls

References:

Sobolev, N.V. and V.S. Shatsky, 1990, "Diamond inclusions in garnets from metamorphic rocks: a new environment for diamond formation," *Nature*, vol. 343, p. 742-745.

Claue-Long, J.C. et al., "Zircon response to diamond pressure metamorphism in the Kokchetov massif, U.S.S.R." *Geology*, vol. 19, p. 710713



Dense as a Rock

Rocks are pretty dense, but some are denser than others. Estimation of a rock's or mineral's density can help in its identification. Density is the mass (grams) of a substance found in a particular volume (cubic centimeters). A related value, specific gravity, compares a mineral's volume to that of an equal volume of water. Both specific gravity and density are the same number, but density has units, (grams per cubic centimeter or g/cc) while specific gravity is unitless. Thus, quartz has a specific gravity of 2.65 and a density of 2.65 g/cc.

One can heft a rock to estimate density. Less dense rocks will feel unusually light. Pumice is a good example of a low density rock. It has tiny air pockets, making it light enough to float on water. Or think of a geode with a large cavity in it. It will feel lighter than one that is nearly solid. Rocks that feel unusually heavy contain dense minerals such as iron ore, sulfides, gold or garnet. Most rock hounds have picked up enough rocks to know what a "average" rock should weigh for its size. Quartz, feldspar, granite and sandstone have "average" densities. If you pick up a chunk of vitreous red mineral, and it feels heavy for its size, you should consider that you aren't hefting quartz. Maybe you have a garnet, or scheelite.

A famous story is based on the use of density. The Greek scientist Archimedes was given a problem by his king, Heiro II. The king had sent a metal smith some gold to make a crown. He didn't want the smith to be adding silver and keeping some of the gold for himself. The king asked Archimedes how he could tell if the crown were pure gold. Archimedes had no immediate answer. He decided a relaxing bath may help him think. As he got into the tub, the rising water gave him his answer. The crown would displace a volume of water related to its mass, and its mass per volume would tell how much pure gold was present.

Archimedes was supposedly so excited by this discovery, that he leaped from his bath and ran naked through the streets shouting "EUREKA" or "I've found it!" The crown was weighed. Then it was immersed in a vat full of water. The water that escaped was carefully measured, giving the volume. The density was then easily calculated. The crown was not pure gold, and the metal smith was suddenly the one in hot water.

Heft tests are fine for quick determinations of relatively pure minerals. Should one wish to get a mineral's density more accurately, Archimedes' measurements can be done with a equipment found in a typical high school lab. Here's one way to do it. Get a rather pure chunk of the mineral, perhaps 1 cm across. Measure the sample's mass (grams) on a balance. Then submerge the sample in a small graduated cylinder and note the increase in

volume (milliliters = cubic centimeters of water). Divide the volume into the mass to get the density. Leave off the units to get the specific gravity. Most mineral books have charts listing minerals by their specific gravity. Remember, just like King Heiro's crown, the density you measure will be affected by any impurities, so don't be too fussy about how well you match a particular mineral's recorded density.

- Dr. Bill Cordua, University of Wisconsin-River Falls

Grab Bag News Update

Thanks to Chuck Borawa for donating and bagging magnetite specimens for grab bags. He also volunteered to break down large pieces of zebra rock to grab bag size and then bag them. Those seem to be hard rocks, so lots of thanks, Chuck.

Also thanks to Bill Davis for donating a box of bagged and labeled fluorite specimens.

Carol Nielsen-Alt has been busy sewing and has added 70 cloth bags to our grab bag needs.

Thanks to all our generous members in 2018, especially those I might have missed acknowledging. Keep up the great work in 2019. ~**John Kleber**, The Bag Begger

Club Announcements

Moving? Change of Address, Email or Phone Number? Ready to go paperless? Please notify **Ian Duncanson** of any changes at idunc@q.com or 303-798-9174.

Do you know someone who could use some sunshine? Send a note to our sunshine coordinator and let her know, **Lynette Warren**, flywithle123@comcast.net or 303 956-4634.

Club Membership Dues

The annual membership dues are \$20.00 per family or individual per year and are due in January each year. **Ian Duncanson** will have a table setup at the Monthly meeting to renew membership dues or you can mail them in to LGMC P.O. Box 283, Littleton, CO 80123



Club Vests Show your club support at the meetings and other events! **Ian Duncanson** has club vests available for sale.

\$18 for small and medium sizes

\$19 for large and X-large sizes

\$20 for XX-large and XXX-large

Price includes vest, sewed on club patch (on back) and a club pin

LGMC dues for 2019

Please bring the following form to the next meeting with your \$20 check:

Name(s) _____

Dues payment (\$20) _____ **Renewal**

Email address: _____

Thanks to everyone who contributed to the newsletter!

~Tammy

☞ 2019 Board of Trustees ☞

President	<i>Ron Wankner</i>	303-618-5549
Vice President and Membership Chairman	<i>Ian Duncanson</i>	303-798-9174
Secretary	<i>Larry Havens</i>	303-757-6577
Treasurer	<i>Lesley Sebol</i>	720-999-1372
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Field Trip Chairman	<i>Jim Hooten</i>	303-770-7177
Highlites Newsletter Editor	<i>Tammy Jacobs</i>	303-680-8830
Trustee (Year of 2019 as past President)	<i>Travis Leach</i>	303-887-9787
Trustee (2-year term 2019 & 2020)	<i>Lynette Warren</i>	303-956-4634
Trustee (2-year term 2018 & 2019)	<i>Dan Lovitt</i>	303-791-3112

☞ Chairpersons & Appointed Officers ☞

Trustee-at-Large	<i>Lou Conti</i>	303-797-3205
Trustee-at-Large	<i>Dale Gann</i>	720-981-5526
Sunshine Chairperson	<i>Lynette Warren</i>	303-956-4634
Refreshments	<i>Anne Jenkins</i>	303-730-7696
Librarian	<i>Mary Davis</i>	303-680-5112
Historian	<i>Open</i>	
Photographer	<i>Open</i>	
"	<i>Open</i>	
Hospitality	<i>Nick North</i>	303-840-1177
Grab Bags	<i>John Kleber</i>	720-851-8510
Web Administrator	<i>Kollin Olsen</i>	303-233-9492
Show Committee Representative	<i>Lynette Warren</i>	303-956-4634
RMFMS & AFMS Representative	<i>Larry Havens</i>	303-757-6577
Denver Council Representative	<i>Nick North</i>	303-840-1177
Cabbers & Faceters Group		
" "	<i>John Revis</i>	720-569-6685
" "	<i>John Kleber</i>	720-851-8510
Mineral Study Group	<i>Bob Zartman & Nick North</i>	303-973-0405

Meetings: The Littleton Gem & Mineral Club meets the third Friday of each month, September through May, at the Columbine Hills Church, 9700 Old Coal Mine Avenue, Littleton, CO 80123. Doors open at 7:00 p.m. and the meetings begin at 7:30 p.m. All meetings are open to the public. Club and section meetings may deviate from their regular schedules due to holidays, shows, inclement weather, etc.

The Littleton Gem and Mineral Club is affiliated with the American Federation of Mineralogical Societies, The Rocky Mountain Federation of Mineralogical Societies, The Colorado Federation of Gem and Mineral Societies, and the Greater Denver Area Gem and Mineral Council.

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****The deadline for submissions is the 1st Friday of each month.** Please send your material by email to jacobstammy80@gmail.com.

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Highlites

LITTLETON GEM & MINERAL CLUB



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