

Lake George Gem & Mineral Club

# Club News, March, 2023



**Dues are Due...Please go to our website ([www.lggmclub.org](http://www.lggmclub.org)) to pay online, or return the membership application at the end of this newsletter. Dues are still \$15 for an individual or \$25 for a family and must be paid no later than March 31.**

**The March meeting will be held at the Lake George Charter School at 10AM on March 11.**

**Laura Canini will talk about some of her collecting adventures.**



At the March meeting, Laura Canini will tell us about her journey from finding her first creek tumbled crystal in 2007, to becoming an avid and experienced collector. She will give pointers on how to “play to win”, or, in other words, tips beginner hobbyists can use to gain knowledge and experience to expand their collecting and enjoyment of the hobby. She will share some of the ways she learned to locate specimens, such as classes, presentations, and field trips, and hit or miss prospecting adventures, books, museums, and people for resources. She will touch on digging etiquette, locating claims, basic tools, and mineral identification.

**This presentation is geared towards new hobby collectors who don't know how to get started or want to learn more**, and will be followed in April by **Bob Carnein's** mineral identification class, and in May by **John Rakowski's** Rockhounding Basics class and field trip (weather permitting). Experienced collectors are encouraged to attend to help with questions and hopefully meet new members.

Good specimens are very rarely laying on the trail, so come and learn how to “play”!

☹☹ We had to cancel the February meeting because Frank and Ellie Rosenberg were both “under the weather”. We hope to re-schedule the Rosenbergs for a future meeting.

**Lake George Gem & Mineral Club**

**February, 2023**

Please plan to attend the following Lake George Gem & Mineral Club meetings. Watch the newsletter for more information, and **think about volunteering to give a presentation**. Presentations listed are tentative:

- April: **Bob Carnein** will present the “short” version of his “Basics of Mineral Identification” class. Bring your unknowns! Winter’s almost over—get ready by improve your mineral ID skills.
- May: **John Rakowski** will give his “Rockhounding 101” talk, in preparation for a visit to the Patience and Piety claims. Come prepared!
- June: **Bob Carnein** will talk about the rocks and minerals of the Gold City claims, in preparation for 4 trips, starting after the meeting.
- We hope to have a report on the new dinosaur find near Cañon City at the July meeting.
- **Markus Raschke** will give a talk (not yet scheduled, but probably this fall) on his adventures tracking down a world-class scheelite-beryl-cassiterite deposit in the Tibetan Plateau of China.
- **Paul Combs** has offered to talk about he and his wife’s travels to Kenya and the African Rift Valley, probably sometime this fall.

↘ **ADDITIONAL COMING EVENTS OUTSIDE THE LGGM CLUB:** (Nearby gem, mineral, fossil, and geology events that you may enjoy.)

- **Cañon City Geology Club** meets on the 2<sup>nd</sup> Monday of the month at 6PM in the United Methodist Church, Cañon City
- **Columbine Gem & Mineral Society**, meets on the 2<sup>nd</sup> Thursday of each month, 6:30PM in the meeting room, Mt. Shavano Manor, 525 W. 16<sup>th</sup> (at J St.), Salida
- **Colorado Springs Mineralogical Society**, meets on the 3<sup>rd</sup> Thursday of each month at 7PM in the Mt. Carmel Veteran’s Service Center, 530 Communication Circle, Colorado Springs;
- **Pueblo Rockhounds**, meets on the 3<sup>rd</sup> Thursday of each month at 6:30PM in the Westminster Presbyterian Church, 10 University Circle, Pueblo.

↘ Thanks to **Pete Modreski** for sending the following event announcements:

**Tues., Mar. 7, 7:00 p.m.**, a special “short-fuse” Colorado Scientific Society presentation via Zoom only, “**The Feb. 6, M 7.5 Ekinözü, Turkey earthquake**”, by Mike Cosca, U.S. Geological Survey. All are welcome to join in; see the CSS website, <https://coloscisoc.org/> for more information and the Zoom link to be posted. A specially arranged presentation because of the recent earthquake; Mike has been studying tectonics in this part of Eurasia!

**Thurs., Mar. 9, 7:00 p.m.**, Friends of Mineralogy, Colorado Chapter, bimonthly meeting, “**A tour of the 2023 Tucson Gem and Mineral Show**”, by Pete Modreski. Pete will give a narrated photo tour of “everything that happens” at the Tucson shows, after having returned from this, near as he can count, the 50<sup>th</sup> consecutive Tucson Show he has been at! All are welcome to attend, either in person (Berthoud Hall room 109, CSM campus) or via Zoom; see <https://friendsofmineralogycolorado.org/> for the Zoom link, to be posted.

**Tues., Mar. 14, 7:00 p.m.**, Colorado Scientific Society monthly meeting, **Ancient rivers of Western Colorado**, by Andres Aslan, Colorado Mesa University. At **Golden Calvary Church, 1320 Arapahoe St, Golden, CO** (entrance off 14<sup>th</sup> St, enter main glass doors and through building following the CSS signs to the meeting room). Social time begins at 6:30. All are welcome; see <https://coloscisoc.org/> for more info. **Please note that this month’s meeting will be on a Tuesday, not on Thursday as is usual.**

**Fri.-Sun., Mar. 24-26, Fort Collins Gem & Mineral Show**, (Friday, 4-8 p.m.; Saturday, 9 a.m. - 6 p.m.; Sunday, 10 a.m. - 4 p.m.) at The Ranch/Larimer County Fairgrounds in the Thomas M. McKee Building, Loveland, Colorado. The Ranch, 5280 Arena Circle, Loveland, CO. Free parking, paid admission to show. See <http://www.fortcollinsrockhounds.org/index.shtml> .

**Sat.-Sun., Mar. 25-26, WIPS** [Western Interior Paleontological Society] “Founders Symposium”, **Mammals! From Mini to Megafauna**, Colorado School of Mines Green Center, 924 16th St, Golden. “Learn about the evolution of our furry ancestors before and after the asteroid impact that changed the world.” Register for one or both days; see <https://www.westernpaleo.org>. Registration includes: In-person at the Colorado School of Mines; attend for one day or two days; hear talks by expert speakers; poster session, exhibits and displays; art show and sale featuring paleo-themed works; evening reception with refreshments (Saturday, March 25); printed program with speaker abstracts.

Virtual option via Zoom: Attend for one day or two days; hear talks by expert speakers online PDF of program with speaker abstracts.

Registration fees: Two days – \$120 (in-person or virtual); One day – \$70 (Saturday or Sunday); Two days for students – \$25; Two days for educators (K-12 and post-secondary educational institutions) – \$25

**Fri.-Sun., Apr. 7-9, Colorado Mineral and Fossil Spring Show**, Crowne Plaza Hotel DIA, 15500 E. 40<sup>th</sup> Ave., Denver. See <https://www.coloradomineralandfossilshows.com>. Free admission; 10-6 Fri. & Sat., 10-5 Sun.

**Thurs., April 20**, 7:00 p.m. (social time, 6:30), Colorado Scientific Society Emmons Lecture and April Meeting, **When the Colorado Ran North – Tracking Zircons from Arizona to the Labrador Sea**, by Jim Sears, University of Montana. In-person + Zoom meeting; all are welcome to attend. At **Golden Calvary Church, 1320 Arapahoe St, Golden, CO** (entrance off 14<sup>th</sup> St.)

**Sat.-Sun., Apr. 22-23, Southern Colorado Gem and Mineral Show**, Pathfinder Regional Park & Event Center, Florence, CO. “Earth Day weekend”. This is a new gem and mineral show to Colorado, just now being organized.

See <https://socorockandmineralshow.com/> or [www.facebook.com/socorockshow](http://www.facebook.com/socorockshow) for more info (forthcoming).

**Thurs., Apr. 27**, 2:00-3:00 p.m., Denver Museum of Nature & Science, Earth Science Colloquium, **Paleontology in the east: New discoveries from the Upper Triassic of Virginia**, by Adam Pritchard, Virginia Museum of Natural History. *In the VIP Room; in-person only, all are invited, Museum admission not required; check in at the Security Post.*

**Sat. May 6, Colorado Mineral Society Silent Auction**, at Wheat Ridge United Methodist Church, 7530 W. 38<sup>th</sup> Ave., 11 a.m. – 4 p.m.; see <http://www.coloradomineralsociety.org/> for details. All are welcome to attend, bid, and bring specimens to sell.

**Thurs., May 11**, 2:00-3:00 p.m., Denver Museum of Nature & Science, Earth Science Colloquium, **Does size matter? What brachiopods tell us about evolutionary rules**, by Judi Sclafini (UC Santa Cruz). *In the VIP Room; in-person only, all are invited, Museum admission not required; check in at the Security Post. \*P.S., Just noticed, the DES Colloquium date in the attached schedule says Tuesday May 11, that day & date don't match; May 11 is probably correct, as given on this DMNS-DES web page for the 2023 colloquium schedule: <https://sites.google.com/view/dmnsdes2020colloquiumschedule/home>.*

**Thurs. May 11**, 7:30 p.m., **Friends of Mineralogy May meeting**, in person in Berthoud Hall 109 + by Zoom, topic TBA. See <https://friendsofmineralogycolorado.org/> for an update.

**Thurs., May 18**, 7:00 p.m. (social time, 6:30), Colorado Scientific Society May meeting, **North American Stress and Strain**, by Jens Lund Snee, US Geological Survey; and, **Pacific Northwest Neotectonics**, by Katherine Alexander, US Geological Survey. In-person + Zoom meeting

**Fri., May 19**, 2:00-3:00 p.m., Denver Museum of Nature & Science, Earth Science Colloquium, **Geology of Grand Mesa, Colorado**, by Rex Cole, Colorado Mesa Univ. *In the VIP Room; in-person only, all are invited, Museum admission not required; check in at the Security Post.*

**Sat., May 20**, 12 noon – 4 p.m., **Friends of Mineralogy Silent Auction**, Wheat Ridge United Methodist Church, 7530 W. 38<sup>th</sup> Ave. All are welcome to attend, bid, and/or bring specimens to sell (minimum 20% donation to FM). See <https://friendsofmineralogycolorado.org/>.

**Mon., June 5**, 2:00-3:00 p.m., Denver Museum of Nature & Science, Earth Science Colloquium, **The Dead Sea: Past, present and future**, by Ittai Gavrieli, Israeli Geological Survey. *In the VIP Room; in-person only, all are invited, Museum admission not required; check in at the Security Post.*

**Fri.-Sat.-Sun., June 9-11, Pikes Peak Gem, Mineral, and Jewelry Show**, sponsored by Colorado Springs Mineralogical Society, Norris Penrose Event Center, 1045 Lower Gold Camp Road, Colorado Springs. Fri. noon-7 p.m., Sat. 10-5, Sun. 10-4. Admission \$5 per day, \$8 for multiple days, 12 and under free.

✚✚ Mineral-show coordinator **Carol Kinate** reports that planning for our annual August show has begun. Here's her report:

**SAVE THE DATE – AUGUST 18-20, 2023 (LGGMC Annual Show)**

**A Word** from your Show Chair – I'm continuing the process of seeking additional help with this year's Annual Show. Currently **ALL** positions (listed below) could use **extra help** or you could **be in charge of a particular task** to make our annual show a success. My contact information is listed below.

- ❖ **Volunteer Coordinator** (establishing **shift assignments** – 2-hour shifts/various shifts needed during the 3 days); Kids activities – 2-hour shifts
- ❖ **Field Layout** (marking of field the weekend prior to show immediately after the monthly meeting)
- ❖ **Signage** (installation/takedown of signage – currently 7 locations)
- ❖ **Publicity** (handling of different forms of advertising for our annual show)
- ❖ **Kids Activities** (ideas and time promoting this particular area)
- ❖ **EXTRA ROCKS** that you are willing to part with for "Kids Activities" and "Information Table"

\*\*\* **"2023" ANNUAL SHOW POSTCARDS AVAILABLE at MARCH MEETING** \*\*\*

Any questions regarding the above requests can be answered by email/text below. I know that many of our members belong to other clubs, which could benefit our club. We're always looking for **NEW** ideas with the intent for improvement.

Thank you for your time and consideration. Please contact me with any questions whatsoever. Looking forward to a **GREAT** show!

Carol Kinate, Show Chair  
[kinatec@aol.com](mailto:kinatec@aol.com)  
719-648-9015 (call/text)

✚✚ **Dave Alexander**, our field-trip program leader, sent the following note about signing up for trips:

I have seen many questions and wanted to provide some guidance on signing up for field trips. Thanks for everyone who has been sharing our process with members too!

**Lake George Gem & Mineral Club**

**February, 2023**

1. We do all trips registrations through our event website. This is because it handles waitlists and communications automatically, greatly reducing the time volunteers need to spend on these tedious tasks.
2. The field trips are typically available for EARLY registration at club meetings. We have yet to fill up a trip at a club meeting (although we've gotten really close several times), so this is a sure way to get on the trip(s) you desire. We will bring the field trips in the forthcoming 4-6 weeks to the general meeting for early sign-up. For example, the May 13th meeting will likely have all trips from May 20 - June 17ish. For each of these trips, the coordinator will take the meeting sign-up sheet and get those members signed up. Then we'll open it up for website registration soon after the meeting (typically the following Monday). Make note of the date the registration is available on the website, and mark your calendars if you can't make the general club meeting. We do our best to make this fair and simple, but coordinating takes some effort. Scheduling isn't always simple, so check back often as the schedule is subject to change prior to registration commencing!
3. Early in the season we post all trips we INTEND to have, but please note that the dates are subject to change and the list of events will likely grow as the season unfolds, and some events may be removed/cancelled for various reasons. For example, the Dorris Claims dates are never available to clubs until they put their annual mining schedule together, which could be March/April/May timeframe. Sometimes these marquee events collide with already scheduled events, and we may change the dates on several events to fit everything into a nice schedule. We add tentative events early so that folks searching which clubs to join for the year can see our intended list of events on our website. So, dates may change, especially early in the planning process.
4. We have a variety of levels of difficulty of our trips. PLEASE read this carefully. Some trips have hikes and terrain that may not be for everyone. Some trips require serious digging and/or rock removal that isn't for the casual gatherer. Some places are not good for young children while others are VERY family friendly. We try to keep everyone safe, but **it's up to each member to know their own health and ability and to ask questions PRIOR to the day of the trip.** You can use the Contact Trip Leader feature of each event to ask these types of questions.
5. **Please read the Club's Field Trip Rules and Code of Ethics at least once per season.** These are located on the Club Events page of our registration website.

--dave



Here are a few interesting links that you might enjoy:

- From "Rock and Gem" magazine: Exploring the Montana Dinosaur Trail; evidence for Ice Ages; and southwestern Ohio trilobites:

<https://mail.google.com/mail/u/0/?tab=rm&ogbl#inbox/FMfcgzGrcjSTmbnqCITRvxnkrikbVsnC>

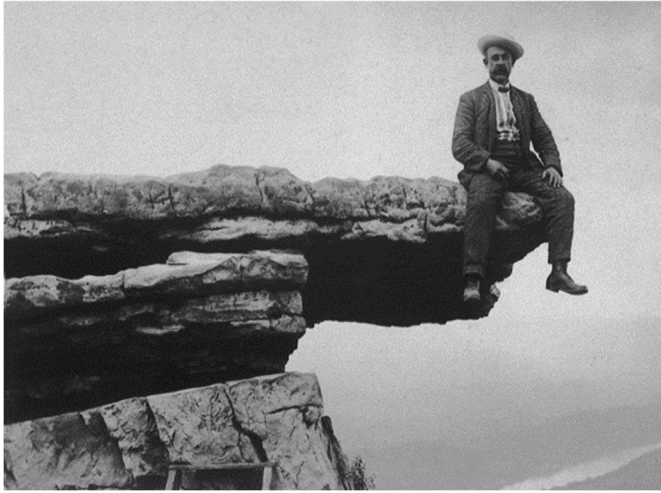
- **Paul Combs** sent this link to an article about the East African Rift and the future development of a new ocean:

<https://allafrica.com/stories/20230200392.html>

- From RockSeeker.com, this article on where to find opal in the U.S.:

[https://www.rockseeker.com/best-places-to-find-opal/?ck\\_subscriber\\_id=1874913717&utm\\_source=convertkit&utm\\_medium=email&utm\\_campaign=Opal+hunting+hotspots%2C+pearls%2C+bezels+and+a+dog+%20-%2010093154](https://www.rockseeker.com/best-places-to-find-opal/?ck_subscriber_id=1874913717&utm_source=convertkit&utm_medium=email&utm_campaign=Opal+hunting+hotspots%2C+pearls%2C+bezels+and+a+dog+%20-%2010093154)

👇👇 FYI: We didn't receive any "Bench Tips" from Brad this month.



## Notes from the Editor

**Bob Carnein**

**Newsletter Editor**  
**ccarnein@gmail.com**

LGGMC member **Steve Veatch** sent an interesting article from his new home state of Michigan. Thanks Steve!

### **Gowganda Tillite: Evidence for an Early Proterozoic Continental Glaciation by Steven Wade Veatch**



**Figure 1.** The Gowganda tillite is composed of sediment that was deposited by a glacier and later cemented to form a rock. Its pink clasts make it distinctive. Gowganda tillite is among the oldest rocks on Earth—about 2.3 billion years old. This specimen is from the outer limits of the city of Gaylord in Otsego County, Michigan. From the collection of S. W. Veatch. Photo by S. W. Veatch.

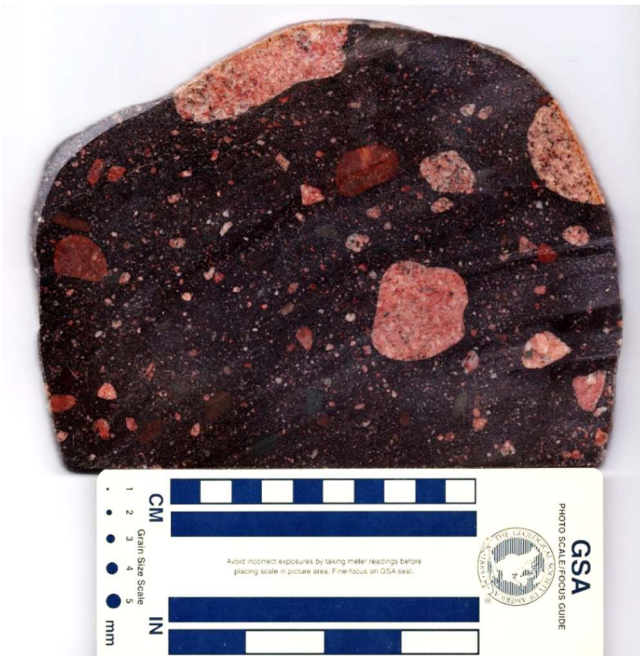
Gowganda tillite (figure 1) is lithified glacial till (sediment deposited by glacial ice) from a Precambrian glaciation event that occurred over two billion years ago. Glacial till was buried, and over time, it lithified or turned into rock (tillite). Billions of years later, glaciers from the last Ice Age moved fragments of Gowganda tillite from their source location in Canada and dropped them onto the Michigan landscape as the climate warmed and the ice melted. Their pink clasts make them distinctive. This is only one of several Precambrian tillites found in the glacial drift of Michigan. The Gowganda and other tillite deposits in North America provide a rock record of the continental glaciation that occurred during the Early Proterozoic (Lindsey, 1969; Young and Nesbit, 1985, Crowell, 1999).

Geologists are now convinced that widespread glaciation occurred throughout the Early Proterozoic Era, based on at least 300 Precambrian sites, including Finland, South Africa, India, and Australia, that have tillite or deposits that resemble tillite (Wicander and

Monroe, 2016). Five more major periods of widespread glaciation followed the Early Proterozoic (see table 1).

1	Late Cenozoic glaciation: began 33.9 million years ago at the Eocene-Oligocene Boundary and is ongoing
2	Late Paleozoic ice ages 338 to 256 million years ago
3	Late Devonian-Early Carboniferous ice ages, two short episodes between 353 to 363 million years ago
4	Ordovician-Silurian ice ages 429 million years ago to 445 million years ago
5	Late Proterozoic ice ages ~ 520 million years ago to 950 million years ago
6	Early Proterozoic ice ages ~ 2.2 to 2.4 billion years ago
7	Archean glaciation ~ 2.91 to 2.99 billion years ago

The source of Gowganda tillite is the Gowganda Formation which forms part of the Huronian Supergroup of Precambrian sedimentary rocks exposed in central Ontario, stretching from Lake Superior to Quebec (Lindsay, 1969; Eyles and Young, 1994). Radiometric dating places the age of the Huronian Supergroup from 2.1 to 2.5 billion years old (Van Schmus, 1965, p. 769).



**Figure 2.** A sawed section of Gowganda tillite shows dropstones of various sizes. Sorting is completely lacking in most Gowganda tillite. From the collection of S. W. Veatch Photo by S. W. Veatch.

Geologists have interpreted rock fragments in the Gowganda tillite to be the outwash associated with the Early Proterozoic Gowganda glaciers centered southwest of Hudson Bay. Melting ice rafts (calved from ice sheets) dropped these pink granite fragments—from tiny particles to boulder-sized debris—into open water. These pink pebbles fell through the water and settled into fine-grained sediments (Kurtz, 1980). Those sediments likely originated around a glacier's margins (Kesler, 2019). Over time, these sediments were lithified or turned to rock.

After these sediments were lithified, they were carried away, at least two billion years later, by Pleistocene glaciers. After the ice of these last Ice Age glaciers melted, the ancient conglomerates were released onto the landscape, later to be found on beaches and in farmers' fields in Michigan. Scientists have also found Gowganda tillites in Wyoming and Quebec, Canada.

Gowganda tillite (figure 2) is a conglomerate composed of well-rounded to sub-angular, to angular, poorly sorted clasts (granitic and gneissic pebbles dominate) scattered in a tough, massive matrix of coarse to very fine sand and chloritic<sup>1</sup> material (Kurtz 1980). Rounding suggests some history of water transport prior to incorporation into the tillite.

<sup>1</sup>Chlorite is a group of silicate clay minerals occurring in both macroscopic and clay particle sizes; they are hydrous aluminum silicates, usually of magnesium and iron. Chlorites have a silicate layer structure similar to that in micas. Source: *Britannica*.

The Gowganda tillite is one of the most well-known ancient glaciogenic deposits in the world because of its characteristic pink, granite clasts (pebbles) held in a fine-grained gray matrix (Kesler, 2019). Today, the Gowganda tillite—among some of the oldest rocks on Earth—continues to be studied by geoscientists. Samples are also sought after by rock and mineral collectors for their unique combination of unsorted pink pebbles, age, and interesting formation.

**References and further reading:**

Crowell, J. C., 1999, *Pre-Mesozoic ice ages: their bearing on understanding the climate system* (Memoir 192). Geological Society of America.

Eyles, N. and G. M. Young, 1994, Geodynamic controls on glaciation in Earth history, in, *The Earth's Glacial Record*, eds. M. Deynoux, et al, eds: Cambridge, Cambridge University Press, p. 1-28.

Kesler, S. E., 2019, *Great Lakes Rocks: 4 Billion Years of Geologic History in the Great lakes Region*: Ann Arbor, University of Michigan Press.

Kurtz, D. D., 1980, *Stratigraphy and Genesis of Early Proterozoic Diamictites: North America*: PhD Thesis, Huston, TX, Rice University.

Lindsey, D. A., 1969, Glacial sedimentology of the Precambrian Gowganda Formation, Ontario, Canada: *Geol. Soc. America Bull.*, v. 80, p. 1685-1702.

Young, G. M., and H. W. Nesbitt, 1985, The Gowganda Formation in the southern part of the Huronian outcrop belt, Ontario, Canada: Stratigraphy, depositional environments and regional tectonic significance: *Precambrian Research*, v. 29, p. 265-301.

Van Schmus, R., 1965, The geochronology of the Blind River-Bruce Mines area, Ontario, Canada: *Jour. Geology*, v. 73, no. 5, p. 755-780.

Wicander, R. and J S. Monroe, 2016, *Historical Geology: Evolution of Earth and Life Through Time*: Boston, Cengage Learning.

## Monthly Mineral Quiz

### The Monthly Mineral for March (Carnein photos and collection)





The March mineral commonly occurs as excellent crystals and so is another collector favorite. On some specimens, the crystals at first appear to be cubic (isometric) (see center and right photos above), but they're actually tetragonal. They may be platy or elongate. Striations are often visible. Although color is quite variable, most specimens are colorless, white, or green. This mineral looks like it might make a good gemstone, but its hardness is only 4.5 to 5, and it has perfect cleavage perpendicular to the "c" axis, so it's very fragile and easily bruised. The geologic setting for most fine specimens is cavities in basalt lava flows; it's one of the suites of minerals commonly seen in the Indian traps and in the basalt sills of New Jersey, Virginia, and Connecticut. Mindat.org (accessed February, 2023) lists about a dozen Colorado localities, but this is probably an underestimate. North Table Mt., near Golden, and Italian Mt., near Crested Butte, are two examples. What is this common mineral?



**Last Month's Mineral: Rhodonite,  $\text{CaMn}_3[\text{Si}_5\text{O}_{15}]$ .** This attractive mineral occurs at many localities world-wide, but only about 35 of them are in Colorado (Mindat.org, accessed February, 2023). Most of them in the southwest part of the state. Its color varies but is usually some shade of pink or red. In terms of structure, it is related to the pyroxenes, and, as a result, has well developed cleavage. Massive material, used to make cabochons and ornamental stone, comes from a variety of localities world-wide. Fine crystals occur in the defunct zinc deposit at Franklin, NJ (as in the specimen shown), as well as in Peru, Brazil, and Australia (especially the famous Broken Hill lead-zinc-silver deposits in New South Wales). As with other manganese minerals, weathered samples sometimes exhibit a black coating of Mn oxides.

Eckel, E.B., 1997, *Minerals of Colorado, Updated and Revised by R.R. Cobban, et al.*: Golden, Colorado, Fulcrum Publishing.



**The Lake George Gem and Mineral Club** is a group of people interested in rocks and minerals, fossils, geology and history of the Pikes Peak/South Park area, Indian artifacts, and the great outdoors. The Club's informational programs and field trips provide opportunities to learn about Earth science, 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 normally meets on 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 10:00AM. From April through October, we meet at 9:00AM, 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). New memberships and renewals are only accepted Jan 1 through March 31 each year.

### **Our Officers for 2023 are:**

**Richard Kawamoto**, President  
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## Membership Application/Renewal, 2023

Name(s) \_\_\_\_\_ Date: \_\_\_\_\_

Address \_\_\_\_\_ City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Telephone(\_\_\_\_) \_\_\_\_\_ - \_\_\_\_\_; e-mail: \_\_\_\_\_  
(Please print; e-mail address needed to receive newsletter)

Names/ages of spouse/minor members (if family membership) \_\_\_\_\_

Dues for Jan. 1 through Dec. 31 are \_\_\_\_\$15 (individual, 18 and over); \_\_\_\_\$25 (family)

Current year membership renewal and application occurs Jan. 1-March 31, after which membership is closed for current year. Membership list will be purged April 1 for current year.

**MEMBERSHIP MUST BE CURRENT TO PARTICIPATE ON ANY FIELD TRIP OR USE CLUB CLAIM.**

*I agree to abide by Club constitution, by-laws, and rules regarding field trips and Club-claim visits:*

Signed \_\_\_\_\_ Date: \_\_\_\_/\_\_\_\_/\_\_\_\_

Is this a renewal? \_\_\_\_ (yes); \_\_\_\_ (no)

My interest areas include (check all that apply): \_\_\_\_ minerals; \_\_\_\_ fossils; \_\_\_\_ lapidary  
\_\_\_\_ micromounts; \_\_\_\_ Colorado geology; \_\_\_\_ Pebble Pups (ages 7-17); \_\_\_\_ mining history;  
\_\_\_\_ field collecting; \_\_\_\_ crystallography; \_\_\_\_ other (please specify):

I am willing to help with the following: \_\_\_\_ Give a talk at a Club meeting; \_\_\_\_ Give a presentation for  
Pebble Pups; \_\_\_\_ Run for a Club office; \_\_\_\_ Newsletter editor/writer; \_\_\_\_ Local Show/Show Committee;  
\_\_\_\_ Field-trip Planning; \_\_\_\_ Art (member badges); \_\_\_\_ Membership Coordinator; \_\_\_\_ Website  
Assistance; \_\_\_\_ Pebble Pups; \_\_\_\_ Other (be specific) \_\_\_\_\_

*Questions about Club or Activities? Visit our website or contact a Club officer.*