The Lake George Gem and Mineral Club -

Club News, October, 2008

Meeting Time 9:00 AM, October 11!

Field Trip for the month:
Rich Fretterd has again invited the club to dig on his famous Godsend claim, north of Lake George.

The last couple miles to the claim requires a high clearance vehicle, preferably 4WD. Carpooling is required, as parking is limited! This is a good opportunity to visit with other members on the ride and to save some $4 gas.

This is an awesome trip for kids and the young at heart looking for moderate terrain with a good chance to find smoky quartz, microcline (hopefully the amazonite variety) and other pegmatite minerals. Bring your pegmatite digging tools, food and water. If you are new to pegmatite rock busting, call or e-mail one of the officers for suggestions.

Mineral of the Month – Quartz
Bring samples of specimens you have found on previous trips to the Godsend claim and, after reading Bob Carnein's fascinating article (which follows), bring quartz crystals that you think may show evidence of "handedness" or twinning.

Guffey Project
Dan Alfrey reports that there was a great turnout for Steve Veatch's presentation at the Denver Show, and that the display case turned out well.

Hurricane News
As Houston is the winter home of some of our members, I checked with Andy Weinzapfel and the Hamiltons (Brooke and Ingrid) to see how their homes and Houston-area families fared under the assault of Hurricane Ike.

Andy writes that he and his family are all OK. Ingrid says that their neighborhood was heavily damaged and that Brooke has flown back to assess the situation. They have three large trees down, and part of their fence. There is no power and this might be the case for the next two to four weeks.

In Memoriam
Grace Hammond's daughter, Susan Harding, recently died of cancer. Services were held September 27th at the New Covenant Christian Fellowship, 205 N. Pine, Woodland Park. Our thoughts go out to Grace, Maury and their family.

September Gold Panning
The Gold Panning field trip after the September meeting had a great turn out! The weather was great & Rebecca Blair panned up some Gold right away! Many, many thanks to Loren Lowe for arranging the trip, setting up panning facilities for "non-waders", and helping folks learn to pan.!

Club members go for the gold!
(Ingrid Hamilton photo)

Coming Events

Lake George Gem and Mineral Club … **Oct. 11**

Monthly Meeting, 9:00 at the Lake George Community Center, followed by a field trip to the Godsend claim, courtesy of owner Rich Fretterd.

Free USGS GPS, Map, and Compass Classes. … **Now through November**

September 12 and the second Friday of every month through November, Building 810, Federal Center, Lakewood; 9-11 a.m. Map & Compass, 12-4 p.m., GPS class. Call 303-202-4689 or email gpsworkshops@usgs.gov for reservations, or see www.cr.usgs.gov/gpsworkshops/index.html for more information.

The Amazing Fossil Record of Colorado Springs … **October 18**

Free Lecture by Dr. Kirk Johnson at the Colorado Springs Pioneers Museum. Saturday, October 18, 2008 ~ 2:00 p.m . Call 385-5990 to reserve a seat.

The Fossil Record: An Introduction to Paleontology … **November 1**

8:30am to 5:30pm; Registration $69.00. This Cripple Creek Park and Recreation class provides a basic introduction to paleontology, the study of the ancient life on earth and the fossils that remain behind. Transportation by bus will be provided by Cripple Creek

Park and Recreation. Register by calling 719-689-3514.

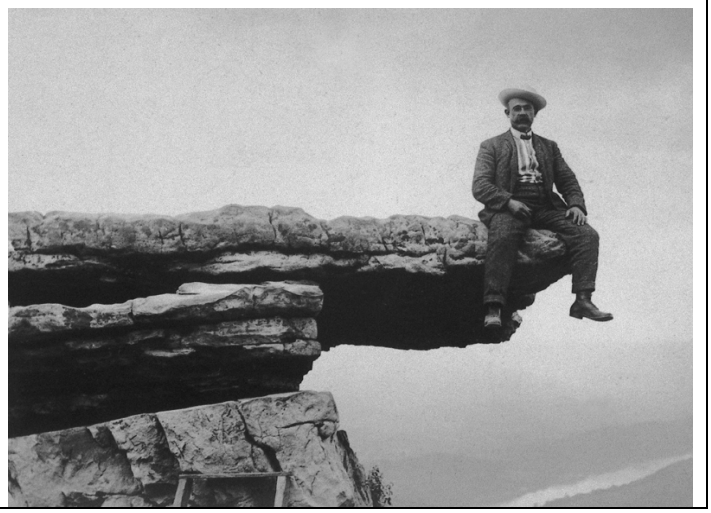
29th Annual New Mexico Mineral Symposium ··· **Nov. 8 - 9**

Macey Center, New Mexico Institute of Mining & Technology, Socorro, New Mexico. The registration fee for the symposium is $30.00; the fee for seniors over 55 is $25.00. The cost for the Saturday night dinner is $20.00. Download a registration form at http://geoinfo.nmt.edu/museum/minsymp/NMMS29_reg_form_web.pdf or contact Dr. Virgil Lueth for further info (vwlueth@nmt.edu).

Out on a Rock –

The Editor's Thoughts on the Past Five Years

Richard Parsons, Editor
tazaminerals@att.net
303-838-8859



It's been fun! I have very much enjoyed putting together the newsletter for the past five years or so, but I need to move on. Bob Carnein has agreed to take over the newsletter, effective with the November issue. Bob is eminently qualified, and I am sure he will do a great job.

Dr. Carnein and his wife Nell moved from Pennsylvania to Arabian Acres in July, 2007. Bob has degrees in geology and glaciology from Ohio State. He taught geology for 37 years, first at Waynesburg College, and later at Lock Haven University of Pennsylvania. From 1972-1989, he taught Waynesburg College's field-geology course from a building located behind the Thunderbird in Florissant, and he and Nell met in Florissant in the late 1970's. Mineralogy, petrology, and structural geology are his main interests, and he has collected minerals since the mid-1950's. He is a skilled teacher and writer (see his article on the "handedness" of quartz in this issue) as well as a congenial club member.

I want to thank the club for all the support I received in my role as Editor. Steven Veatch and Andy Weinzapfel, in particular, contributed numerous articles, which made filling the newsletter with interesting and informative material an easy job. Other members who wrote great articles include Pete Modreski, Loren Lowe, Rich Fretterd, Bob Carnein and the late, much-missed Lou Severini. Jake Kramer (now in San Diego) obtained permission for us to use a great series of articles by John Sanfaçon of the Morris Museum Mineral Society in New Jersey. Ingrid Hamilton, Dan Alfrey and others contributed pictures of club activities.

Can You Tell Left From Right?

By Bob Carnein

For years, I have been spatially challenged, confusing right and left in a kind of "dyshandia" typical of some dyslexics. The resulting mistakes proved especially embarrassing when, as a college sophomore, I marched my Air Force ROTC unit through the middle of another unit on the parade field. Some mineral collectors feel a similar sense of disorientation when confronted with descriptions of right- or left-handed quartz. As a result, many collectors fail to recognize the relative rarity of quartz crystals showing handedness in their own collections. This article resulted from my examination of two well formed Crystal Peak specimens in the collection of Sheila Naviasky, who kindly provided them for photography.

In quartz crystals, silica tetrahedra (composed of one silicon ion and four oxygen ions) share all of their oxygen ions with adjoining tetrahedra. The resulting spiral chains of tetrahedra align themselves parallel to the long (or c) axis of the crystal. They can twist either clockwise or counterclockwise.

In most quartz crystals, the direction in which the spiral chains twist is not obvious, because the groups of faces (called forms) typically shown by quartz don't depend on twist direction. These faces belong to three forms: the positive and negative rhombohedron (typically shown by the letters r and z) and the hexagonal prism (m) (Figure 1). If the two rhombohedrons are equally developed, they resemble a 12-sided dipyramid (Figure 2). As a result, to the layman, quartz appears to be a typical hexagonal mineral, much like beryl, pyromorphite, or apatite. It looks hexagonal.

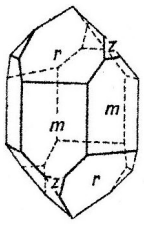


Figure 1

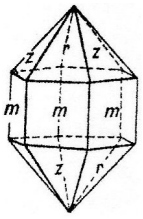


Figure 2

So, why is it that, when one consults a mineralogy book, one finds quartz classified in the rhombohedral (or trigonal) division of the hexagonal system, or, in some references, in the rhombohedral or trigonal system? To add to the confusion, one finds quartz listed in an otherwise extremely rare crystal class with the daunting name *trigonal trapezohedral* (trig'-oh-nal trap-eez'-oh-hee'-dral). The explanation is that quartz's true symmetry is usually hidden—typically, it can only be revealed by complicated lab techniques. However, if you examine quartz crystals in your collection, you may find a few that exhibit a few "extra" faces that reveal the true symmetry.

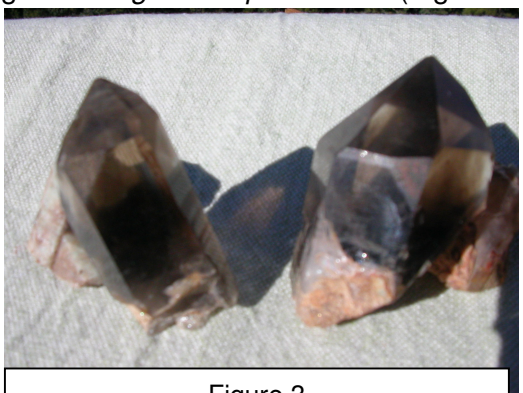


Figure 3

Sheila Naviasky's Crystal Peak-area smokies are shown in Figure 3. Figure 4 helps to illustrate what might not seem obvious in Sheila's crystals. In the figure, the "extra" faces are labeled with the letters s (called a positive or negative trigonal pyramid) and x (called a positive or negative trigonal trapezohedron—hence the name of the class). Each of these forms consists of 6 faces,

arranged as shown on the diagram (some being on the back of the crystal). Let's focus on the x faces.

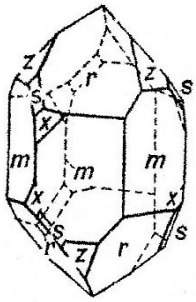


Figure 4a

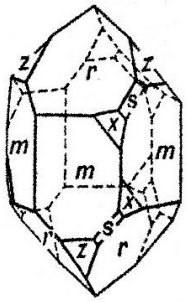


Figure 4b

The important observation, for this article, is to notice how the faces of the trigonal trapezohedron relate to those of the rhombohedrons (r and z) and the prism (m). Although the rhombohedron faces "line up" with the prism faces, faces of the trigonal trapezohedron are "a little off", resulting in their cutting the prism along an edge that slants either to the left (Figure 4a) or right (Figure 4b). The presence of the trigonal trapezohedron allows us to recognize right or left-handed quartz and also tells us the direction of twist of the silica-tetrahedron chains. Thus, in Figure 3, the left crystal is left-handed and the right crystal is right-handed, and the chains twist, respectively, clockwise and counterclockwise.

Another characteristic of quartz is that it is almost always twinned. Some readers may be familiar with the beautiful heart-shaped Japan twins coming from Peru, Arizona, and elsewhere. These rare twins generally command relatively high prices. However, other types of twinning also occur in quartz. In most quartz crystals, the only indication of twinning is the offset striations commonly seen on prism faces. Only rarely does one see a crystal like the one shown in Figure 5. Purchased by the writer at the weekly Colorado Springs flea market, this crystal exhibits the trigonal trapezohedron characteristic of a left-handed crystal. However, there are twice as many of these faces as expected (Figure 6 shows a doubly terminated crystal of this type, but right). Because the trigonal trapezohedron has been doubled, it proves that this crystal is a Dauphiné (dough-feen-ay') twin—a treasured rarity bought for a few dollars from an unknowing collector. Similarly, another rarely obvious twin (called a Brazil twin) is shown in Figure 7. Without the trigonal trapezohedral faces, this would look like any other quartz crystal.

Figure 5

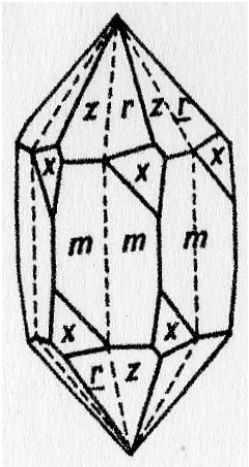


Figure 6

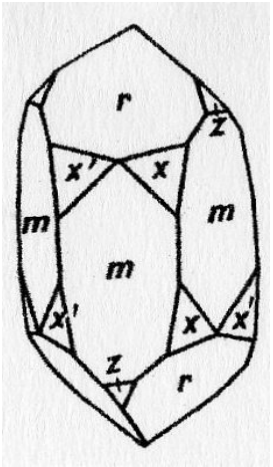


Figure 7

Common quartz assumes many disguises—hence the inordinate interest of collectors. I have over 200 cataloged quartz-crystal specimens in my collection. I treasure those showing clear right- or left-handedness, and especially those crystals in which Dauphiné or Brazil twinning are revealed by the modest trigonal trapezohedron faces that many collectors overlook. Check out your own collection and you may be lucky enough to have a few crystals that reveal quartz's true nature.

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BLUE, BLUE, MY QUARTZ IS BLUE

Bill Cordua, U.W. - River Falls

I've been fascinated with blue quartz ever since I was youngster who picked up a chunk in the Blue Ridge area of northern Virginia. The color was deep to sky blue, and seemed to changed in hue as I tilted it. Like most blue quartz, it was not gemmy and was cross-cut by many fractures stained with iron oxides. It was special to me because there aren't many blue minerals and I had never found one before.

Blue quartz occurs at many localities. One famous localities is in Llano County Texas where it is found as small doubly terminated crystals in a rhyolitic porphyry called, informally, llanoite. The crystals weather loose and can be collected easily. Slabs of this rock studded with blue crystals are cut and polished. Blue quartz is found in Wisconsin, most notably in a diorite exposed by the Dairyland Power Dam near Tony.

The cause of the blue color is reasonably well known. Blue quartz is crowded with tiny grains of minerals such as rutile (TiO_2) or ilmenite ($FeTiO_3$). There may be as many as 2 million of these included crystals per square centimeter, scattered uniformly through the quartz. Even so, because the crystals are so tiny, they make up only about 0.02% of the volume of the quartz. Light entering the quartz is scattered by these tiny particles, the scattering being most pronounced for blue light. The light reflected back to the eye is blue. This effect is also responsible for the blue color of the sky. Light shining through the blue quartz from behind is yellow or red (the complimentary color to the blue), because the back light is not scattered and reflected. This is what occurs in the sky at sunset.

Titanium is also responsible for the color of rose quartz. Here, however, the titanium occurs as the ion Ti^{+4} within the quartz structure, not as grains of other minerals. In this form, the titanium absorbs all colors except the rosy pink one we all know so well.

Artificial blue quartz can be made by including cobalt impurities in quartz grown in the laboratory. Unlike the blue quartz in nature, the artificial crystals are deep royal blue and can be grown in large flawless masses which can be readily faceted. Natural blue quartz can rarely be used for lapidary purposes, but it is wonderful experience to find it and see what looks like pieces of the clear blue sky embedded in the solid rock.

References: Frondel, Clifford, 1962,, The System of Mineralogy, 7th edition, vol. 3, Silica Minerals, John Wiley and Sons Publishers, N.Y., 334 p.
Rossman, G.R., 1994, "Colored Varieties of the Silica Minerals" in Silica: Physical Behavior, Geochemistry and Materials Applications, edited by P.J. Heaney, C.T. Prewitt and G.V. Gibbs, Washington, D.C., Mineralogical Society of America, Reviews in Mineralogy, vol. 29, p. 433-468

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The Amazing Fossil Record of Colorado Springs

by Dr. Kirk Johnson

Free Lecture Saturday, October 18, 2008 ~ 2:00 p.m. at the Colorado Springs Pioneers Museum

"Ankylosauruses, Iguanodons, and tridactyls, Oh my!" Is Colorado Springs really the land where the dinosaurs roamed? You bet it is, and Dr. Kirk Johnson will reveal clues about the dinosaurs, giant fish, ancient palm forests, and huge clams that lived in this area millions of years ago in this free program. From Pulpit Rock to Jimmy Camp Creek and from the Garden of the Gods to Red Rock Canyon Open Space, Colorado Springs is a geologic wonderland and paleontological paradise. Dr. Johnson will explain how he uses fossils to reconstruct ancient ecosystems and geology to interpret the formation of the landscape where Colorado Springs now lies.

Dr. Kirk Johnson is Vice President of Research & Collections and Chief Curator of the Denver Museum of Nature and Science. He is an expert on fossil plants, dinosaur extinction, Denver Basin geology, and geologic time. For several years Dr. Johnson has researched the paleontology and geology of parks and open space for the City Parks, Recreation and Cultural Services department. In this talk he will share some of his findings about the paleontology of our area.

This program is **free** and open to the public but **reservations are required**. Call 385-5990 to reserve a seat. The Colorado Springs Pioneers Museum is located downtown at 215 South Tejon Street.

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The Fossil Record: An Introduction to Paleontology
November 1, 2008, 8:30am to 5:30pm
Through Cripple Creek Parksand Recreation
Park and Rec fee is $69.00

This class provides a basic introduction to paleontology, the study of the ancient life on earth and the fossils that remain behind. Paleontologists, those scientists who study paleontology, are working to understand the types of plants and animals that have lived from the beginning of life on earth until the present. paleontologists search for fossils all over the earth, discovering clues that will help them reconstruct earlier and very different worlds.

As an introduction to paleontology and the fossil record, the class will review how fossils are formed and the factors that are required for fossilization. Students will realize that not all types of organisms have an equal chance of becoming a fossil and that fossilization is very rare. This course covers the diversity of life, catastrophic extinctions, basic principles of stratigraphy interpreting ancient environments, and the tectonic history of the earth. Different aspects of fossil interpretation will be emphasized and how fossils provide evidence of: past biodiversity, geologic age and geologic events, and past ecosystems. Provides laboratory and research experience in paleontology, including: training in fossil preparation, identification of specimens, documentation (photographic and scientific illustration), specimen curation, and professional presentation of research. There will be discussion of current research and hands-on experience with sedimentary rocks and fossils. There are field trips to the Florissant Fossil Beds National Monument and a local fossil quarry. Transportation by bus will be provided by Cripple Creek Park and Recreation. Register today by calling 719-689-3514
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Lake George Gem and Mineral Club
P.O. Box 171, Lake George, CO 80827
Website: http://www.lggmclub.org/

The Lake George Gem and Mineral Club is a group of people interested in rocks and minerals, fossils, geography and history of the Pikes Peak/South Park area, Indian artifacts and the great outdoors. The club's informational programs and field trips provide an opportunity to learn about earth sciences, rocks and minerals, lapidary work and jewelry making, and to share information and experiences with other members. Guests are welcome to attend, to see what we are about!

The club is geared primarily to amateur collectors and artisans, with programs of interest both to beginners and serious amateurs. The club meets the second Saturday of each month at the Lake George Community Center, located on the north side of US Highway 24 on the east edge of town, sharing a building with the county highway shops. **In the winter we meet at 10:00 AM. From April through September, we meet at 9:00 AM, to allow more time for our field trips.**

Our organization is incorporated under Colorado law as a nonprofit educational organization, and is a member of the Colorado, Rocky Mountain and American Federations of Mineralogical Societies. We also sponsor an annual Gem and Mineral show at Lake George, where collectors and others may purchase or sell rocks, minerals, fossils, gems or jewelry. Annual membership dues (Jan. 1 through Dec. 31) are $15.00 for an individual (18 and over), and $25.00 for a family (Parents plus dependents under age 18).

Our Officers for 2008 are:

Maury Hammond, President
PO Box 549
Woodland Park, CO 80866
719-687-2702
mauriac@mywdo.com

John Rakowski, Vice President
PO Box 608
Florissant, CO 80816
719-748-3861
rak873john@centurytel.net

Mary O'Donnell, Treasurer
P.O. Box 31
Cripple Creek, CO 80813
719-689-7209

Rebecca Blair, Secretary
117 Yucca Creek Rd.
Divide, CO 80814
blairra@hotmail.com

Richard Parsons, Editor, 13249 Taza Lane, Pine CO 80470
Phone 303-838-8859 or e-mail richard.parsons@att.net