

The Lake George Gem and Mineral Club -

Club News

JULY, 2016



July 9: Are you interested in helping out with our 2016 Gem & Mineral Show? If so, meet at the Lake George Community Center at 9:00AM.

The 17th annual Lake George Gem and Mineral Club Show is less than two months away! With your help it can be the most successful show ever. There are a myriad of tasks to be performed, so please consider helping out. Also, a number of people have already been working hard behind the scenes. Thanks to **Rebecca Blair, Norma and John Rhodes, John Rakowski, John Sprouse, and Dan Alfrey!**

Steve Woje is the 2016 Show Chairman and **Don and Beverly Keith** are heading up 2016 Volunteer Scheduling. We will be discussing what needs to be done during our *meeting on July 9th*. Here is an overview of the tasks at hand. Sign-up sheets will be available at the meeting.

Task	Date(s)	Volunteer(s)
Field Mowing	Week of August 8th	Bob Kane
Overnight Security	Prior and during show	Bob Kane
Placement of show signage	Prior to show	Steve Woje/Paul Saunier
Set up show grounds	August 13; following club mtg.	12 volunteers required
Club booth	2 hr shift; Aug 19-21; 9am-5pm	12 shifts; 24 volunteers required
Parking Helper	2 hr shift; Aug 19-21; 9am-5pm	12 shifts; 24 volunteers required
Club Photographer	During the show	Frank Rosenberg
Show takedown/cleanup	Sun, Aug 21 PM & Mon, Aug 22 AM	12 volunteers required
Storage of show materials	Monday, August 22 AM	Steve Woje/Paul Saunier

Also, if you have rocks/minerals/fossils that you would like to donate so that they can be handed out to kids, please bring them by during the show. We are not looking for "leaverite", but for pieces that would spark the imaginations of these junior geologists. If everyone brought several interesting pieces, not expensive, we would have more than enough. It would be very helpful if you can supply labels with the specimens. Thanks in advance.

Steve Woje, Show Chairman

Lake George Gem and Mineral Club

JULY, 2016

Coming Events

✓ ✓ Several mineral, fossil, and geology clubs meet relatively nearby and encourage visitors. These include:

>**Cañon City Geology Club**, meets on the 2nd Monday of the month at 6PM in the United Methodist Church, Cañon City;

>**Colorado Springs Mineralogical Society**, meets on the 3rd Thursday of each month at 7PM in the Colorado Springs Senior Center, 1514 N. Hancock Ave., Colorado Springs;

>**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;

>**Pueblo Rockhounds**, meets on the 3rd Thursday of each month at 6:30PM in the Westminster Presbyterian Church, 10 University Circle, Pueblo.

✓ ✓ **Pete Modreski** sent notices of the following upcoming events:

Sat., July 9, "When Ice Ruled Leadville I", a lecture and field trip led by former Colorado State Geologist, Dr. Vince Matthews. Register through Colorado Mountain College, http://coloradomtn.edu/event/when-ice-ruled-leadville-i-2/?instance_id=30656. The class will consist of a 90-minute lecture followed by a field trip for the rest of the day. "Leadville's spectacular scenery reflects a time when ice covered and formed much of the landscape. It was a time of valleys filled with thousands of feet of ice; of 600-foot-deep lakes forming, then catastrophically emptying in a day. Learn to read the signs of this classic glacial terrain in the field. Generations of geologists all over America have studied Turquoise Lake in their classrooms. Now you can study its marvels first hand. Follow the glacially dammed lake from Malta to Buena Vista. Experience periglacial features such as patterned ground, rock glaciers, and sackungen. A 1/2 mile of hiking is required, dress appropriately for the hike and the weather. Pack a lunch or bring lunch money. Registration fee is \$59.

July 9-10, Tulsa Gem, Mineral, & Jewelry Show, Tulsa (OK) County Fairgrounds; admission charge.

July 15-19, the "2nd Eugene E. Foord Symposium on Pegmatites, Golden Colorado" will take place on the CSM campus. There will be a welcoming reception, two days of oral and poster presentations, and two days of field trips to Colorado pegmatite localities. For further information see <http://www.colorado.edu/symposium/pegmatite/> or the Friends of the Colorado School of Mines Geology Museum page, <https://www.facebook.com/LikeCSMGeoMuseum/>. Pegmatite researchers from around the country and internationally are expected to attend, as well as local presenters. All interested persons are invited to attend. **Registration cut-off is July 5!!**

July 15-17, 10 a.m. - 5 p.m., Museum Anniversary and Expo at the **Western Museum of Mining & Industry**, Colorado Springs. "Spend some family time exploring vendors and activities and enjoying all that WMMI has to offer! See operating steam engines, antique mining equipment and a working stamp mill, process real gold ore, visit the fully functional Black Smith shop and watch blacksmiths in action, go gold panning, learn rock identification, play in the special kids' area, visit gem, jewelry, mineral, craft, and food vendors and exhibits, and spend time with the museum's burro mascots Nugget and Chism! All this for only \$10 per person age 6 and older!" For more details see www.wmmi.org.

Aug. 5-7, Creede Rock & Mineral Show, at the Creede Underground Mining Museum and Community Center, Creede, Mineral County, CO. 10 a.m. – 5 p.m. daily; see <http://creederocks.com/>.

Aug. 12-14, Contin-Tail Gem & Mineral Show, Buena Vista Rodeo Grounds, Buena Vista, CO

Sat., Aug. 13, 10 a.m. – 2 p.m., Dinosaur Discovery Day at Dinosaur Ridge, 16831 W. Alameda Parkway, Morrison, CO. Featuring "Reptile and Bird Day". See <http://dinoridge.org/DDD.html>.

Lake George Gem and Mineral Club

JULY, 2016

Aug. 18-21, **Woodland Park Rock, Gem, & Jewelry Show**, Woodland Park, CO;
see <https://www.facebook.com/woodlandparkrockandgemshow/>

Aug. 19-21, **Lake George Gem & Mineral Club annual show, Lake George, CO (details later)**

The following are all parts of the annual Denver show:

Sept. 9-16, **Denver Expo Gem Show**, National Western Complex, Expo Hall.

Sept. 10-18, **Coliseum Mineral, Fossil, & Gem Show**, Denver Coliseum.

Sept. 10-18, **Miners' Coop Mineral Show**, Denver Coliseum parking lot.

Sept. 11-18, **Colorado Mineral and Fossil Show**, Ramada Plaza Motel.

Sept. 14-17, **Denver Fine Mineral Show**, Marriott Denver West.

Sept. 15-18, **International Gem & Jewelry Show**, Denver Mart, Pavilion Bldg.

Sept. 16-18, **Denver Gem & Mineral Show** (this is the "main show"), Denver Mart, Expo Hall (admission charge).

✓ ✓ Best wishes to **Steven Veatch** and **Dick Lackmond**, both of whom either have had or are about to have surgery. Our condolences go out to **Don Keith**, whose father recently passed away.

✓ ✓ LGGMC member **James Sullivan** passed away on April 19, 2016. His wife **Rita** sent the following note. Hello Carl, Jim was a wonderful husband, father and grandfather to our 12 grandchildren. We all miss him so very much. He mostly liked to hunt for different mineral related things. Thank you so much for your condolences. Rita Sullivan

✓ ✓ Club hats are available for \$10. Contact **Bobby Korzekwa** or **John Rakowski** to reserve yours.

✓ ✓ The following field trips are "on tap" for July through September. To register, you need to follow instructions received by e-mail (note: some trips have limits on attendance):

July 8: Devil's Head (smoky quartz, topaz, fluorite)

July 16: Smoky Hawk (smoky quartz, topaz, amazonite, fluorite)

July 23: Breckenridge (dipyramidal quartz)

August 6: Ace in the Hole (smoky quartz, amazonite)

August 27: Badger Flats (barite, fluorite, malachite, magnetite)

September 3: Patience/Piety claims (smoky quartz, fluorite, topaz)

✓ ✓ **Steven Veatch** sent the following field-trip schedule for **Pikes Peak Pebble Pups**:

July 16: Leadville area field trip (**Roger Pittman**)

July 24: South Park Adventure (**Steven and Shelly Veatch, Bn Elick**)

Aug. 13: Florissant Fossil Beds (**Steven Veatch, Blake Reher, Jenna Salvat**)

Sept. 11: Cave of the Winds (**Steven Veatch, Blake Reher**)

Sept. 14: Denver Gem & Mineral Show (presentations by **Jenna Salvat, Jack Shimon, Destin Boggart, and Jerrod and Nathan Gallup** at noon)

Nov. 12-13: 37th Annual New Mexico Mineral Symposium (presentation by **Ben Elick and Jenna Salvat** on the Mineral Curation Project at the Cripple Creek District Museum)

Lake George Gem and Mineral Club

JULY, 2016

✓ ✓ **Membership in the Lake George Gem and Mineral Club is closed for 2016. If you haven't renewed, your next chance to reconnect will be next January.** You are welcome to attend regular Club meetings, but field trips are open only to current members.

✓ ✓ **Glenn and Rita Stubert** sent these shots of the trip to the Topaz Mountain Gem Mine. Congrats on the nice topaz finds! Rita found a crystal weighing 102 carats (largest crystal in the photos), and somebody else went home with one over 200 carats!



✓ ✓ **Annette Mascia** sent this photo of **Trish and Randy Oneill** at the Patience claim. Trish is holding a nice specimen of multi-colored fluorite.



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

DO BEZELS SHRINK?

The engineer in me says there's no reason a bezel should shrink when I solder it onto a base plate, but I sometimes find that the stone won't quite fit into the bezel that was perfect just before soldering. If that ever happens to you, here's a fix that usually works for those times when there's just a minor problem. I file or sand the stone down a little around its base. For soft cabs like turquoise, lapis, jet or howlite, you can use a sanding stick. Harder cabs like jasper or agates will require a diamond file. In a pinch, a ruby nail file from the drugstore will work.

There are two important things to remember when doing this. First, you can only make a minor adjustment to the stone's size. All filing or sanding has to be hidden by the bezel, because sanding takes the polish off the stone. Secondly, remember to round off all sharp edges on the bottom of the stone. A sharp edge here might sit on a little extra solder that's in the bottom joint of your bezel. Just a little bump here can put enough stress on the stone to risk breakage when you burnish the bezel down over the stone.

STRAIGHTENING WIRE

Have you ever pulled out some silver wire only to find that it's all bent up? The easiest way I've found to straighten it out is to stretch it a bit. Simply put one end in the vise and grab the other end with a pair of serrated tip pliers. Then pull just enough to feel the wire stretch like a rubber band. This works best on smaller wire diameters, up to about 16ga.

Be careful if you are trying to pull hard on a thick wire. Brace yourself in case the wire breaks or pulls out of

the pliers.

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

Notes from the Editor

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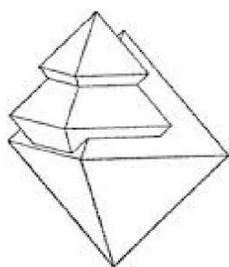


Have you ever wondered whether your prize specimen from the Crystal Peak area is a twin? This short article should help to answer your questions.

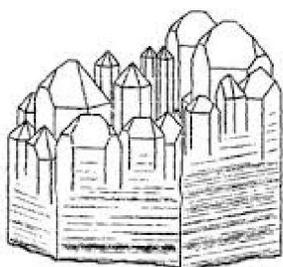
Twins of the Pikes Peak Batholith

by Bob Carnein

Introduction. *Twins* are a special and often very attractive class of crystals that are misunderstood by many collectors. Sellers on eBay and elsewhere commonly advertise "twins" that are simply intergrowths of 2 or more crystals—they are no more true twins than the Marx brothers (Figure 1). Collectors in central Colorado have a decent chance to find several kinds of twins in the pegmatites of the Pikes Peak batholith. This article will introduce you to what a twinned crystal is (and is not) and a few of the common types.



(a)



(b)



Figure 1. Intergrowths (not twins). (right: johnbetts-fineminerals; awminerals.com)

Definition. A *twin* is a symmetrical intergrowth of two or more crystals. The individual twinned crystals are related to each other by a *symmetry element* (i.e. plane of symmetry, symmetry axis) that was not present in a single (untwinned) crystal (Klein and Hurlbut, 1999). In some cases, twins are easy to recognize, but they may be difficult to distinguish from ordinary, random intergrowths without access to X-ray diffraction, thin sections, or precise angular measurements.

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JULY, 2016

Twin Types. To most people, the term *twin* implies two identical individuals. However, in crystallography, twins may involve 2, 3, 4, or larger numbers of individual crystals. We don't talk

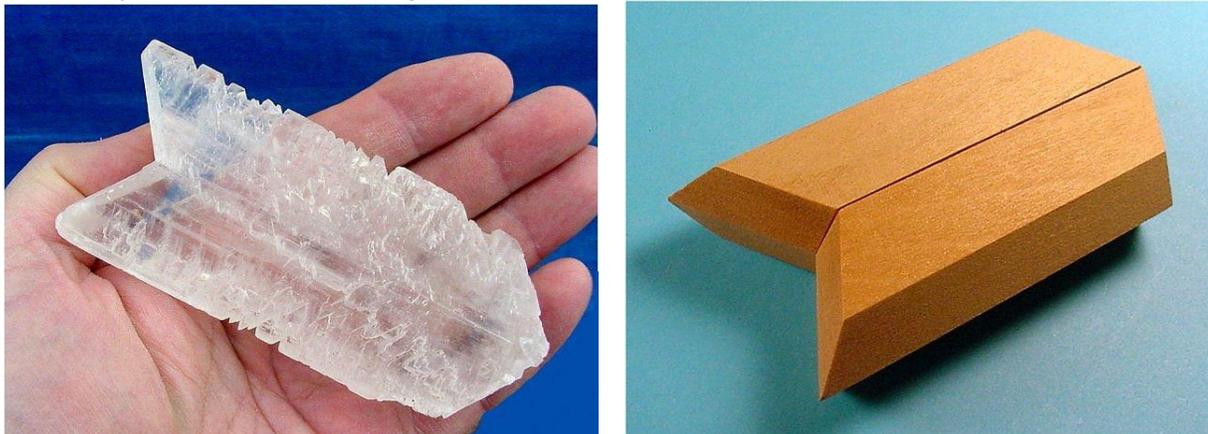


Figure 2. Simple gypsum "swallowtail" twin and wood model. Note composition plane. (skywalker.cochise.edu)

about triplets, quadruplets, etc. To deal with this, crystallographers define simple twins (2 crystals; Figure 2) and multiple twins (3 or more crystals; Figure 3).

Twins are commonly joined together along flat surfaces, called *composition planes* (Figure 2). Multiple twins in which the composition surfaces are parallel are called polysynthetic twins (Figure 2). Multiple twins with non-parallel composition surfaces are cyclic twins (Figure 3).

Some Crystallography. Ignore this section if you aren't familiar with Miller indices. Simple twins are made up of 2 crystals intergrown symmetrically according to a *twin law*. A twin law defines whether the individual crystals are related to each other by reflection across a symmetry plane or by rotation around a symmetry axis.

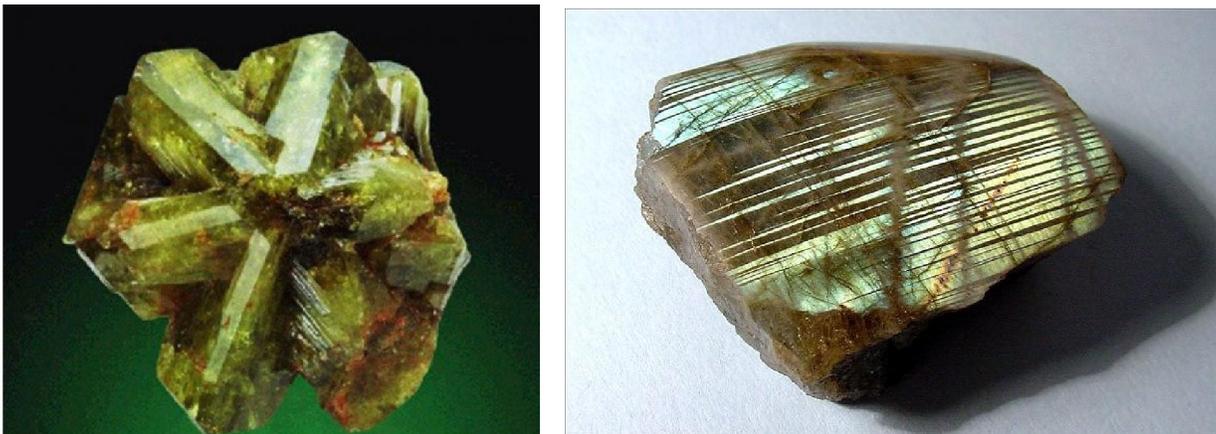


Figure 3. Multiple twins. Cyclic twinning in chrysoberyl (left); polysynthetic twinning in plagioclase (right) (gemrockauctions.com; skywalker@cochise.edu)

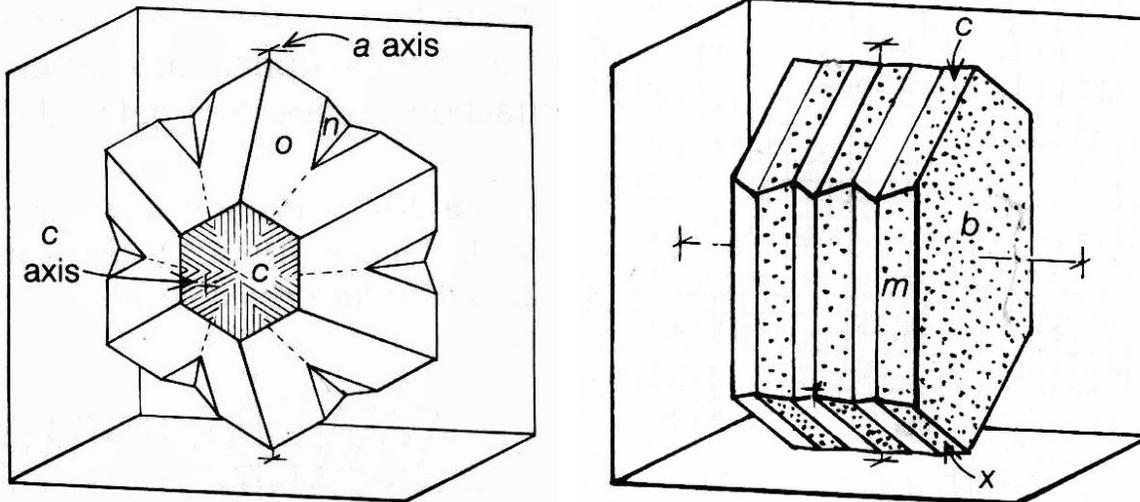


Figure 4. Diagrams of twins in Figure 3. (www.geologyin.com)

If the 2 parts of a simple twin are identical but mirror images, then they are separated by a twin plane. For those readers who are familiar with crystallographic nomenclature, a twin plane can be identified by its Miller indices. For example, (010) is a plane perpendicular to the b reference axis. $\{010\}$ includes all planes in a crystal that exhibit that orientation. So, a twin law for a particular mineral might state that the mineral sometimes exhibits simple twinning on $\{010\}$. Such twins could theoretically be divided into 2 separate, mirror-image crystals along the twin plane (as in Figure 1).

If the 2 parts of a simple twin are related by rotation about an axis, we use Miller indices to define the *twin axis*. Such twins are *penetration twins*—they interpenetrate and are inseparable (Figure 5). $[001]$ is a *zone axis* perpendicular to the face (001) . It corresponds with the c axis of most crystals. If a twin law states that a particular mineral exhibits simple twinning on $[001]$, this tells the reader that these crystals show penetration twinning in which the two parts of the twin are rotated about the c axis.

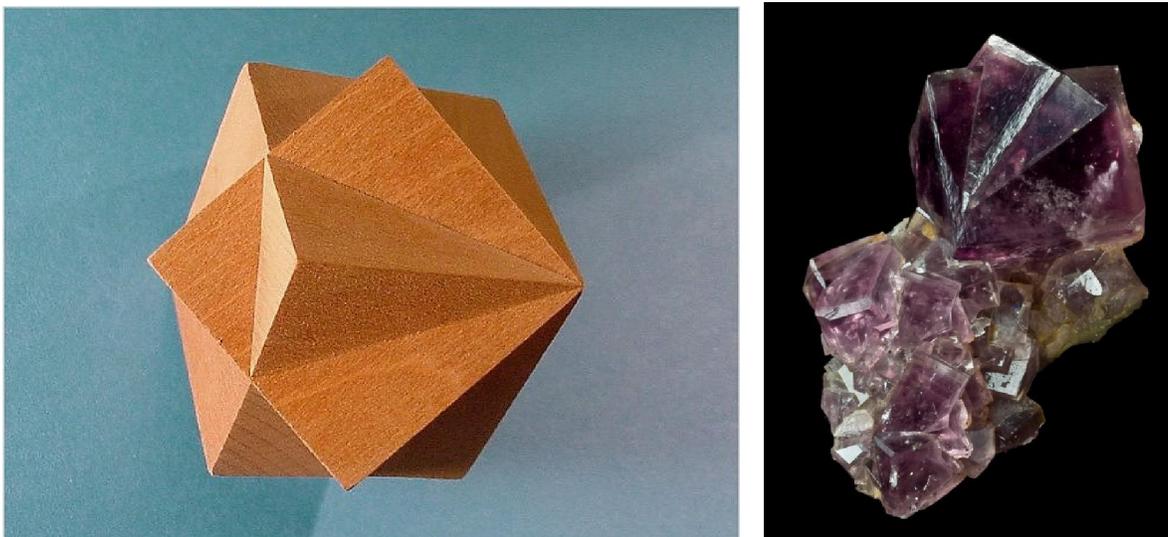


Figure 5. Model and English crystals of fluorite showing penetration twinning on $[111]$. (left, skywalker@cochise.edu; right, www.mineralmasterpiece.com)

Similar rules are used to define twin laws for multiple twins. For example, a mineral that exhibits polysynthetic twinning on {010} has multiple parallel twin planes in the direction perpendicular to the \underline{b} axis (e.g. Figure 3, right).

Twinning in the Pikes Peak Pegmatites. The pegmatites of the Pikes Peak batholith contain several minerals that commonly exhibit twinning. In the space below, the ones you can reasonably expect to find are defined and illustrated. These are the common ones; others are also possible.

K-Feldspar/Orthoclase/Microcline (“Amazonite”). Two types of simple contact twins occur in K-feldspar. Of the two, *Manebach* (“mahn’-ih-bock”) twins are the most common (Figure 6). Here, the twin plane is {001} (it’s perpendicular to the \underline{c} reference axis). Somewhat less common are *Baveno* twins (Figure 7), in which the twin plane is {021} (a plane inclined to the \underline{b} and \underline{c} reference axes but parallel to \underline{a}). In addition, one type of simple penetration twin is especially abundant in K-feldspar. These are *Carlsbad* twins (Figure 8). In Carlsbad twinning, the twin axes is [001] (it’s the \underline{c} reference axis). The two parts of the twin are rotated 180° around the \underline{c} axis. If you examine a piece of Pikes Peak Granite and rotate it until light reflects off a K-feldspar cleavage surface, a single crystal may appear to be divided into two parts. This is a result of Carlsbad twinning.



Figure 6. Manebach twins; diagram (geo.auth.gr); amazonite from Wigwam Cr. Area (www.trinityminerals.com); Manebach twin in place near Lake George, CO (C.R. Carnein photo)

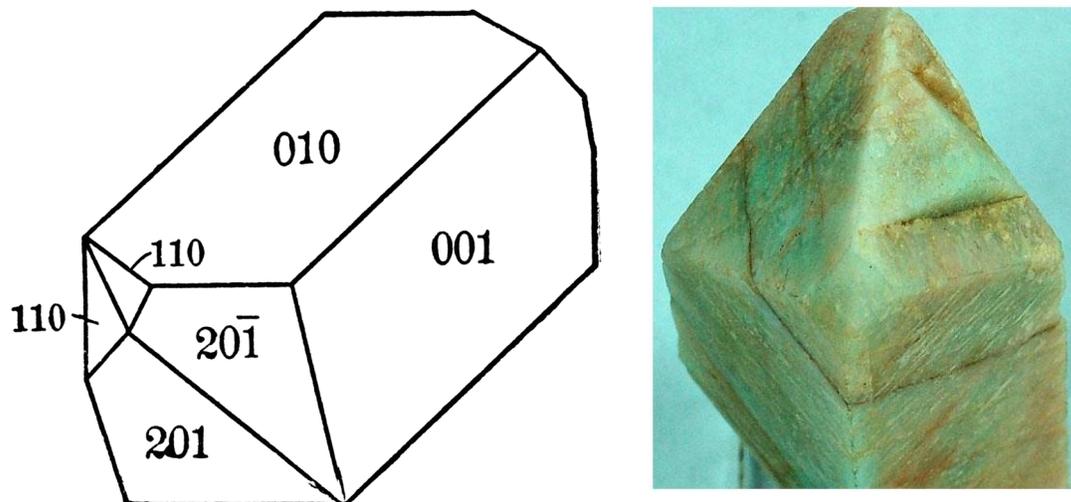


Figure 7. Baveno twins; diagram (etc.usf.edu); amazonite crystal from Teller Co., CO (www.e-rocks.com)

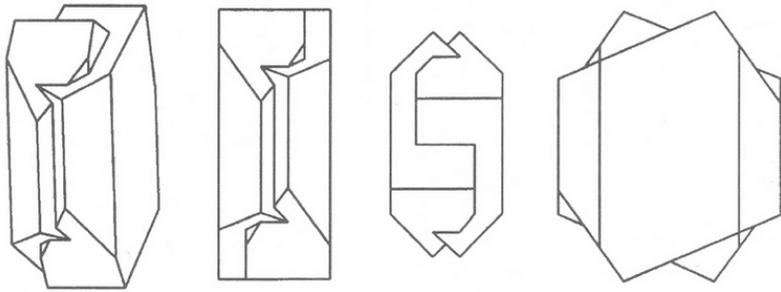


Figure 8. Carlsbad twinning (diagrams showing views from front, top, side; geocaching.com); twin from El Paso Co., CO (www.johnbets-fineminerals.com)

Quartz. Quartz can exhibit a variety of twin types, but only one is common in our local pegmatites. *Dauphiné* twins are a type of simple, penetration twin with twin axes [001]. On a well formed quartz crystal, the presence of Dauphiné (“doh-fin-nay”) twinning is shown by the repetition of a (usually) tiny face, which is labeled “x” in Figure 9 (left). (For you crystallography students, this is the trigonal trapezohedron.) In a well formed, untwinned quartz crystal, 3 of these faces on the top of the crystal alternate with 3 on the bottom. In a crystal showing Dauphiné twinning, these faces are doubled (Figure 9). Be aware that these “x” faces are usually missing. However, if this is the case, Dauphiné twinning may also produce an irregular line or groove offsetting the horizontal striations on a vertical prism face (Figure 9, right photo).

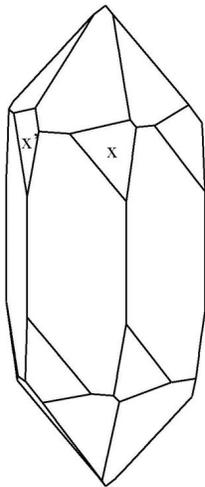
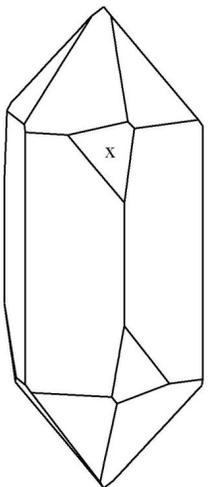


Figure 9. Diagram of an untwinned quartz crystal (left) and a right-handed Dauphiné twin (mineral-forum.com); middle: left-handed Dauphiné twin; right: left handed Dauphiné twin from Teller Co., CO (photos by C.R. Carnein).

Fluorite. Simple penetration twins on [111] are sometimes seen in fluorite. Here, the 2 interpenetrating crystals are usually cubes (Figure 5).

Albite (“cleavelandite”). Albite is a type of plagioclase feldspar that occurs in the Pikes Peak Granite pegmatites as platy white to tan crystals that sometimes make a nice contrast with amazonite and smoky quartz (Figure 10). Albite typically exhibits polysynthetic twinning, resulting in a striated appearance when it reflects light (Figure 3, 4, 10). Striations typically resemble fine, straight, parallel grooves or scratches on an

albite cleavage surface. They are best viewed with a 10X magnifier and can be seen when light reflects off the cleavage. This type of twinning, called *albite twinning*, shows up on nearly all plagioclase, a mineral group that includes several minerals having gradational chemical compositions, ranging from sodium aluminum silicate (albite) to calcium aluminum silicate (anorthite).



Figure 10. Albite (white) on amazonite with smoky quartz (www.collectorsedge.com; Jeff Scovil photo); striations in albitic plagioclase, due to polysynthetic twinning (www.imperial.ac.uk).

Other Minerals. Other types of twinning may be shown by less common minerals in the Pikes Peak batholith or by common minerals in which the twinning is invisible to the naked eye. The types illustrated above are the ones likely to be of interest to the casual collector.

Reference Cited:

Klein, C., and C.S. Hurlbut, Jr., 1999, *Manual of Mineralogy (after James D. Dana), Twenty-First Edition*: New York, John Wiley & Sons.

2017 Membership Application, 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.

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 2016 are:

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