



Friends of Mineralogy, Colorado Chapter Newsletter – November 2013

Next meeting November 14th, 2013 meeting at the Denver Museum of Nature and Science

2001 Colorado Blvd., Denver, CO

Enter the museum via the staff/security entrance, to the left of the main entrance doors on the north side of the museum. Security staff will direct you to the Meeting Room

(Board meeting 6:30-7:30)

The Alkaline Granite Minerals of the Golden Horn Batholith, Washington Pass, Northern Cascade Mountains, Washington; by Dr. Markus Raschke, University of Colorado, Physics and Chemistry Depts.

“The unusual minerals at Washington Pass include zektzerite, sogdianite, and the related double-ring silicate brannockite - which we just discovered, making Washington Pass the world's only second known occurrence 40 years after the original description of that mineral.”

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From the editor;

This will be my last editorial and newsletter. I have not been able to give the Friends of Mineralogy newsletter the attention it deserves and must hand over the responsibility. I have greatly enjoyed working with the Friends of Mineralogy as their editor.

My experiences in the field have always encouraged me to move forward and this year is no different. Digging at Devil's Head, Mount Antero, Lake George and other well known localities have been the backbone of my collecting. Lately I have been doing more prospecting into new (old) localities and most often it is a bust. But exploring more of Colorado's back country is a wonderful past time. The recent fires and floods have a silver lining to a field collector. New ground is exposed and the opportunity for discovery is greatly elevated. Down at

the South Platte River at the Adams County Fair Grounds I found a wonderful cobble. It is the end result of a beautiful scepter amethyst crystal tumbled by the river until it came to rest where I found it. Only a quarter sized exposure hinted at it's existence. I kicked and dug it free and could make out the hint of purple. I then held it up to the sun and the entire stone glowed dark purple with red flash. The lower portion of the stone is a very lightly tinted clear quartz, The "stem" of the scepter is noted by the clear hexagonal shape at the base. This basal crystal allows no light penetration into the upper portion of the scepter.



I expect that I will eventually cut the stone. I most likely will get about a 10ct flawless stone out of the goose egg sized cobble. Other discoveries at the South Platte River have been abundant fossil wood, material for knapping, dinosaur bone, Pleistocene bone and Indian artifacts.

Pete Modreski will take over for 2014 until a volunteer can be found to replace the position of editor. Thank you.
Bill Hutchinson

Denver Gem & Mineral Show 2013 – Winners in the Special Competitions

Winners of Competitive Exhibits:

Donna Chirnside Museum Trophy: University of Wollongong, Australia

Individual Competitive Case Trophies:

Educational, General Audience Concept – Richard Tripp (Master – Concretion or Geode?)

Educational, General Audience Concept – Denver Gem & Mineral Guild (Society – Terrific Topaz)

Thumbnail Minerals, Any Type – Nick North (Master – Worldwide Thumbnails)

Minerals, Unlimited by Size, Pseudomorphs – Lou Conti (Advanced – Pseudomorph Minerals, Worldwide)

Miniature Minerals, One Species – Barbara Sky (Master – Miniature Pyrites)

Club Prospector Trophy: Colorado Mineral Society

Winners in the Special Competitions:

Best of Species Trophies:

Thumbnail – name withheld by request (Rubellite, Jonas Mine, Brazil)

Miniature – Larry Havens (Elbaite, Pakistan)

Cabinet – Larry Havens (Liddicoatite, Madagascar)

Oversize Cabinet – Lou Conti (Schorl, Namibia)

Best of Colorado – Jim Hooten (Schorl, Teller Co., Colorado)

Lapidary/Jewelry – Jody Sawdo (necklace)

Richard M. Pearl Trophy: Larry Havens (Barite, Linwood Mine, Iowa)

Best Fossil: Steve Jorgensen (Ammonite, Pennington County, South Dakota)

Prospector's Trophy: Jean Cowman (Topaz, Colorado)

Junior Prospector's Trophy: Shealeene Kent (Phenakite, Antero Dist., Colorado)

C. E. "Shorty" Withers Trophy: Gail and Jim Spann (A Showcase of Tourmaline)

Not specifically mineralogy but we can all appreciate geology.

GSA perspective on UNESCO Geoparks initiative

Wesley Hill, of Geological Society of America (GSA), began with a presentation of the GSA mission and vision. GSA is interested in three components of Geoparks: conservation of our most significant geological features and sites, education of visiting public and research, and geotourism to increase public interest in our geoheritage. Geoparks provide an international structure to link designated national geoheritage sites around the world under a common global umbrella. By participating in Geoparks, the U.S. designated sites would be brought into the established family of global Geoparks. This could provide increased opportunities for networking with site managers from around the world and provide global recognition and prestige for the Geopark site. The benefits of Geoparks site include opportunities to highlight geoscience research and information to local residents, policy makers, media representatives, and local schools; wider recognition and a higher profile of the site; public education

spotlight on geoscience topics including volcanoes, earthquakes, tectonics, minerals, caves, and paleontology; and promotion of the site's geological heritage and its role in the history of the local area. Geoparks provides opportunities to increase geotourism in the area exposing the public to a wide range of geoscience topics.

The International Union of Geological Sciences (IUGS) partners with UNESCO on geological initiatives and is a supporter of Geoparks. IUGS is one of the largest scientific organizations in the world, and has approximately 120 member countries.

The role of UNESCO in Geoparks: UNESCO provides only endorsement, and has no control over any Geoparks. Ownership lies at all times with the host nation and with the host authorities. UNESCO's role can be best described as a type of quality branding.

The GSA, which is a member of the scientific geologic community, is interested in partnering with land managers, scientists, the tourism industry, and educators to see increased public exposure to and education in the geosciences through the Geoparks initiative. However, GSA cannot go about this alone and needs your support to help develop the program in the U.S. To start the program in the U.S., the following is needed: feedback from the field, approval of U.S. Geoparks, development of a U.S. Geoparks working group, development of U.S. guidelines from the existing UNESCO Global guidelines, announcement and marketing of the program to potential sites, and development of the application process.

Wesley also mentioned that GSA is currently assisting with the GeoCorps Program.

GSA, through the GeoCorps program, strives to increase the number of geoscientists on-the-ground, assisting with public land management and protection of geologic resources. GSA's possible roles in Geoparks would be, with organizational funding support, to provide assistance in developing a U.S. Geoparks program strategy; as a non-governmental organization, to help organize and participate in a U.S. Geoparks working group committee (made up of land management agencies, tourism industry, geoscientists, educators, etc.); to provide assistance managing the Geoparks application process; and potentially to provide support from GSA member geologists.

Stonehammer Geopark:

As North America's *first* Global Geopark, Stonehammer Geopark is located in Southern New Brunswick on the East Coast of Canada. Stonehammer Geopark is a geological park where you can experience a billion years of Earth's history. The landscape has been created by the collision of continents, the closing and opening of oceans, volcanoes, earthquakes, ice ages and climate change. The rocks of our geopark have been witness to the evolution of life, from the first discovery of Precambrian stromatolite fossils, to the 'Cambrian Explosion' of life, to the evolution of vertebrates and the emergence of life on land. The geopark includes geological stories from late Precambrian time a billion years ago to the most recent Ice Age, and almost everything between.

2013 Mineral/Crystal Discoveries

Arkansas Crater of Diamonds October 2013

A 14-year-old Oklahoma City girl unearthed a 3.85-carat diamond during a family visit to Arkansas' Crater of Diamonds State Park.

Tana Clymer discovered the canary gem Saturday at the park, which is the only diamond-producing site in the United States that is open to the public.

In July, a 12-year-old North Carolina boy [unearthed a 5.16 carat diamond](#) while on vacation with his family at the park.

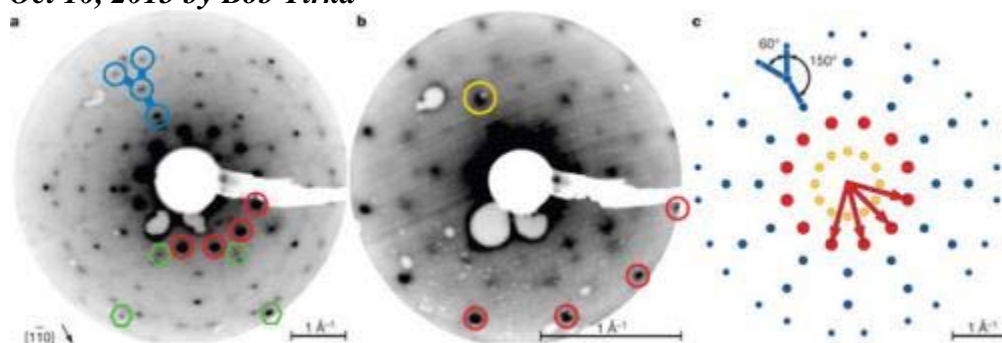
Her gem is the 396th diamond found so far this year at the park in southern Arkansas. Other gems discovered at the state park include amethyst, garnet, peridot, jasper, agate, calcite, barite, and quartz.



3.85 ct Diamond from Crater of Diamonds State Park

Researchers discover new form of 12-sided quasicrystal

Oct 10, 2013 by Bob Yirka



Electron diffraction from dodecagonal oxide thin film. Credit: *Nature* 502, 215–218 (10 October 2013)
doi:10.1038/nature12514

(Phys.org) —A team of researchers working at Germany's Martin-Luther-Universität has discovered a new form of a 12-sided quasicrystal. In their paper published in the journal *Nature*, the team describes how they accidentally created the previously unknown crystalline structured material while investigating interfacing properties between various substances.

Quasicrystals are substances that look a lot like crystals but have one major exception—the [pattern](#) of their structure is non-repeating. They were first discovered in 1982 by Daniel Shechtman—he won the Nobel Prize in chemistry for it in 2011. Since that time they have been created in the lab in various ways and have even been found in nature—as part of a meteorite that fell in Russia (which because it was found to have been created by a non-heat related astrophysical process, showed that applying heat wasn't necessary to create them). In this latest effort the researchers created one using perovskite oxides, potentially extending the number of [materials](#) that can be created by such [substances](#).

The team in Germany was investigating the ways perovskite behaved when used as a layer on top of a metal base. After exposure to extremely high temperatures, they noted that the material began to shape into a pattern, which they naturally assumed was a crystal. Upon closer inspection, they found that the 12-sided pattern didn't repeat itself—the mark of a [quasicrystal](#). The team notes that perovskite oxides are not normally noted for forming into quasicrystals, and in fact, no one really thought it was possible.

The discovery extends the types of quasicrystals that are known to exist, though not all of them have 12 sides of course. Their unusual structures make possible the creation of materials with unusual properties which scientists are just now beginning to find. Finding ways to create them using materials not normally associated with such odd structures may pave the way to a much broader array of end products—now that scientists know that it is possible, the door has been opened to creating all sorts of new materials from perovskite oxide based quasicrystals (now called barium titanate), such as thermal insulators or coatings for electronic components.

Abstract

The discovery of quasicrystals—crystalline structures that show order while lacking periodicity—forced a paradigm shift in crystallography. Initially limited to intermetallic systems, the observation of quasicrystalline structures has recently expanded to include 'soft' quasicrystals in the fields of colloidal and supermolecular chemistry. Here we report an aperiodic oxide that grows as a two-dimensional quasicrystal on a periodic single-element substrate. On a Pt(111) substrate with 3-fold symmetry, the perovskite barium titanate BaTiO_3 forms a high-temperature interface-driven structure with 12-fold symmetry. The building blocks of this dodecagonal structure assemble with the theoretically predicted Stampfli–Gähler tiling having a fundamental length-scale of 0.69 nm. This example of interface-driven formation of ultrathin quasicrystals from a typical periodic perovskite oxide potentially extends the quasicrystal concept to a broader range of materials. In addition, it demonstrates that frustration at the interface between two periodic materials can drive a thin film into an aperiodic quasicrystalline phase, as proposed previously. Such structures might also find use as ultrathin buffer layers for the accommodation of large lattice mismatches in conventional epitaxy.

MINERAL ANNOUNCEMENTS:

Littleton Club Silent Auction

Annual Auction

The club has its annual auction during the month of November. Members and non-members bring items to sell: minerals, gems, jewelry, fossils, books, equipment and anything else that is related to the hobby. Non-members are requested to limit items to twelve. The club retains 20% of the selling price.

--> At the SUNSHINE TABLE, we ask each member and non-member to donate one item with 100% of the proceeds used for cards and the club's [memorial trees](#).

The CHILDRENS TABLE, 100% donation, is for children twelve years and younger. For this table, bidding is by 10 cent increments. All other tables are 50 cent increments.

We encourage sellers to donate specimens to help pebble pups start or add to their collection. Seller and bidder numbers are available at the auction. Details will be announced during the month of October in the newsletter and on this site. Payment for purchases must be made by check or cash -- NO CREDIT CARDS OR POST DATED CHECKS. This is a pot luck day for socialization, laughter, buying, selling and eating.

Denver Gem Mineral Council.

The nominating committee for the Council has presented the following slate of officers for 2014. Janie Bennett – President, Martin Hannu – Vice President, Bob Berry - Treasurer, Sharon Hannu – Secretary. These people are the current officers and are willing to stay in that position for yet another year.

Thank you,

Sharon Hannu – Council Secretary

UPCOMING EVENTS;

Thurs., Nov. 14, 7:30 p.m., Friends of Mineralogy, Colorado Chapter, bimonthly meeting; **The Alkaline Granite Minerals of the Golden Horn Batholith, Washington Pass, Northern Cascade Mountains, Washington**; by Dr. Markus Raschke, University of Colorado, Physics and Chemistry Depts. “The unusual minerals at Washington Pass include zektzerite, sogdianite, and the related double-ring silicate brannockite - which we just discovered, making Washington Pass the world's only second known occurrence 40 years after the original description of that mineral.” Meeting in the VIP Room, Denver Museum of Nature and Science; all are welcome to attend.

Sat., Nov. 16, Littleton Gem and Mineral Club Annual Silent Auction, 12 noon - 5 p.m., at Columbine Hills Church, 9700 Old Coal Mine Avenue, Littleton. “Set-up will begin at 11:00 a.m. with the auction beginning at 12:00 p.m. Non-members are asked to not bring more than 12 specimens to sell. The club retains twenty (20) percent of the selling price. The verbal auction and a short business meeting will start at 1:00 p.m. There will be minerals, gems, jewelry, fossils, books and much more available for bidding at the silent auction. Food and drinks will be provided by the club and its members. For more information please email Ruth Zartman at ruthzart@yahoo.com or call [\(303\) 973-0405](tel:3039730405).” All are invited to attend.

Thurs., Nov. 21, 4:00 p.m., Van Tuyl lecture series, Colorado School of Mines, Berthoud Hall Room ; Christine Siddoway, Colorado College: “**A vestige of the Neoproterozoic in the Colorado Front Range: Sandstone dikes and source rocks along the Ute Pass Fault.**”, by Dr. Christine Siddoway, Colorado College. All are welcome; refreshments served. See http://geology.mines.edu/GE_Lecture-Series for a full list of this weekly lecture series (lectures on Nov. 7, 14, 21).

Thurs., Nov. 21, 7:00 p.m., monthly meeting of the Colorado Scientific Society: **The Joys of Mapping Northwest Colorado Geology: Subtleties, Slides and Snakes**, by Peter Barkmann; plus three Student Research Competition presentations, and awards for the best papers. All are welcome. At Shepherd of the Hills, 11500 W. 20th Ave., Lakewood.

Fri.-Sun., Dec. 13-15, Flatirons Mineral Club Rock & Mineral Show, taking place at the Boulder County Fairgrounds, Main Exhibits Building, Hover & Nelson Roads, Longmont, CO. Hours are 10-6 Fri., 9-5 Sat., 10-5 Sun. Admission charge. For more info see <http://bcn.boulder.co.us/community/fmc/fmcshow.htm> .

Thurs., Dec. 19, 7:00 p.m., Colorado Scientific Society annual Business Meeting and President's Address, **Exploring Areas of Natural Acid Rock Drainage in Colorado**, by Matthew Sares; all are welcome to attend; at Shepherd of the Hills Church, Lakewood.

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Meeting Dates for 2013

The dates for our future 2013 meetings will be on Nov 14th, 2014 on Jan 9th, Mar 13th, May 8th.

Membership in FMCC and National FM is \$13.

Payment by check can be sent to our Treasurer or any Board member.

Your newsletter editor encourages all FMCC members to send your email address so that you will receive the newsletter electronically. The email version of the newsletter is in color; the paper version will have none. Please send your email address to Editor Bill Hutchinson at ymhutchi5@gmail.com. Also if you only want a paper newsletter but are presently receiving an email newsletter, please let your editor know.

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