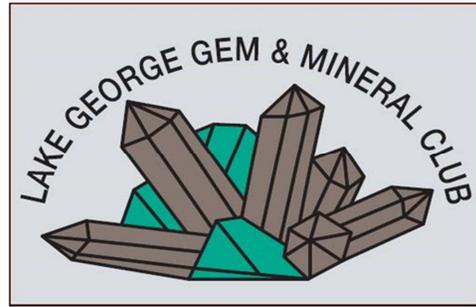


The Lake George Gem and Mineral Club -

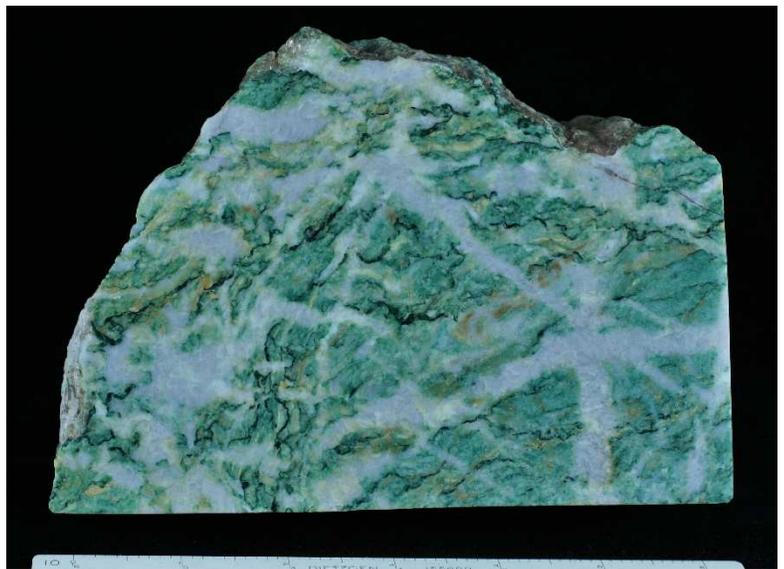
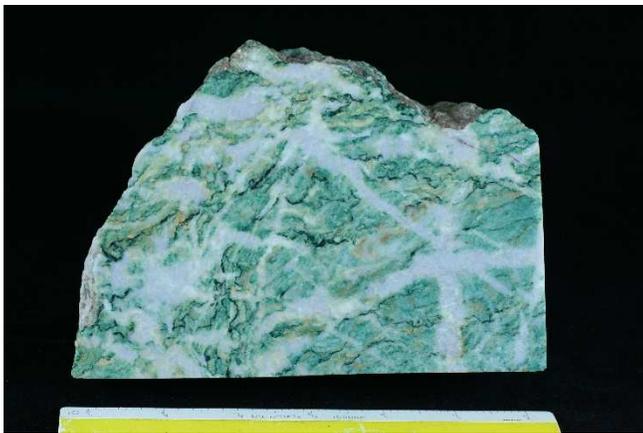
Club News,
November, 2015



Program for the month: Saturday November 14 business meeting followed by program (see below). Remember: during winter—the monthly business meeting starts at 10:00AM at the Community Center in Lake George.

Steve Veatch and several **Pebble Pups/ Earth-Science Scholars** will give a **presentation at the November 14 meeting**. They will discuss several of the fun and exciting projects that have been underway this year.

Also, during the meeting, we will have a **silent auction** for some cool specimens donated by Club members. The way this works is that the specimens will be displayed at the back/side of the room with “bid sheets”. Each item will have a minimum starting bid. You write your bid and initials in a blank space on the sheet and then watch to see if others outbid you. You can keep on bidding until the President says bidding is closed. So, bring some **CASH** and be prepared for the fun! **For your temptation**, here’s one of the specimens that will be auctioned at some point this winter—one of a pair of bookends that have been identified as everything from malachite/quartz to jade to chrysocolla in dolomitic breccia!



Please Note: If the weather is threatening, the officers of LGGMC will try to make a decision the evening before the scheduled meeting to call off the meeting if road conditions might be dangerous in the area. Be sure to check your email **BEFORE** leaving your house for the meeting!

Coming Events

- “A Cook’s Tour of Colorado’s Glacial and Periglacial Features”**, by Vince Matthews, 7PM, CSM Geology Museum Rm. 201, 1310 Maple St., Golden. ... **Nov. 5**
- “Colorado Mining Today”**, by Stuart Sanderson, 7PM Western Mus. Of Mining and Industry, Colo. Springs; RSVP rsvp@wvmmi.org or 719-488-0880. ... **Nov. 5**
- New Mexico Mineral Symposium**, Socorro; go to <https://geoinfo.mnt.edu/museum/minsymp/home.cfm> for info. ... **Nov. 14-15**
- “Rock Glaciers”**, by Jason Janke, Florissant Scientific Society, 1PM, Auraria Campus Science Bldg.; contact Beth Simmons, cloverknoll@comcast.net for details. ... **Nov. 15**
- “Cave Minerals in 3-D”**, by Dan Wray, Friends of Mineralogy Colorado Chapter meeting 7:30PM, Denver Museum of Nature and Science “Africa Station” room, 3rd floor; all welcome ... **Nov. 19**
- Littleton Gem & Mineral Club Silent Auction**, 12-3:30PM, Columbine Hills Church, 9700 Old Coal Mine Ave., Littleton; all welcome. ... **Nov. 21**
- Denver Area Mineral Dealers Show**, Jefferson County Fairgrounds, free. ... **Nov. 20-22**
- Flatirons Gem & Mineral Show**, Boulder County Fairgrounds, Longmont. ... **Dec. 11-13**

✓ ✓ **Paul Combs** sent the following reminder about a new program on Nova:

“Making North America”

Host Kirk Johnson explores how the continent was shaped—and how it shaped us. Airing November 4, 11, and 18 at 9 pm on PBS. Watch the trailer at: <http://www.pbs.org/wgbh/nova/earth/making-north-america.html>

✓ ✓ **Mike Sandifer** sent some pictures from the American Federation of Mineralogical Societies Show in Austin, TX. Mike notes that he would have liked to see a display from our club. Shown below are an award-winning display on tumbling and a competitive display of fluorite from the show, as well as some visitors from our neck of the woods.





Amanda Atkins was at the show, as were Joe and Krystle Dorris (Mike Sandifer photos)

Also from Todd, here are some photos from various trips this summer:



Dave Leidy's spectacular multi-terminated smoky quartz sword; quartz specimen from "near Lake George"



Taylor Mattson and Paul Combs at the Duffield fluorite locality;



translucent fluorite from the Club claim.



Scotty Burns in a pit at the Club claim, with mega-quartz crystal in foreground and in photo to right.

✓ ✓ Here's a note from **Norma Engelberg**. The Lake George Gem and Mineral Club appreciates donations of books for its library but please let the librarian know that books have been donated so they can be cataloged. Keeping the collection catalog current helps track which books are available, which books have been checked out and by whom and which books the club might want to add to its collection in future.

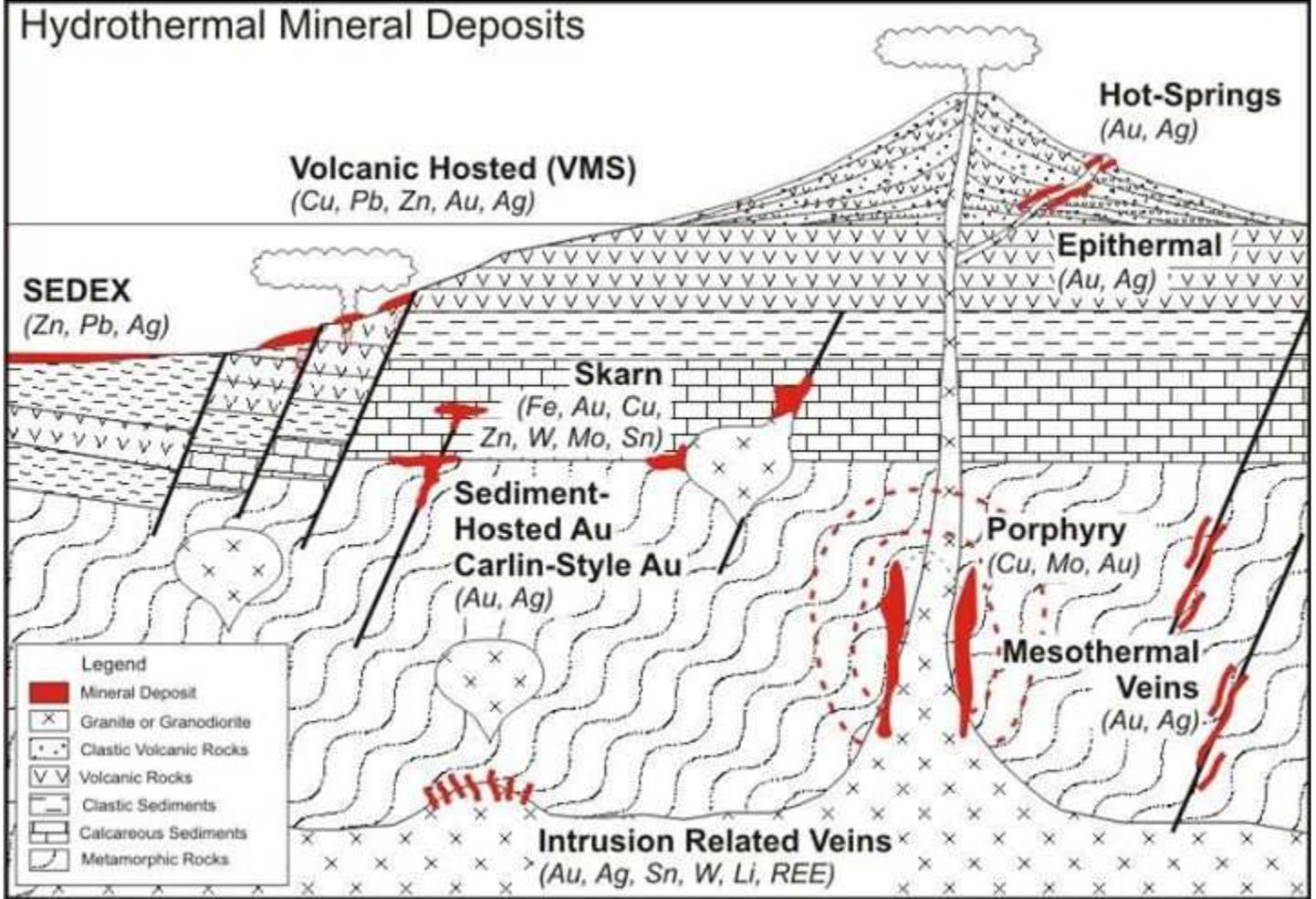
The current club librarian is Norma Engelberg. Please bring books to be donated to any monthly meeting. If Norma isn't there, just leave the books in a stack in the bottom of the library cabinet. Please leave your name with the books if you want it listed in the collection catalog.

The Lake George Gem and Mineral Club appreciates donations of books for its library but please let the librarian know that books have been donated so they can be cataloged. Keeping the collection catalog current helps track which books are available, which books have been checked out and by whom and which books the club might want to add to its collection in future.

✓ ✓ **Pebble Pups** meeting day has been moved to the **third Wednesday**, and meetings are at the PPHS Museum in Florissant from **6:00 to 6:45 PM**

✓ ✓ **Dick Lackmond** sent this diagram, which explains all you need to know about types of hydrothermal mineral deposits. (But not pegmatites!) Dick is our own bionic man, and we wish him the best with his recent knee operations!

Hydrothermal Mineral Deposits



Dick also sent some samples of “dipyramidal quartz” from near Breckenridge. Such quartz typically occurs in volcanic rocks; crystals are typically a few mm to a cm across, and, unlike “typical” quartz, they have no prism faces:



Dipyramidal quartz (Carnein photos)

✓ ✓ Little did I know that **Andy Weinzapfel** is an expert silversmith. Here are some photos he sent of some of his creations, most of which are set with stones he self-collected. Included is a nice Mt. Antero aquamarine!



✓ ✓ **Todd Mattson** sent some shots of finds from the October 24 trip to the Club claim:



Quartz with green fluorite;



Terry with her Find (Todd Mattson photos)



Terry's PRIZE smoky quartz crystal (Todd Mattson photo)

✓ ✓ **Bob Carnein** will present a three-hour mini-course in **Mineral Physical Properties** to members sometime this winter. This "short course" is designed to teach new people in the hobby and refresh veteran members about the various physical properties used to identify common minerals in our area. This will give you tools to identify what you are finding and provide clues as to what the minerals you're seeking look like. The class will be free to any member of the LGGMC. Enrollment will be limited; watch your e-mail for details.

✓ ✓ **Char DeVries** and her committee have done a great job coming up with the following slate of nominees for 2016 offices. **Note that a few positions are still not filled; please consider volunteering!** The election will be at the December meeting, and additional nominations are welcome at that time.

President: **John Rakowski**

Vice President: **John Sprouse**

Secretary: **Norma Rhodes**

Treasurer: **Bob Korzekwa**

Newsletter Editor: **Bob Carnein**

Field-Trip Coordinator: **Todd Mattson**

Webmaster: **Danny Alfrey**

Pebble Pups: **Steve Veatch**

Club Claim Manager: **Dan Alfrey**

Membership Coordinator: **Mary Rose Doucette and Dwain Dunigan**

Show Chairman: **Steve Woje**

Show Committee: Venders/Dealers: **Becky Blair;**

Volunteer Scheduling: **Don and Beverly Keith;** Marketing/PR: **Norma and Roger Rhodes;** Physical

Assets: **open;** Pre-planning: **open;** Overnight Security: **open**

Name Badge Artist: **Bill Martin-Muth**

Librarian: **Norma Engelberg**

Silent Auctions: **open**

Hospitality (coffee/refreshments): **open**

✓ ✓ In September, CCV (Cripple Creek & Victor Gold Mining Co.) announced production of its 5 millionth ounce of gold since the Cresson project was permitted in 1994. *I can remember a time, in the early 1970s, when nearly everyone thought Cripple Creek was dead as a doornail!!*

✓ ✓ And here is the latest installment of "Bench Tips" by Brad Smith (www.BradSmithJewelry.com):

HOMEMADE WAX TOOLS

Save your used X-Acto or scalpel blades for utility work on the bench. They're wonderful for delicate wax work. Use a cutoff wheel or other type of grinding wheel to shape the blades to what you need. For instance, you can carve away excess metal on the spine to make yourself some narrow carving knives that do a great job of detailing small pierced areas of your waxes.



REMOVING A STONE FROM BEZEL SETTING

If you've forgotten to use dental floss and got your stone caught in a bezel, there's one thing you can try before starting to pry.

Find some sticky wax or beeswax. Roll it into a pencil-sized cylinder and stick the end onto the top of the stone. Mold it on well and yank.

But if the stone is really stuck, there are two other tricks - but each with risks and consequences. The first is to pry open the bezel with a sharp knife blade, being very careful not to wrinkle or tear the bezel. If you try this, make sure to pry gently in several passes around the stone.

The last solution is to drill a small hole into the bezel setting from the back side so that you can push the stone out. Note that this does leave a hole, but in some cases you can use it to saw out a design under the stone.

=====
"Bench Tips for Jewelry Making" and "Broom Casting for Creative Jewelry" are available on Amazon

Notes from the Editor

Bob Carnein, Editor

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Here's a little article that was inspired by a book I'm reading.

Heavy Metal! by Bob Carnein

I am just now reading “Uncle Tungsten”, in which the late great naturalist and neurologist Oliver Sacks recounts his development as a scientist. Sacks grew up in London, surviving the German bombings of World War II with an equanimity and emotional balance that make Americans’ present-day worries and traumas look pretty trivial. In his book, Sacks talks about his inventive uncle Dave, affectionately known as “Uncle Tungsten” because his firm, called Tungstalite, made tungsten filaments and light bulbs. Of course, tungsten filaments are now becoming obsolete—the last of a long line of incandescent illuminating filaments going back to Thomas Edison’s carbonized threads of the 1880s.

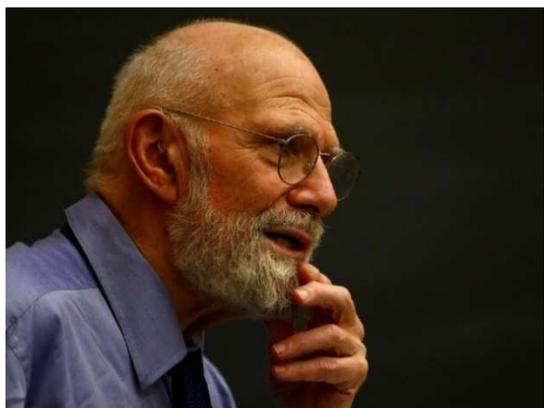


Fig. 1 Oliver Sacks (npr.org)



Fig. 2. Carl Wilhelm Scheele (earthsciencechlorine.weebly.com)

Sacks’ uncle introduced the young boy to science by letting him repeat the crucial experiments that led from alchemy to chemistry—experiments that would scare the heck out of most modern parents. One of uncle Dave’s heroes was an 18th-Century Swedish chemist named Carl Wilhelm Scheele. Mineral collectors may vaguely recognize this name. Scheelite, a major ore of tungsten, is named for him. Early miners called scheelite *tung sten*, meaning “heavy stone”, for its high specific gravity. (Tungsten itself has a density about the same as that of gold.) Scheele was the first to postulate that it contained a new element. He isolated a dense, yellow powder from it but stopped short of actually separating tungsten metal. In 1782, Scheele hosted a Spaniard, Juan José d’Elhuyar, in Sweden. He and his brother returned to Spain, where they used Scheele’s

methods to produce the same heavy powder from another mineral, which we now call *wolframite*. When they heated the powder with charcoal, tungsten metal separated. They named it *wolframium*, which explains its chemical symbol, W.

So, the names Scheele, *tung sten*, and *wolframium* all connect to each other and to the 2 main ores of tungsten: scheelite and wolframite. To the mineralogist, both scheelite and wolframite are parts of mineral series with gradational compositions. Although scheelite's chemical composition can be expressed by the formula CaWO_4 , it's actually gradational with that of powellite, CaMoO_4 (named for the great American geologist and explorer John Wesley Powell). This is important, because molybdenum is hard to separate from tungsten. As a result, the goal of metals manufacturers is to obtain the purest scheelite they can, with minimal Mo contamination.

Scheelite and powellite look a lot alike. In fact, when not crystallized, they look a lot like quartz, too—they are nearly impossible to identify in the field. If they occur in large masses, their specific gravities (6 and 4.25, respectively) help—they're both obviously heavy for their size. Crystal habit also helps. Both are tetragonal and often occur as simple dipyramids (Fig. 2-5). They may be brightly colored and gemmy, but more typically, they look like milky quartz.

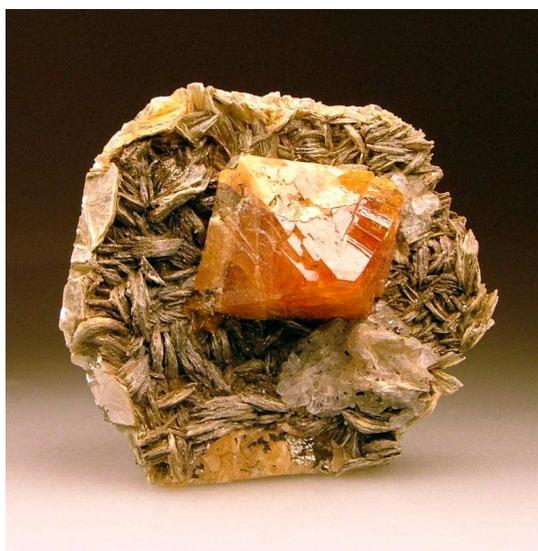


Fig. 2. Scheelite crystal on muscovite
(www.geologicdesires.com)

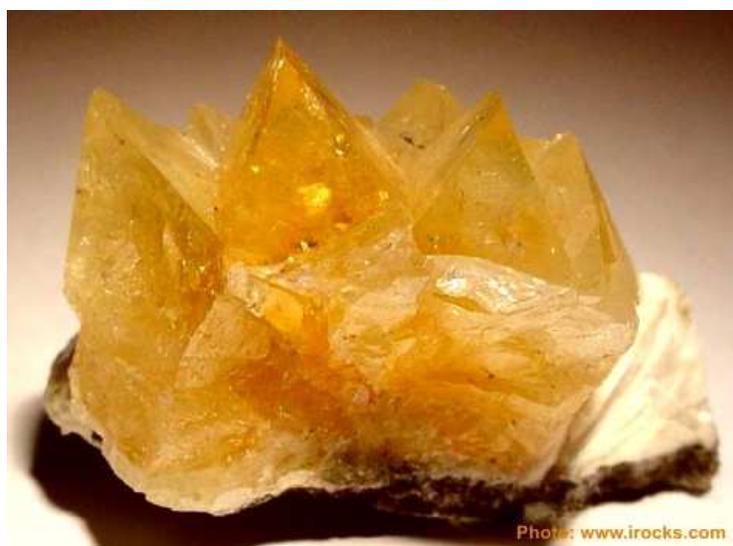


Fig. 4. Powellite crystals on matrix
(www.realgems.org)

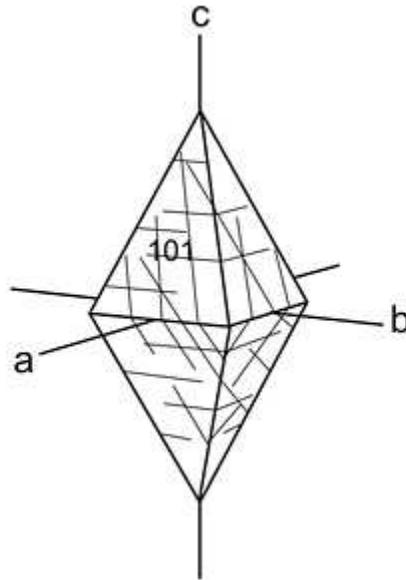


Fig. 5. Tetragonal dipyrmaid—the crystal habit of scheelite and powellite. (wwwf.ac.imperial.uk)

Another useful property, and one used by tungsten prospectors for more than 70 years, is ultraviolet fluorescence. Scheelite always fluoresces in shortwave UV (but not in longwave). The color of its fluorescence varies with the ratio of tungsten to molybdenum. Pure scheelite fluoresces bright blue-white (Fig. 6). The color becomes progressively more yellow with increasing Mo content. Tungsten prospectors used to carry a portable SWUV lamp and a scheelite fluorescence analyzer—a card with a series of phosphor dots whose fluorescent responses correspond to those of scheelite with various proportions of CaWO_4 to CaMoO_4 .

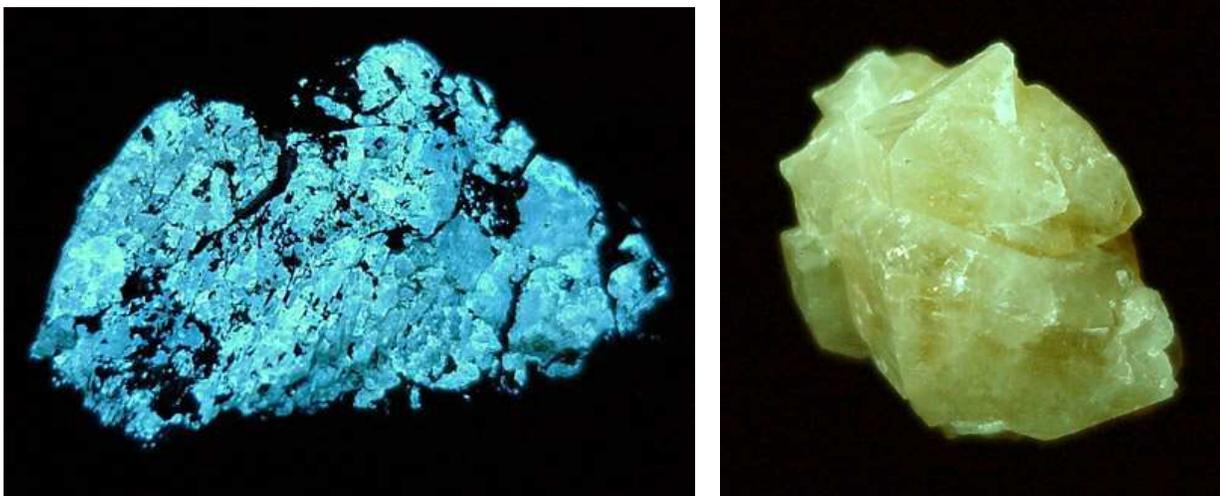


Fig. 6. Typical fluorescence of scheelite (left) and powellite (right) in SWUV. (www.johnbetts-fineminerals.com)

In the 1960s, the U.S Geological Survey and NASA experimented with remote sensing for tungsten with UV lasers in helicopters. Although this didn't work well, other experiments showed that the sun's UV output stimulates fluorescence that's invisible to the human eye. The government researchers developed a device to filter out most visible light and detect the wavelength of fluorescing scheelite in broad daylight. This allowed recognition or "targets" that could then be explored in detail by geologists on the ground.

Scheelite and powellite often occur in high temperature hydrothermal deposits (so-called *hypothermal* deposits), especially where the hydrothermal solutions interact with calcium rich rocks. The latter include impure marbles and “lime-silicate gneiss”—metamorphic rocks derived from impure limestone. Such rocks consist mostly of various calcium and magnesium silicates, including grossular (a Ca garnet), diopside (a Ca-Mg pyroxene), tremolite (a Ca-Mg amphibole), sphene, vesuvianite, wollastonite, and epidote, along with quartz and other minerals.

Lime-silicate rocks occur widely Colorado, including the area north and west of Lake George. There, metasediments and metavolcanics of the ancient Idaho Springs “Formation” (1.75 billion years old) are intruded by younger granites. Near the contacts, hypothermal alteration produced localized concentrations of scheelite in lime-silicate gneiss. The scheelite generally can't be seen with the naked eye but can be seen with the help of SWUV. The Lake George Gem & Mineral Club may have a chance to visit one or two of these occurrences on a night time field trip next year.

The wolframite series is another story. Suffice it to say that there are 2 end members: hübnerite ($MnWO_4$) and ferberite ($FeWO_4$). Ordinary wolframite is $(Fe,Mn)WO_4$. Found in quartz veins and granitic pegmatites, wolframite is difficult to identify. It resembles members of the columbite-tantalite series, rutile, goethite, and some other dark colored minerals that have similar occurrences and bladed crystal habits.



Fig. 7. Typical fine grained (left) and coarse grained lime-silicate gneiss. Rock on right shows alternating layers of green diopside, tan grossular, and brown vesuvianite. (www.anr.state.vt.us; www.ebay.ie)

Small amounts of it occur in Colorado, but major production was once centered in Boulder and Gilpin counties, about 25 miles northwest of Denver. Nice specimens occurred at the Sweet Home mine and near Silverton. Wolframite (and scheelite) also occur in greisens (highly altered quartz-muscovite rocks) in the Badger Flats area of Park County (Boomer mine; Mary Lee mine). There, it occurs in veins associated with a small stock that's part of the Pikes Peak Granite. This area once held the largest known reserves of beryllium in the United States. But that's another story!

Reference Cited

Sacks, O.W., 2001, *Uncle Tungsten: Memoirs of a Chemical Boyhood*. New York, Vintage Books.

Lake George Gem & Mineral Club
Box 171, Lake George, Colorado 80827
www.LGGMClub.org

Date: _____/_____/20____

Name(s) _____

Address _____ City _____ State _____ Zip _____

Telephone () _____ - _____ Email (please print) _____
(required to receive newsletter and field-trip info)

Names/ages of family members (if family membership) _____

Dues for Jan 1 through Dec. 31 each year are as follows (please check membership type):

____ Individual (18 and over).....\$15.00

____ Family (includes dependents under age 18).....\$25.00

Dues are due on or before March 31. Members with unpaid dues will be dropped from the roster on April 1. On/after **August 15**, dues will be reduced to half price for **NEW members only**.

I agree to abide by the Club constitution, by-laws, and rules regarding field trips and club claim visits.

Signed _____ Date: _____/_____/20____

I am or have previously been a member of Lake George Gem & Mineral Club. Yes____ No____

My interest areas include (check all that apply): Minerals____; Fossils____; Lapidary____;
Micromounts____; Colorado geology____; Pebble Pups (ages 7-17)____; Mining History____;
Crystallography____; Other _____

I am willing to give a talk/presentation to (the Club) or (Pebble Pups) on _____
_____ and/or lead a field trip to (list) _____

I am willing to participate/help in the following ways (can choose more than one): Club Officer____;
Newsletter Editor/Writer____; Local Show/Show committee____; Nominating Committee____;
Winter Programs Committee____; Field Trips____; Art (badges)____; Membership Coordinator____;
Website Assistance____; Pebble Pups____; Other (be specific) _____

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

Updated 05/01/2015

Lake George Gem & Mineral Club
PO Bo 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 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 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).

Our Officers for 2015 are:

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