

The Lake George Gem and Mineral Club -

Club Monthly Meeting, December, 2014



Regular Meeting of the Lake George Gem & Mineral Club
Saturday, December 13, at 10:00AM
Lake George Community Center

A short business meeting will include election of officers for 2015 (see slate of nominees below). Afterward:

The December meeting will feature the Annual **"Towel Show"**. For new club members, let me clarify – You don't come to the meeting wearing a towel; it's not a Toga Party. Rather, our Towel Show means you bring some interesting item(s) you may have found or purchased this past year to show other club members. It's a grownup "Show and Tell" session. If the items are exciting and interesting to you, please bring them to show to other club members. The towel is to put them on! Also, **bring any items you're having trouble identifying** and let's see if some other club members can help.

The December meeting will also be a **light snack-type of pot luck**. Bring a snack-type dish or treat that can be shared with 8 or 10 people (bring serving utensils). Remember that others will be bringing snacks too, and one person doesn't need to bring enough to completely feed everybody. The club will supply coffee, lemonade, plates and eating utensils.

Note: At the December meeting, you can do some Christmas shopping at the **silent auction**, thanks to donations by **Frank and Ellie Rosenberg** and **Kent Greenes**. We will have more nice collector specimens, including excellent specimens of **fluorescent minerals** from the Sterling mine, Ogdensburg, NJ. Other items will be available at starting bids as low as 25 cents. Please consider donating a few of your duplicates to help the Club, and bring some cash! It's for the Club's benefit.

Coming Events

- | | |
|---|----------------|
| <u>Columbine Gem & Mineral Society</u> monthly meeting, 6:30PM, Shavano Manor, 525 W. 16 th (at J St.), Salida. | ... Dec. 11 |
| <u>Flatirons Gem and Mineral Show</u> , Boulder Co. Fairgrounds Exhibit Bldg., 9595 Nelson Rd., Longmont. | ... Dec. 12-14 |
| <u>Pueblo Rockhounds</u> , Monthly meeting, 7:30PM, Westminster Presbyterian Church, 10 University Circle, Pueblo. | ... Dec. 18 |

Colorado Springs Mineralogical Society, Monthly meeting, 6:30PM, Colorado Springs Senior Center, 1514 N. Hancock, Colorado Springs.

... Dec. 18

Lake George Gem & Mineral Club Annual Show, in the field next to the Lake George PO. Free admission.

... Aug. 13-16

Club News

Dues are Due! Please renew your membership now, while you're thinking about it. A membership application is included in this newsletter.

▶ Show Chair Becky Blair reports that Bart Johnson has given the Club the go-ahead to use the Lake George Company's property for our 2015 mineral show. Thanks to Mr. Johnson and the Lake George Co. for their continued help, without which our show wouldn't be possible.

▶ **Norma Engelberg** sent this photo from the November meeting, where **Rich Fretterd** gave a very interesting presentation about his and **Jean Cowman's** discovery of the Agnus Dei topaz claim.



Rich Fretterd shows off crystals and finished gems from the Agnus Dei claim.

▶ **John Rakowski** sent the following:

Former Member Stuart Chappell has passed away

Stuart D. Chappell, 73, of Canon City, CO, passed away November 30, 2013. He was born in Lansing, Michigan and moved west in 1963. He owned and managed Silver Sunbeam Supply in Cotati, CA throughout the 1970's, and later worked as a commercial lighting specialist. Stuart was active in the Lion's Clubs International, both in California and Colorado. He was an avid rock-hound, successful in finding many precious and semi-precious gems. Poetry and Lake George Gem and Mineral Club

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photography were also important to him. Through his vocations and avocations, he became a friend to many and was an active member of the Lake George Gem and Mineral Club from 2011 to 2013. Stuart has generously made a bequest to the LGGMC through his will and Club Officers will discuss the optimum way to use those funds based upon Stuart's interests.

▶ **John** also reports that the current issue of "Rock & Gem" has an excellent article about recent turquoise production at Cripple Creek.

▶ **Pete Modreski** sent some information about upcoming talks at the Denver Museum of Nature and Science:

December 17th, 3 pm, VIP Room, "**On the trail of Colorado's newest, oldest sedimentary rock formation: Eluded at every turn by the Tava sandstone**", Christine Siddoway (Colorado College). <http://sites.coloradocollege.edu/csiddoway/>

"The presentations will be approximately 45-50 minutes in length with 20 minutes for Q&A. They will all take place in the VIP room next to the T-rex cafeteria starting at 3 pm. The websites for each of our fall speakers are given above. You can visit them to learn a little more about each of our presenters. I hope you have the chance to join us!"

▶ Next year's Lake George Gem & Mineral Show will be held **August 13-16, not August 20-23 as previously reported**. Keep those dates open!

▶ We have an almost complete slate of nominees for next year's officers and committee chairs:

President: **John Rakowski**
Treasurer: **Suzanne Core**
Vice President: **Char DeVries**
Secretary: **Norma Engelberg**
Newsletter Editor: **Bob Carnein**
Field Trip Coordinator: **Todd Mattson**
Webmaster: Dan Alfrey
Show Coordinator: **Becky Blair**
Memberships/Badges: **Jerolynn Kawamoto**
Pebble Pups/Earth-Science Scholars: **Steven Veatch**

If you know anyone else who would like to serve in a leadership position, please encourage them to throw their names in the hat. We will vote on new officers at the December meeting.

▶ The crystallography course, to be offered by **Bob Carnein** starts on January 4 at 2PM. There are still 2 openings. If you're interested, contact Bob at ccarnein@gmail.com.

Earth-Science Scholars/Pebble Pups Corner

Earth-Science Scholars and Pebble Pups meet **from September through May** on the **third Tuesday of each month at 6PM in the Pikes Peak Historical Society Museum, in Florissant**. Be sure you check regularly at www.LGGMClub.org for details and updates, or contact **Steve Veatch** at steven.veatch@gmail.com.

Here's a preliminary schedule for this year's Pebble Pups/Earth-Science Scholars program:

Dec.: A Bad Day for Dinosaurs (**Steve Veatch**)

Jan.: Your Planet Earth: Volcanoes.

Field trip: Denver Museum of Nature & Science (**Dr. Ian Miller**).

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Feb.: Family Geology Day.

Giants of the Ice Age.

March: Exploring Caves: How Caves are Formed (**Blake Reher**).

Field trip: Cave of the Winds (**Steve Veatch**)

April: National Poetry Month.

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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719-687-2739



I have two articles submitted by LGGMC members this month. The first is about the geologic time scale; the second gives a simple method for determining specific gravity. Thanks to Norma Engelberg and John Rakowski for their hard work!

The Layman's Guide to Geological Time by Norma Engelberg

Geological processes are both incredibly fast and incredibly slow. Fast because sometimes we can see them happening, as when a land slip slams thousands of tons of rock into Interstate 70; an earthquake in the Indian Ocean makes the entire planet vibrate, creates a tsunami that kills 230,000 people and triggers other earthquakes as far away as Alaska; or a volcano in the Cascade Range unpredictably blows out sideways and sends a pyroclastic flow rushing across part of Washington State at 700 kilometers an hour. Slow because it takes some of our most sophisticated instruments to measure mountain-range uplifts of scant millimeters a year; the one to two centimeters of continental-plate movement each year; and the slow erosion of mountain ranges caused by rain and wind.

Whether geological processes are fast but local or slow but worldwide, they are also steady and will continue to happen whether we like it or not. Over the 4.6 billion years since our planet was formed, these processes have transformed the Earth in ways we've only just begun to recognize.

Geologists divide the time since Earth's formation into Eons, Eras, Periods, Epochs and Ages. These divisions are works in progress and subject to change as geologists keep literally digging up new information about the age of the Earth and then argue about how the new information should be included in the geological time scale. These divisions also are not regular like the days, months and years of our modern calendars. Rather they are separated by "boundary events" that mark abrupt changes in the fossil record. Sometimes the exact nature of a

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boundary event is known, but, more often than not, it isn't. However, geologists have their theories about which they also argue.

Eons are the first and largest divisions on the geological scale and there are only four. The **Hadean** was named after Hades the Roman god of the underworld. It covers the time between the formation of the Earth and Moon 4.6 billion years ago (abbreviated BYA) to 3.8 BYA. Many geologists think life likely appeared 4 BYA, but there are no fossil records of these earliest of life forms.

The **Archean** (the eon of first life) covers the time from 3.8 BYA, the age of the planet's oldest surface rocks, to 2.5 billion years ago. The oldest known fossils, single-celled organisms similar to bacteria, date to about 3.5 BYA, and the oldest known plant fossils date to about 2.5 BYA.

The **Proterozoic** (the eon of multicellular life) covers the time from 2.5 BYA to 570 million years ago (abbreviated MYA). The first known animal, a type of jellyfish, appeared in the fossil record about 1.2 BYA.

Although eons are divided *into eras* and not the other way around, many geologists combine the first three eons into a single **era**, the Precambrian, while others think it makes more sense to call the Precambrian a **supereon**. Whatever it's called, the Precambrian is five times longer than the eon that follows, the **Phanerozoic** (the eon of complex life), which covers the time from 570 MYA to the present. The Phanerozoic is divided into the Paleozoic, the Mesozoic and the Cenozoic eras.

Eras are divided into **periods**. There have been some recent changes to the names of periods, especially in our era, that can be confusing. Older geological time scales list only two periods for our era, the Cenozoic. These were (and by some still are) called the Tertiary and the Quaternary. Some of the latest time scales, typically proposed by marine geologists, drop both Tertiary and Quaternary and replace them with Paleogene and Neogene. Charts proposed by many terrestrial geologists keep the Quaternary as a third period after the Neogene.

Periods are divided into **epochs**. The early Neogene has two epochs, the Pliocene and the Miocene. The Quaternary (or late Neogene) is divided into the Pleistocene and the Holocene. These, in turn, are divided into **ages**. There are four ages in the Pleistocene, for example, but so far there are no ages listed for the Holocene, which dates from the end of the last Ice Age, about 10,000 years ago, to the present.

Some geologists believe the Earth has entered a new epoch, the Anthropocene – the Age of Man. The term was coined in 2000 because of the effect current human activities will presumably have on the future fossil record. Currently it's an informal term but that could soon change. A definition of "Anthropocene" is being developed by the International Commission on Stratigraphy's Anthropocene Working Group. There could be a vote on the validity of this term some time in 2016. The working group members are exploring at least three options: continue to use Anthropocene informally; end the Holocene Epoch and add the Anthropocene as a new epoch; or add Anthropocene as an age within the Holocene. If they decide on the second option, either the Holocene or the Anthropocene would become the shortest epoch of the geological time scale, depending on when the Anthropocene began. Candidates include the beginning of the Industrial Revolution in about 1800 or the beginning of the Atomic Age around 1950.

Current versions of the geological time scale are available at the Geological Society of America, www.geosociety.org, and at the International Commission on Stratigraphy, www.stratigraphy.org.

Density or Specific Gravity can help identify a mineral

by John Rakowski

Recently, when faced with a mineral identification question we wanted to know the density of the unknown mineral. We were trying to confirm whether a distorted part of a crystal was topaz, phenakite, or beryl. So I did some research and came up with a simple way to find the density of a specimen, which I will discuss in just a minute.

First of all, what is “density”? You will also hear of density expressed as the “specific gravity” of a mineral. Density and specific gravity refer to the same thing. They simply refer to the ratio of the weight of the mineral relative to the weight of the same volume of water. Phrased differently in a math computation, density or specific gravity is the weight of the unknown divided by the weight of the same volume of water. Water has essentially a density of 1 gram per cubic centimeter at typical temperatures, so a specimen like quartz, with a density of 2.65, weighs 2.65 times as much as an equal volume of water. That’s why a bucket of mineral specimens feels so heavy!

How can you find out what the volume in cubic centimeters might be for an irregular chunk of rock? Now that sounds ominous and difficult. But let’s discuss a method that can get the final density answer very simply.

1) First, locate a scale capable of weighing material and giving weights either in grams or ounces. Everything should be in decimals or you’ll need to convert from pounds and ounces to a decimal. For example one pound one and a half ounces would be 17.5 ounces. Working with grams will be easier if your scale has that decimal capability.

2) Weigh your specimen on the scale as you normally would weigh anything, and record the weight.

3) Find a lightweight container that you can nearly fill with water but which has enough space not to overflow when your unknown is added. Fill the container with water, leaving the space to LATER suspend the specimen. Place the container on the scale and record its weight.

4) Next tie a thread or string on the specimen and submerge it completely under the water in your container and record that weight of the water filled container with the specimen underwater. Be sure the specimen does not touch the bottom or sides of the container and the specimen is completely immersed.

What the procedure does is find the weight of the equivalent volume of water for the specimen. All we need to do is subtract the weight found in step 4 from the weight found in step 3. Then we take that number and divide it into the weight found in step two.

As a formula, here is what it looks like:

$$\frac{\text{Scale weight in air}}{\text{Weight specimen in water container minus weight of water container}} = \text{Density}$$

For example, our unknown specimen weighed 43 grams in air. The water filled container weight was 93 grams and the container with the specimen suspended had a weight of 105 grams.

$$43/(105-93) = 43/12 = 3.583$$

We have 43 grams divided by the 105 grams minus 93 grams which is 43 divided by 12 and that equals 3.58. Therefore the specimen is likely topaz rather than phenacite or beryl, because the

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specimen is much more dense than phenacite or beryl. Topaz has a specific gravity that ranges from 3.4 to 3.6, but phenacite and beryl are less dense with specific gravities of only 2.69 to 3.0. The unknown mineral had a distorted crystal form that made the identification tricky but the measurement of density made the final identification easy and conclusive.

Editor's note: Richard Kawamoto tells me that a cheap, efficient specific-gravity balance is available at the Colorado School of Mines bookstore.



Specimen tested in the above experiment.

John Rakowski



Merry Christmas/Happy Hanukkah/Merry Kwanza! (diopside and rhodochrosite, commons.wikipedia.org)

Lake George Gem and Mineral Club

Box 171

Lake George, Colorado 80827

LGGMclub.org

2015 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 15 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 ___ Crystals ___ Micromounts ___
Other _____

I would be willing to give a talk to the Club or Pebble Pups. ___ If yes, what topic?:

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 Suz Core (719) 689-2092.

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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 2014 are:

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