

Club News, September, 2023



Our next meeting will be September 9 at 9AM at the Lake George Charter School. **John Rakowski** will give us a lesson on cleaning this summer's finds. **Also, think about bringing in one or two specimens** for a "show and tell". They can be things you found on field trips or things you just think are interesting—maybe you bought something cool at the show in August. We'd like you to give a short description of why you added it to your collection. Let's get as many participants as we can!

✚✚ At our October meeting, **Dan Mira** will take us on a journey to the beautiful Maramures region of Romania, which lies on the border with Ukraine. Home of numerous mines going back at least to the 14th century, the Maramures region has produced nearly 300 mineral species. Dan will give us an introduction to this historic, mineral-rich area.

- **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.
- Look for a talk this winter by a representative of **Newmont Mining** about their Cripple Creek operation.

✚✚ **ADDITIONAL COMING EVENTS OUTSIDE THE LGGM CLUB:** (Nearby gem, mineral, fossil, and geology events that you may enjoy.) Go to each club's website for more information.

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

✚✚ Thanks to **Pete Modreski** for the following list of upcoming events:
Coming Earth Science Events, July 2023 onward

Denver Museum of Nature & Science, Earth Science Colloquium, *In the VIP Room; in-person only, all are invited, Museum admission not required; check in at the Security Post.*

See <https://sites.google.com/view/dmnsdes2020colloquiumschedule/home> ; Here is the DES Colloquium schedule for all the colloquium talks for the rest of the year:

Thurs., Sept. 21, 6:00 p.m., Colorado Scientific Society Past Presidents' Dinner; presentation by **Monte Swan**, MagmaChem Associates, LLC, topic title TBA ; in-person dinner meeting at Mount Vernon Canyon Club, Lookout Mountain, Golden; see <https://coloscisoc.org/> for details. All are welcome.

Thurs, Oct. 19, 7:00 p.m., Colorado Scientific Society October meeting, **Permafrost and Melting in the Arctic**, by Denny Capps, Denali Park and Preserve Chief Geologist; in-person meeting at Calvary Church Golden; see <https://coloscisoc.org/> for details. All are welcome.

Thurs., Nov. 16, 7:00 p.m., Colorado Scientific Society November meeting, **Colorado Structural Evolution**, by Lonn Abbot, University of Colorado; in-person meeting at Calvary Church Golden; see <https://coloscisoc.org/> for details. All are welcome.

Thurs., Dec. 14, 6:00 p.m., Colorado Scientific Society, December Annual Meeting, Potluck Dinner and Presidential Address, Cal Ruleman, US Geological Survey (presentation title TBA); in-person meeting at Calvary Church Golden; see <https://coloscisoc.org/> for details. All are welcome.

There are a lot of “rock” (gem and mineral) shows taking place this summer, most of them “outdoors, in tents” and with free admission. Here is a list; have fun!

Sept. 7-11, Just Minerals & Crystals Event, Summit Conference & Event Center, 411 Sable Blvd., Aurora/Denver (free admission).

Sept. 8-16, Colorado Mineral and Fossil Show, at the Crowne Plaza DIA, 15500 E 40th Ave., Denver (free admission).

Sept. 8-17, Denver Mineral, Fossil, Gem & Jewelry Show, at National Western Complex and Denver Coliseum (free admission).

Fri.-Sat.-Sun.-Mon., Sept. 15-18, Denver Gem and Mineral Show; part of the “Hardrock Summit” mineral and gem show, at the Colorado Convention Center. The 2023 theme is “Gem Minerals: Nature’s Bling”. Sponsored by the Greater Denver Area Gem & Mineral Council, it will include displays and demonstrations by area gem and mineral clubs plus special museum displays from around the country (admission charge).

▼▼ Here’s a note from **Carol Kinate** about our August show: **MESSAGE** from your Annual Show Chair - Our “2023” Annual Show was a success thanks to many of our Club members (*several new faces*) stepping forward and volunteering to man the Parking, Club Host Tent, Kids Activities, and the Show set-up/tear down. Also, a **BIG** Thank You to several of our members who filled in wherever needed (you know who you are) all weekend. **THANK YOU!**
Carol Kinate, Show Chair

▼▼ Show season is reaching its climax in September, with the Denver extravaganza. Don’t miss it!

**America’s Largest
Mineral, Fossil, Gem
& Jewelry Show**

**National Western
Complex**

FREE Entry & Parking

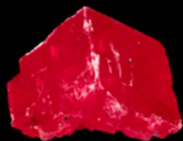
www.Denver.Show

JGM EXPO

The Colorado Mineral & Fossil Fall Show and JG&M Expo are partnering up this year during the 2023 Denver Mineral & Fossil Showcase.

Join us at the Crowne Plaza DIA Convention Center in Denver, Colorado
SEPTEMBER 8-16, 2023
www.rmgmpromotions.com

Colorado Mineral & Fossil Fall Show
September 8-16, 2023
Crowne Plaza DIA
15500 E. 40th Ave, Denver, Colorado 80239



Grand Junction
Gem & Mineral Club
P.O. Box 953
Grand Junction, CO 81502

Grand Junction Gem & Mineral Club Presents
The 2023 Fall Gem & Mineral Show
September 23 & 24 • Sat 9-5; Sun 10-4

POSTAGE



Mesa County Fairgrounds
2785 Hwy.50, Grand Junction, CO
www.grandjunctionrockclub.org

Please post on your
bulletin board!
Thank You.

Silent Auctions All Day • Displays & Demonstrations • Geodes • Tools & Equipment • Finished Stones

Grand Junction Gem & Mineral Club presents
77th Annual Gem & Mineral Show!

September 23 & 24, 2023;
Sat 9-5; Sun 10-4

Entry \$5, Seniors & Military \$4;
Kids under 12 Free



Mesa County
Fairgrounds,
Grand Junction, CO

World of Rocks

One of the Largest Shows in Western Colorado and Eastern Utah

Kids Activities • Mineral Specimens • Showcases • Beads & Gems • Jewelry • Interactive Exhibits • Fossils

the
**JUST
& MINERALS
& CRYSTALS**
Event

Summit Conference & Event Center, 411 Sable
Blvd., Aurora, Colorado 80011

September 7, 2023: 2 pm - 7 pm

September 8-10, 2023: 10 am - 5 pm

September 11, 2023: 10 am - 4 pm

**HARD
ROCK
SUMMIT**
DENVER

The Fall Show for
the finest minerals, fossils,
gemstones & jewelry

SEPTEMBER
15 – 18 2023



Colorado
Convention Center

↘↘ Field-Trip Guru **Dave Alexander** sent this report on past and future trips.

Lake George Gem & Mineral Club

August, 2023

Upcoming trips

We have added several trips recently and may add a few more. Check our website for the full list.

2024 Planning

As this season winds down, there are only a couple of months before membership registration opens for 2024 (January - March). When making decisions on which clubs to join, potential members look to the events that are being planned by the clubs that are published on their websites. Thus, we will need to start planning a schedule of events (even if dates and reservations are not finalized) prior to January.

The club is looking for volunteers to help in coordinating events. I will continue to participate in the coordination process next year, but I need assistance. You can see the descriptions of volunteer roles that make our field trip events happen on our field trip website. <https://fieldtrips.lggmclub.org/club-events>. Reach out to me if you'd like to assist or have questions. dave@davealex.com

👉 Here's a shout out for all the hard work that went into this year's show, which attracted about 1300 people. Many thanks to **Sharon Holte**, who lined up 17 excellent dealers, and to **Carol Kinate**, who organized dozens of helpers. And, of course, we appreciate **you** for your help and patronage. Thanks, also, to **Frank Rosenburg** for these great photos:





Crystal Systems and Examples / Kristallsysteme und Beispiele

cubic kubisch						
tetragonal						
hexagonal trigonal						
rhombic rhomboisch						
monoclinic monoklin						
triclinic triklin						

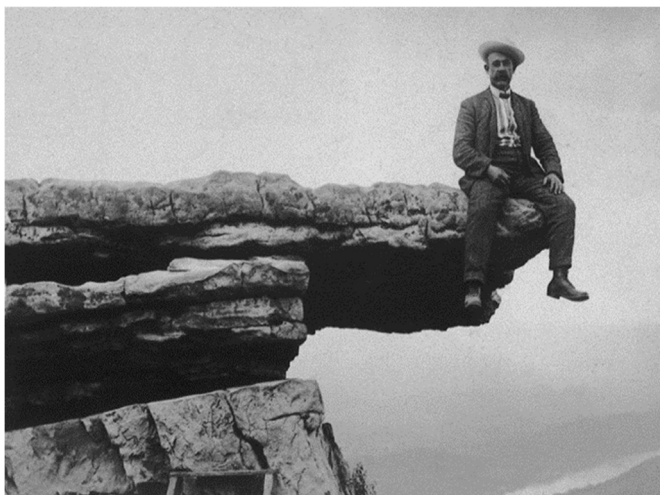
Have you always wanted to learn some basic crystallography to help with your mineral-identification skills? Here's your chance. **Bob Carnein** will offer a 2-hour "**Basics of Crystallography**" class to 10 Club members on a "first come, first served" basis. This hands-on class will make use of Bob's extensive crystal collection and his years of experience teaching crystallography to geology students. If you are interested, email Bob at ccarnein@gmail.com. If there are enough interested Club members, he will find a time and place to do the class. There will be a \$10 fee to cover costs, and handouts will be provided.

If you're confused about the different kinds of garnet, **Rock and Gem** magazine has just the help you needed. Check out this article: https://www.rockngem.com/the-garnet-family-spanning-the-spectrum-of-mineralogy/?fref=e792c5e3-518b-4896-b8ed-0ce2a1b1de46&em=Y2Nhcm5laW5AZ21haWwY29t&utm_campaign=RnG+Weekly+Aug+24_2023

Also from Rock and Gem, this article talks about hunting for diamonds and topaz in Australia: https://www.rockngem.com/on-the-hunt-for-topaz-and-diamonds/?fref=6706973e-958d-4d0a-86b3-004d4514aa57&em=Y2Nhcm5laW5AZ21haWwY29t&utm_campaign=RnG+Weekly+Aug+24_2023

Have you seen "TV stone" at a mineral show? **Rock Seeker** sent this interesting article about this bizarre type of ulexite: https://rockseeker.com/ulexite/?ck_subscriber_id=1874913717&utm_source=convertkit&utm_medium=email&utm_campaign=Ulexite+%28TV+Stone%29%3A+The+Mineral+That+Can+Transmit+Images%20-%2011503082

Although I didn't receive any "Bench Tips" from Brad this month, Rock Seeker also sent this link that deals with rock tumbling: <https://rockseeker.com/can-any-rocks-go-in-a-rock-tumbler/>



Notes from the Editor

Bob Carnein

Newsletter Editor

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Each year, judges from the American Federation of Mineralogical Societies rate submissions from editors of Club newsletters all over the United States. This year, several submissions from the Lake George Gem & Mineral Club earned awards. They are:

- **Paul Combs** Third Place, Adult Articles: “Excuse me, your watch is .002 seconds off”
- **Bob Carnein** Seventh Place, Adult Articles, Advanced: “‘Other’ minerals of the Sweet Home and Detroit City mines”
- **Steven W. Veatch** Eighth Place, Adult Articles, Advanced: “Independence, a town of troubles in the Cripple Creek Mining District
- **Steven W. Veatch** Sixth Place, Adult Poetry, “Underground”

Congratulations to our winning writers!

I started out my mineral collecting obsession at the world-famous zinc deposits of Franklin and Sterling Hill, NJ. This has remained a focus for my collecting habit for over 65 years. You may wonder why. Here’s the first part of a 2-part article I wrote about that locality and why it’s so important to me and others.

Still Crazy (About Franklin) After All These Years (Part 1)

C.R. (Bob) Carnein

Introduction. Although mining ended in 1986, the zinc deposits of Franklin and Sterling Hill, NJ, continue to excite the interest of geologists, mineralogists, mineral collectors, and industrial historians and archeologists, both in the U.S. and worldwide. Many of us received our first exposure to minerals at one of Franklin’s mineral museums or mine dumps (the writer in the summer of 1954). The obvious appeal of fluorescent minerals (of which King, *et al.* [2021] reported 125 in 2022; Fig. 1) sometimes obscures the fact that Franklin’s complex geologic history has cranked out at least 407 valid minerals (Mindat.org, accessed August, 2023) (for which the district is the type locality of 70) over 1.3Ga (billion years) of terrestrial chemical recycling. The result is certainly one of the most diverse mineral assemblages on any planet in our solar system. Research continues to uncover new minerals there, and a massive, 3-volume book project, recently completed (King, *et al.* 2021), should prove to collectors that non-fluorescent Franklin minerals aren’t all obscure microscopic coatings and homely brown lumps.

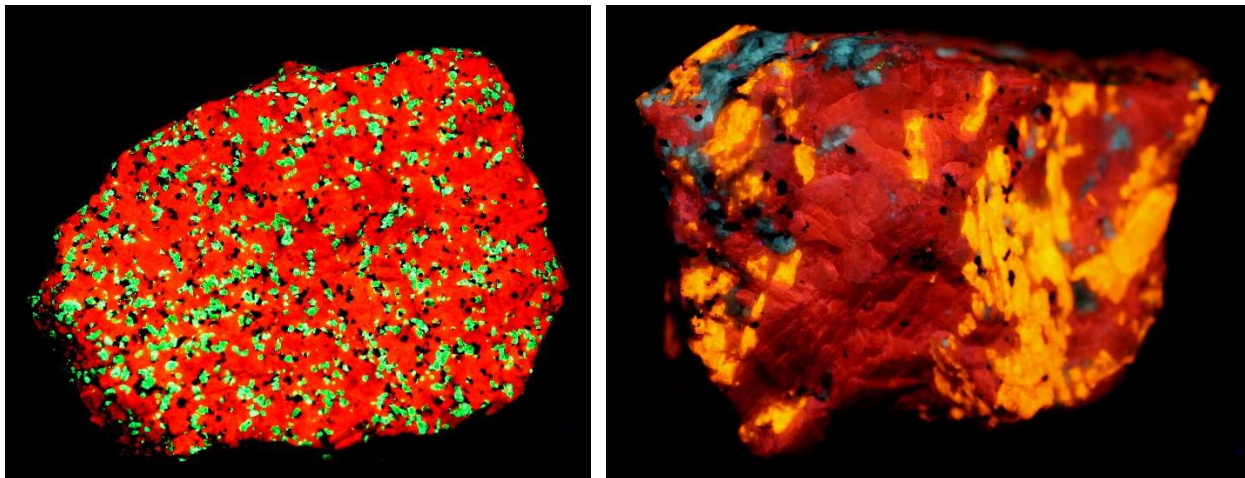


Figure 1. (left): Calcite (red) and willemite (green) in SWUV; (right): Calcite (reddish pink), wollastonite (yellow-orange) and barite (blue) in SWUV; both from Franklin. CRC photos and collection.

Franklin and Sterling are the two most famous of more than a dozen mines comprising the Franklin mining district of Sussex County, in northern New Jersey (Fig. 2). The district’s mines, all of which are

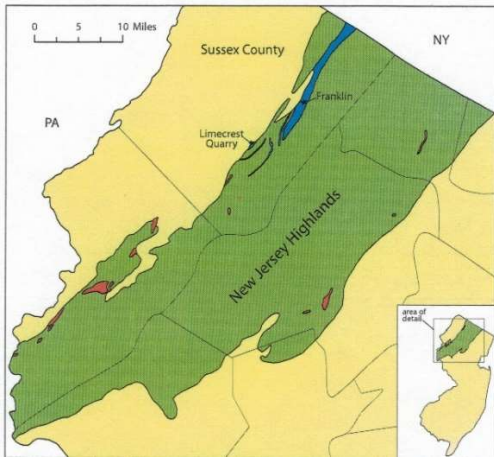


Figure 4. New Jersey Highlands; blue is Franklin Marble. (Volkert and Witte, 2018)

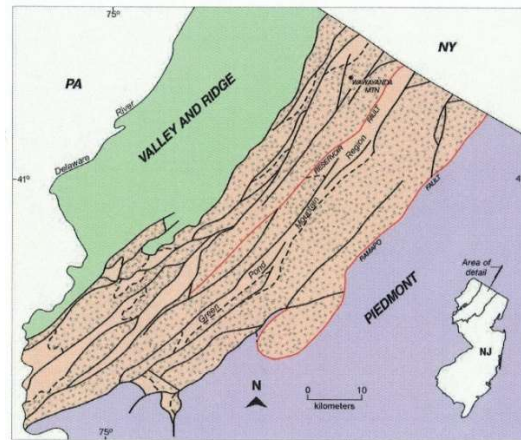


Figure 5. Faults of the New Jersey Highlands section of the Reading Prong. (Volkert and Witte, 2018)

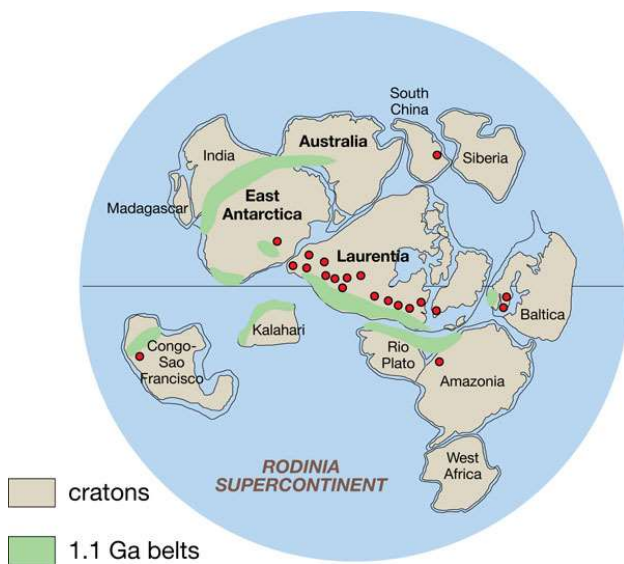


Figure 6. Reconstruction of the supercontinent Rodinia about 750 million years ago. Note: Laurentia is proto-North America; green belts are 1.1 billion-year-old mountain systems. (Wikipedia, accessed August, 2023)

Stratigraphy. The rocks in the vicinity of Franklin and Sterling Hill are a high grade sequence of Mesoproterozoic (Precambrian Y; approximately 1.3Ga) metasedimentary and metavolcanic rocks, unconformably overlain by Lower Cambrian clastic sedimentary rocks (the Hardyston Quartzite) and Cambro-Ordovician carbonate rocks (the Kittatinny Dolostone) (Fig. 7, 8). In northern New Jersey, the metamorphic section begins with the Losee Suite (~1.35Ga), consisting of a basal unit of metamorphosed spilites and other metavolcanic rocks (interpreted as former oceanic crust) overlain unconformably by metasediments thought to have formed along the east edge of the Laurentian craton (Fig. 6). Overlying the Losee Suite are quartz- and feldspar-rich metasediments (locally containing clasts derived from the Losee Suite) (the Hamburg Mountain Gneiss series); the lower Franklin Marble; a biotite-quartz-plagioclase gneiss (the Median Gneiss); and the upper Franklin Marble (which hosts the zinc deposits) (Fig. 8). The top of the metamorphic sequence is a thick (up to about 1300 m) section of younger gneisses (Cork Hill and Pochuck Mountain Gneiss series), separated by a relatively thin marble (the Wildcat Marble), which is lithologically similar to the Franklin Marble. All of these rocks underwent high grade metamorphism and intrusion by comagmatic, synkinematic, granitoid gneisses (Byram Gneiss and Lake Hopatcong Intrusive Suite) at about 1.09Ga. To the north, the whole sequence is cut by the Mt. Eve Granite, which, at 1.02Ga, represents the youngest Grenville unit in the area.

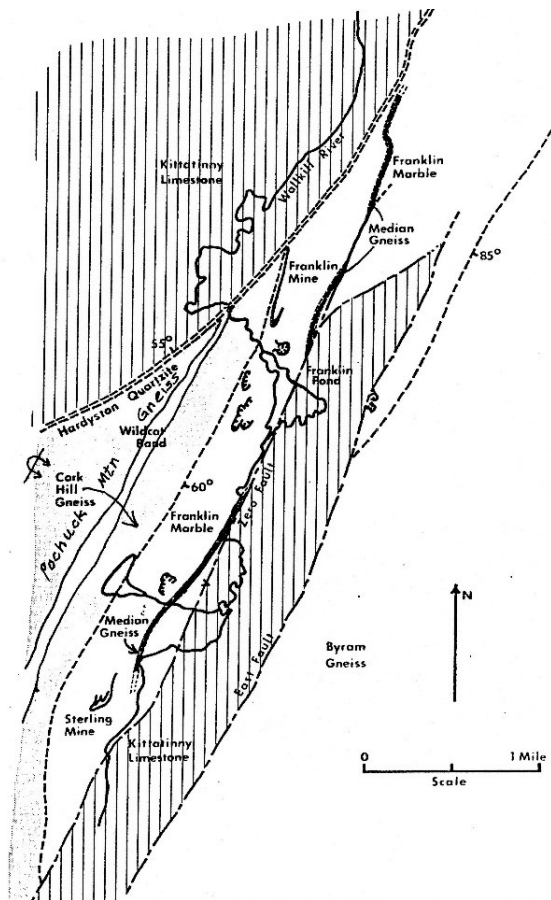


Figure 7. Generalized geology, Franklin/Sterling area. (modified from Pinger, 1950)

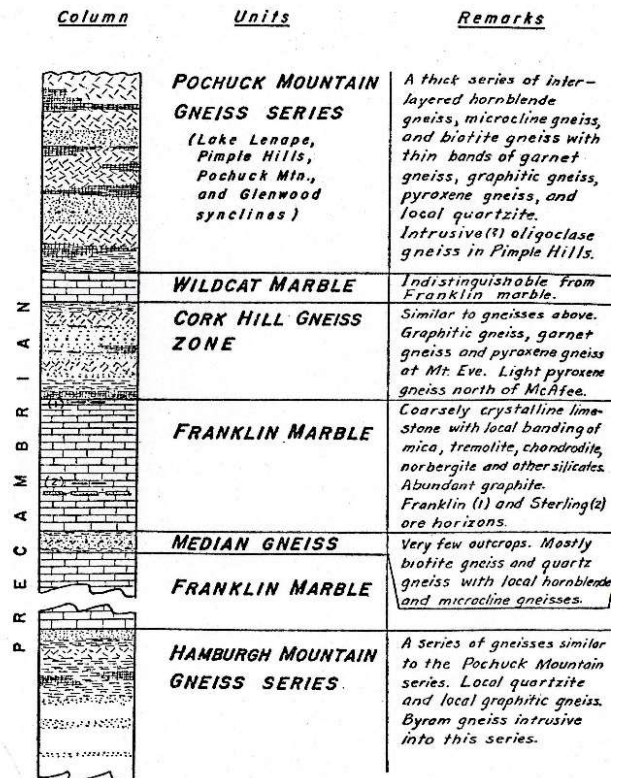


Figure 8. Stratigraphy, Mesoproterozoic rocks. (Hague, et al., 1956)

The stratigraphic section described above can be interpreted as (1) metamorphosed oceanic crust (lower Losee complex) overlain by (2) a sequence of continental-margin (shelf) sediments and graywackes (upper Losee complex, Franklin Marble, Median Gneiss, Cork Hill Gneiss, Wildcat Marble, and Pochuck Mountain Gneiss). It also contained what some workers interpret as rare, exhalative metal rich sediments that accumulated in at least two locations as dense Red-Sea-type brines in the upper Franklin Marble. The latter became the two zinc deposits.

The whole sequence is on the order of 2000 to 3000 m thick and probably represents a wedge of sediments built eastward from ancestral North America. Sediments of volcanic origin were involved, but it is unclear whether volcanism occurred in a discrete arc separated from the continent by an oceanic back-arc basin or as a supracontinental arc with an adjacent subduction zone and failed rift (Fig. 9). Geochemical work supports the latter concept (Volkert and Drake, 1999).

The conventional paleogeography suggests a failed rift (back-arc basin) with a wedge of continental-shelf sediments on the west side and a volcanic arc (Losee arc, Fig. 9) to the east. The arc shed sediments westward that intermingled with those of the shelf. To the east of the volcanic arc, a west-dipping subduction zone formed as Amazonia (see Fig. 6) approached the volcanic arc. Eventually, the ocean separating Laurentia from Amazonia closed (ending the "first" Wilson cycle), and the arc was driven westward into the former back-arc basin and its contained sediments, resulting in formation of a major mountain system where the two converged.

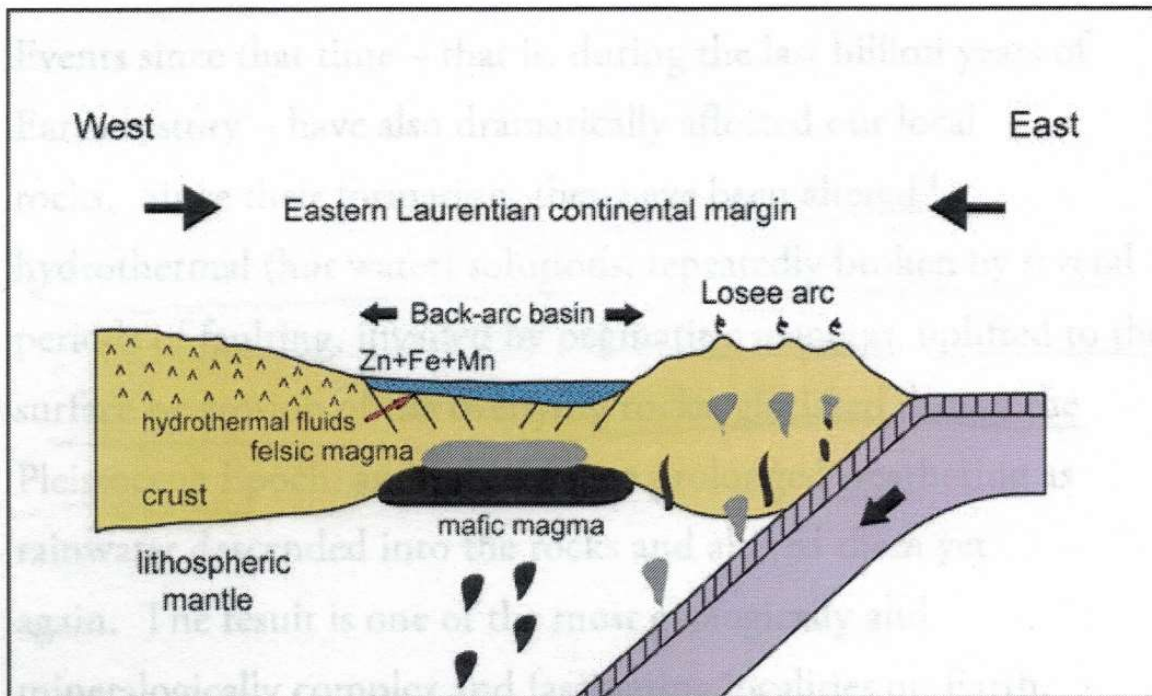


Figure 9. Possible plate-tectonic framework for deposition of Franklin Marble. (Volkert, *et al.*, 2010)

Deformation of the intervening volcanic arc, the former sedimentary and volcanic rift-filling sequence, the former eastern edge of Laurentia, along with the west edge of Amazonia, with its accompanying shelf-sediment prism, consolidated the local part of supercontinent Rodinia in the Grenville orogeny about 1.2 to 1.05Ga. In the process, former sedimentary and volcanic rocks were deeply buried (to perhaps 11-16 km) and heated to temperatures variously estimated as 650 to 780°C (hornblende granulite metamorphic facies). Anatexis (partial melting) of the rocks was probably involved in some places. This produced the basic framework for the Franklin and Sterling Hill zinc deposits.

(To be continues next month)

References. There are probably 1500 references that at least touch on the geology and mineralogy of Franklin/Sterling Hill. Only a few that were used by the author to compile this summary are listed here. For a more complete list, go to Dunn, 1995, Part I.

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Monthly Mineral Quiz

The Monthly Mineral for July (Rosenburg and Carnein photos)



The mineral for September is probably best known as inclusions in quartz (above right). However, if you were at the LGGMC Gem and Mineral show last month, you may have seen some great specimens for sale from Georgia (left and above left). It's often twinned (above center; left). This is a common mineral that is also a very important source of a metal used in alloys and armaments, including airplanes, where its great strength and light weight are especially important. This tetragonal mineral has a SG of 4.23 and a hardness of 6 to 6 ½. Its hardness and SG make it a great candidate for placer deposits, especially beach placers, where it is concentrated by a combination of stream and wave action. It's one of 5 polymorphs having the same chemical composition. Mindat.org (accessed August, 2023) lists about 120 Colorado localities, including several in the Pikes Peak area, but none of them are particularly outstanding. If you're a lapidarist, you surely know this one. What is this common mineral?



Last Month's Mineral: Bornite, Cu_5FeS_4 . This important ore of copper is widely distributed in copper and mixed sulfide deposits, including porphyry copper deposits, veins, and secondary sulfide deposits. There are thousands of worldwide localities, including nearly 150 in Colorado (Mindat.org, accessed August, 2023). The ratio of copper to iron is somewhat variable, and so the specific gravity and other properties also vary. Although it may resemble tarnished chalcopyrite (also sometimes called "peacock copper"), its pinkish bronze color on a fresh surface helps to distinguish it from this other

common copper ore. It's isometric above 225°C, but bornite is orthorhombic at "normal" temperatures. Crystals are rare and are cherished by serious collectors.



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.

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