The 57th Annual Denver Gem and Mineral Show®

Barite and Calcite from Worldwide Localities

Denver Gem and Mineral Show speaker program
At the Hardrock Summit Show, September 4-7, 2025,
in the Library, Hotel Lobby, Westin Westminister Hotel,
10600 Westminister Blvd., Westminister, Colorado

Blue barite, Muddy Creek, Rio Grande County, Colorado. Marjory Regel specimen and Mark Jacobson photo

Green calcite, Garfield County, Utah. Former Philip Simmons and Erin Delventhal specimen and Mark Jacobson photo.

Acknowledgments

The Denver Gem and Mineral Show®, an IRS 501(c3) non-profit educational entity, is organized by the Denver Show committee which is composed of volunteers who are all members of at least one of the clubs that sponsor the annual September Denver Gem and Mineral Show®. These seven clubs are the Colorado Mineral Society (CMS), Denver Gem and Mineral Guild (DGMG), Flatirons Mineral Club (FLATIRONS), Friends of Mineralogy- Colorado Chapter (FMCC), Littleton Gem and Mineral Club (LGMC), Mile-Hi Rock and Mineral Society (RAMS) and the Western Interior Paleontological Society (WIPS)

The speaker program was assembled by Lawrence Havens with the support of Amber Brenzikofer - the Denver Gem and Mineral Show® Chair, the Denver Gem and Mineral Show® committee, and the organizers of the Hardrock Summit Show. The abstract booklet was edited and assembled by Mark Ivan Jacobson.

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The 2025 Denver Gem and Mineral Show® theme: barite and calcite from worldwide localities

The 2025 mineral theme for the Denver Gem and Mineral Show® is barite and calcite from worldwide localities. These two minerals, often associated together, are found in sedimentary, metamorphic, hydrothermal veins and even rarely igneous pegmatites. Calcite localities in Colorado are also abundant from the hydrothermal veins in the San Juan mountains, and the sedimentary rocks of west slope Colorado and in the septarian nodules in the Great Plains.

Calcite provides numerous opportunities to create specialized displays. Calcite colors cover almost the entire spectrum. Some of the colors displayed are purple calcite from Balmat, NY, green calcite from Garfield County, Utah, golden calcite from Elk Creek, Meade County, South Dakota, fluorescent red calcite from Becker quarry, Tolland County, Connecticut, violet calcite from Bou Azzer mining district, Morocco, and fluorescent blue and green calcite from Franklin, Sussex County, New Jersey. Calcite also can exhibit unique crystal forms including sand calcites from localities around the world including Rattlesnake Butte, South Dakota. Calcite twining is varied with calcite pseudomorphs also common. They included calcite coatings of anhydrite, quartz, fluorite and even barite as well as calcite being replaced or coated by quartz

Although barite displays a smaller diversity in colors and forms than calcite, specialized exhibits can be created based on locality, color or form. Barite is abundant in many worldwide localities. Prominent foreign localities are, for example Huánuco, Peru; the Rock Candy mine, British Columbia, Canada; Santa Lucia mine, Sardinia, Italy, or the Dreisler mine, Germany. Barite localities in Colorado are also abundant from the hydrothermal veins in the San Juan mountains, and the sedimentary rocks of west slope Colorado and in the septarian nodules or late stage veins in the Great Plains.

The most common colors of barite for example are clear, colorless gem crystals from the Book Cliffs, north of Grand Junction, and the Great Plains of Colorado; white crystals from the San Juan mountains and near New Raymer, Colorado; blue crystals from near Stoneham and Hartsel, Colorado; and golden yellow crystals from the Sherman mine, Lake County, Colorado. Barite crystals commonly form flattened crystals that are chisel-terminated, spear-terminated or a parallelogram. The rarer unique forms include white dendritic barite from Los Verdes Hills, Los Angeles County, California, or barite roses from central Oklahoma and New Raymer, Colorado.

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Thursday, September 4, 2025
11.00 am, Jeff Scovil: A Photo Album of Barite and Calcite
1.00 pm, Peter Modreski: Barite and Calcite from around the World
2.00 pm, Ryan Roney: Georgia Calcite
3.00 pm, Erin LaCount: Yours Truly, Arthur Lakes: Reconstructing the Timeline of the Dinosaur Ridge Quarries

Friday, September 5, 2025
11.00 am, Amy Atwater: Why Brachylophosaurus Is Your New Favorite Dinosaur
1.00 pm, Ed Raines: Soluble versus Nearly Insoluble
2.00 pm, Graham Sutton: A "Brief" History of Chinese Calcite Locations
3.00 pm, Les Presmyk: Arizona Calcites

Saturday, September 6, 2025
11.00 am, Dan Kile: Colorado Barite and Calcite
1.00 pm, Karly Litchfield: Amber Barite, Calcite and Fossils of the Elk Creek Region of South Dakota
2.00 pm, Jose Santamaria: Baryte from the Cartersville Mining District, Bartow County, Georgia, USA
3.00 pm, Jim and Gail Spann: These Are a Few of Our Favorite Things

Sunday, September 7, 2025
11.00 am, Brian Walko: Discovery of Watermelon Chalcedony and Calcite in Northwest Nebraska
12.00 pm, Mark Jacobson: Sand Calcites and Barite Roses from South Dakota, Wyoming, Nebraska, Oklahoma., Kansas, and Colorado
1.00 pm, Mark Jacobson: The Fisher quarry pegmatite, Topsham feldspar mining district: history, geology and minerals

Speaker abstracts and brief biographies in presentation order

A Photo Album of Barite and Calcite

Jeff Scovil
Scottsdale, AZ

My presentation will be a brief, survey of world-wide occurrences of barite and calcite. Coverage will include localities, colors and crystal forms.

Jeff Scovil Biography

Jeff Scovil has been a professional photographer of minerals and other earth science materials for 32 years and is the acknowledged, worldwide leader in the field. In 1996 he published *Photographing Minerals, Fossils and Lapidary Materials* by Geoscience Press. He travels the world photographing for collectors, dealers, museums and publishers and lectures widely on his travels as well as photography and mineralogy.

Jeff's work has been published in numerous books on mineralogy as well as books on geology, chemistry and physics. He works with most of the mineral magazines in the United States as well as Europe. His photos have been featured on 13 of the Tucson Gem and Mineral Show posters as well as posters for shows in Denver, Germany, France and Pakistan.

For over 30 years Jeff has run both the Mineral Photography Seminar and Mineral Photography competition at the Tucson Gem and Mineral Show. He won the 2007 Carnegie Mineralogical Award.

Barite and Calcite from around the World

Peter Modreski
Wheat Ridge, CO

This talk will highlight barite and calcite from several well known localities from around the world.

Peter Modreski biography

Dr. Peter Modreski, a geochemist, has worked for the United States Geologic Survey (USGS) since 1979 until his retirement. During his career, his work included the study of mines, caves, volcanoes, and geology in Colorado, New Mexico, Arizona, Utah, Idaho, Montana, Hawaii, Poland, and Russia. He was the Survey's geologic resource specialist for gemstones, as well as abrasives, quartz, beryllium, cesium, and rubidium. Modreski finished his career with the USGS as responsible for public communication and educational outreach for the USGS. He was also a Research Associate with the Geology Department, Denver Museum of Nature and Science.

His publications are numerous including being one of the co-authors of the second expanded edition of the book, *Minerals of Colorado* (1997) and the senior editor of Colorado Pegmatites (1986), the proceedings of a joint Friends of Mineralogy – Colorado Chapter and the Denver Museum of Natural History symposium. He has given numerous lectures, workshops, classes, and field trips for schools, teachers, professional groups, mineral clubs, and the general public across the southwest of the United States. He is currently a Consulting Editor for *Rocks & Minerals* and president of the Denver Gem and Mineral Guild

Georgia Calcite

Ryan Roney
Tellus Science Museum
Cartersville, GA

In Georgia, USA, calcite is abundant, widely distributed and economically important. The Cumberland Plateau is well known for its abundant karst features in the northwestern most corner of the state. In the Valley and Ridge of Northwest Georgia where Paleozoic fossils are preserved in limestone and calcareous shales, further karst features can be found and tectonic fractures in rocks are infilled with crystalline calcite. In the Georgia Blue Ridge, marble's economic value leads it to be both mined and quarried for architectural stone, monument stone, and agricultural and industrial use. Across the Piedmont, calcite precipitated from either recent ground water or from hydrothermal influx into fractures. Across the Coastal Plain, calcite is found in limestone, travertine, and as microcrystals within vugs in abundant cherts.

Ryan Roney biography

As curator at Tellus Science Museum, Ryan Roney cares for the rock, mineral, meteorite, and fossil collections. He focuses on the representation of Georgia's earth history in the museum's collections. He completed his Master's in Geology at The University of Tennessee, Knoxville, and has Bachelor's degrees in Geology and Spanish from Georgia Southwestern State University and the University of West Georgia. Ryan has done paleontological fieldwork in Chile, Argentina, and throughout the Southeastern US and mineralogical research on vapor phase minerals from Topaz Mountain in Juab County, Utah. His current research includes South American echinoids and Georgia's invertebrate fossils.

Yours Truly, Arthur Lakes: Reconstructing the Timeline of the Dinosaur Ridge Quarries

Erin LaCount * speaker
Friends of Dinosaur Ridge
Morrison, CO

Abstract from REVISING HISTORY: A NEW TIMELINE OF DISCOVERY AT THE LAKES-MARSH "ATLANTOSAURUS BEDS" QUARRIES AT MORRISON, COLORADO. Conference Paper, October 2022, by Erin LaCount and Matthew Mossbrucker.

Letters sent by Arthur Lakes to O.C. Marsh spanning 1876 to 1879 have corrected the timeline of fossil discoveries in the Upper Jurassic Morrison Formation at Dinosaur Ridge (Morrison, CO). These letters clarify the "Saurian" nomenclature used by Lakes as field names given to individual specimens, not excavation site names. Examination of written documents cross-referenced with an analysis of paleontological and geological samples has refined the timeline of discovery and sorted both specimen and site.

A detailed review of the correspondence has revised the timeline of discovery at the historic Lakes-Marsh Quarries at Morrison. The correspondence includes shipping information, telegrams from O.C. Marsh, 39 letters from Lakes, Lakes' 83-page field journal, 40 letters from Benjamin Mudge, 8 letters from Samuel Williston, and 3 letters from Henry C. Beckwith.

Lakes' letters to Marsh contradict the accepted timetable of discovery. Written on June 15 and 20 of 1876, two multi-page letters with illustrated diagrams by Lakes to Marsh housed in the collections at Yale University indicate the discovery of fossils in Morrison were made more than nine months prior to March 26, 1877. The latter accepted date is derived from Arthur Lakes' "field journal" which is a collection of anecdotes written after the excavations in Morrison, CO had occurred.

Previous scholars have indicated that the nomenclature for each site shifted as the excavations were processed and consequently created phantom quarries. Lakes' writings, however, indicate the numbered "saurians" reflect the interpretation of individual animals collected, with multiple specimens at each site. Referencing the unique lithology preserved on unprepared bone and the consequent variation in fossil permineralization, six fossil quarries were processed by the Lakes crew and are in Yale Peabody Museum collections.

This multidisciplinary approach has refined the understanding of the area where the first giant dinosaurs were found in the American West.

Erin Lacount biography

Erin LaCount is Director of Education Programs at Dinosaur Ridge since 2002. She oversees the educational content of Dinosaur Ridge's exhibits, interpretive information, and school-aged programs. In 2019 she began research on revising and reinterpreting the timeline of the historic Morrison Formation digs in Morrison, Colorado from the later 1870s and seeks to further explore this historic piece of time where some of Colorado's dinosaurs were first scientifically recovered.

Why Brachylophosaurus Is Your New Favorite Dinosaur

Amy Atwater
Friends of Dinosaur Ridge
Morrison, CO

Brachylophosaurus canadensis, a hadrosaur from the Late Cretaceous of North America (~80 million years ago), is not only scientifically significant but also remarkably good at preserving itself, and occasionally other organisms. Some of the best-known dinosaur "mummies" belong to this species, including the celebrated specimen "Leonardo." Leonardo preserves skin impressions, gut contents, and even microscopic evidence of parasitic worms, offering unprecedented insights into dinosaur biology. Another *Brachylophosaurus* specimen from Montana revealed a different surprise: the most complete fossil sturgeon ever found, preserved within the dinosaur's rear end. This unusual association raises intriguing questions: was the sturgeon ingested, scavenging, or simply a product of chance? While this specimen is the most complete example, other sturgeons have been found in the same formation and context, suggesting a recurring taphonomic process. This talk will explore these extraordinary cases of preservation and highlight why *Brachylophosaurus* deserves a spot as your new favorite dinosaur.

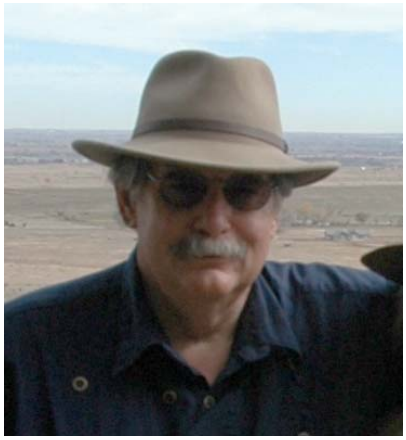
Amy Atwater biography

Amy Atwater is the Director of Paleontology at Dinosaur Ridge in Morrison, Colorado. She is also the President-Elect for the Colorado Scientific Society and recently published her first children's book, The Fossil Keeper's Treasures. Amy has a degree in Geology with a minor in Anthropology from the University of Oregon Clark Honors College and a master's degree in Paleoanthropology from the University of Texas at Austin where she was an NSF Graduate Research Fellow. While she is passionate about all aspects of paleontology, her primary expertise lies in primate evolution, and she has described and named three species of Eocene omomyids from southern California.

Soluble versus Nearly Insoluble

Ed Raines
Mines Museum of Earth Science
Colorado School of Mines
Golden, CO

Ed Raines biography



Ed is the Curator for the Colorado School of Mines, Mines Museum of Earth Science. He is a past president of both the Mining History Association and the Colorado Chapter of Friends of Mineralogy. He has written numerous papers on the geology, mineralogy, and mining history of many Colorado mining districts, several of which have received special awards from Friends of Mineralogy. In 2009, his book *Historic Photos of Colorado Mining* was published by Turner Publishing. In 2019, received the *Rodman Paul Award* for Outstanding Contributions to Mining History.

A “Brief” History of Chinese Calcite Locations

Graham Sutton
Lakewood, CO

Drawing on his more than 100 visits to China, Graham will share his hands-on experiences in exploring and developing locations for the collection of specimen quality calcites.

Graham Sutton biography

Graham Sutton began collecting minerals part-time in 1985; in a mere two years it had become a full-blown job/obsession. He keeps a small, thumbnail/miniature-focused collection of self-collected minerals, a small sample from the half million specimens he has collected and sold in his career. His business experience has included numerous specimen-buying trips all over the world (some 10 countries in addition to China) for Collector’s Edge. More recently, his aim has shifted to promotion – starting the Mineral City Show in Tucson, adding The Denver Box Company, and offering custom built cabinets for mineral display.

Arizona Calcites

Les Presmyk
Gilbert, AZ

Les Presmyk biography

Les Presmyk spent 42 years as a mining engineer in underground copper and with coal mines in Arizona, Colorado and New Mexico for Salt River Project, Arizona's second largest electric utility. He and his wife of 48 years (this coming August), Paula, are Arizona natives and are both graduates of the University of Arizona. Les has been actively involved in his community of Gilbert, Arizona for over 30 years, serving as an H.O.A. president, Planning Commissioner, and Town Councilmember for 12 years and additional roles since 2011, including starting and chairing its Veterans Advisory Board.

Les started collecting at the age of 10 and just attended his 61st straight Tucson Show. Their displays have received AFMS Regional and National Trophies, along with the Prospectors and Pearl Trophies in Denver and the Desautels, Lidstrom and Bideaux Trophies at the Tucson Show.

Les is the current immediate past president of the Tucson Gem & Mineral Society, is a former President of the Mineralogical Society of Arizona, and a member of the Tucson Show Committee for 38 years. He was recently appointed by the Governor of Arizona to the advisory board for the University of Arizona Mining, Mineral and Natural Resources Education Museum in Phoenix.

Les received the 2002 A. L. Flagg Distinguished Service Award, the recipient of the 2017 Carnegie Mineralogical Award, and the 2023 John S. White Mineral Legacy Award.

Les has explored and collected in a number of localities in Arizona, Missouri and Mexico and provided mining and engineering expertise at the San Francisco mine in Sonora, Mexico, the Brushy Creek mine in Missouri and the Red Cloud mine in Arizona. Les has written numerous articles and co-authored "Collecting Arizona – State of Mines, Legacy of Minerals". He has spoken at various symposiums, including Dallas, Yale, and the Northwest Friends of Mineralogy Symposium, along with numerous Arizona and New Mexico Symposiums, the Tucson, Springfield, and Denver Shows, and many clubs throughout the United States.

Colorado Barite and Calcite

Dan Kile
Littleton, CO

Colorado hosts a wide range of barite and calcite occurrences in varying geological environments throughout the state, from sedimentary concretions in the southeastern and western parts of the state, to metalliferous ore deposits in the southwestern and central regions; several of these localities have yielded world class specimens. These minerals, showing widely differing habits and colors from areas throughout the state, will be photographically documented in this presentation, from occurrences in Grand Junction, Ouray-Silverton, Stoneham, La Junta, Gilman, Leadville, Owl Canyon, Hartsel, and others, along with some relevant collecting experiences.

Daniel Kile biography

Dan, with his wife Dianne, has been an active field collector throughout Colorado and elsewhere in North America for 54 years. Now retired as a research geochemist from the U.S. Geological Survey, he is presently a research associate at the Denver Museum of Nature and Science. He has taught optical mineralogy at the USGS, the Colorado School of Mines, and the Hooke College of Applied Sciences in Chicago. He has published numerous articles on Colorado mineralogy in both professional journals and earth sciences magazines, and is a co-author of the 1997 update to the *Minerals of Colorado.*

Amber Barite, Calcite and Fossils of the Elk Creek Region of South Dakota

Karly Litchfield
Naughty Nautilus
Talent, OR

Elk Creek, South Dakota, has long been famous for producing some of the most beautiful, lustrous, gemmy golden barite in the world. Recent discoveries had shed new light on septarian concretion formation, mineral genesis, and the highly mineralized geologic zones found on Elk Creek. The Litchfields have recently witnessed the discovery of many new amazing concretion horizons, perfected collecting and preparation techniques that have set a new standard of specimen quality and consistency for the occurrence.

Karly Litchfield biography

Karly Litchfield has been collecting Elk Creek barite and ammonites as long as she can remember. Her passion for fossil and mineral collecting began on family vacations that always involved field exploration and collecting with Elk Creek a frequent target. Karly has completed an internship with the Collector's Edge laboratory in Golden, Colorado, and now prepares many Elk Creek specimens. She is currently conducting Fossil Excursions, aiding in scientific research and assisting with the development of museum learning displays that bring to light the many natural wonders of Elk Creek, South Dakota.

Baryte from the Cartersville Mining District, Bartow County, Georgia, USA

Jose Santamaria
Tellus Science Museum
Carterville, GA

Baryte distribution in Georgia amounts to random and sporadic occurrences except in one area: the Cartersville Mining District. Situated in Bartow County in the northwestern part of the state, the area is one of the longest-running mining districts in the nation. Mining for one ore or another has continued uninterrupted since the 1829 gold rush. Significant deposits of baryte, which rose from a gangue mineral to an industrial necessity, were exploited from 1892 through 2017. A number of mines also produced very attractive baryte crystals. For years, museum-quality crystals have been recovered from the Paga mine in Emerson on the southern end of the district. More recently, baryte microcrystals have emerged from the mine dumps on property also in Emerson that was formerly mined by New Riverside Ochre.

Jose Santamaria biography

Jose Santamaria served as executive director of Tellus Science Museum, formerly the Weinman Mineral Museum, from August 1996 until October 2023. He remains on staff as director emeritus to help with some of the museum's major projects. Born in Cuba, Jose grew up in Atlanta, where he earned a degree in Visual Arts at Georgia State University. His life-long interest in geology, minerals, and science in general led him to his current position at Tellus. His projects include the expansion of the Weinman Museum into Tellus.

His recent publications include a 2021 article on baryte microcrystals in *Rocks & Minerals* and as coauthor on a 2022 paper on the brachiopod *Platymerella* in the *Journal of Paleontology*. He also edited *Minerals of Georgia* (2016). Jose currently serves as the vice-president of the Rome Mineral Society and co-chair of the Georgia Mineral Society Micromount Section. He lives in Rome, Georgia in a renovated 1929 craftsman bungalow with his two dogs and one cat.

These Are a Few of Our Favorite Things

Jim and Gail Spann
Dallas, TX

Jim and Gail Spann started collecting minerals, as novices, in 2005. Both delved in with a passion and appreciation of the community and the mentorship, which they now offer to current novices. With 20,000 plus pieces in their collection it's obvious they love minerals. Living near Dallas afforded them a membership in the Mineralogical Association of Dallas (MAD) and they have learned that everyone has their own collecting style. And so they will talk about the evolution of the Spann collection.

Discovery of Watermelon Chalcedony and Calcite in Northwest Nebraska

Brian Walko
Boulder, CO

Toadstool Park, located near Crawford, Nebraska, is a stunning location where the High Plains meet the Missouri Plateau. At the Pine Ridge escarpment, the Oligocene-age White River Group, consisting of the Brule and Chadron formations, are exposed as badlands terrain. This location has dispersed chalcedony beds. For years, I collected brilliant fluorescent green chalcedony using short-wave ultraviolet (UV) light. The commercialization of mid-wave LED UV lights enabled the unearthing of a new fluorescent mineral named "Watermelon Chalcedony and Calcite." This is the story of its discovery.

Brian Walko biography

Brian Walko's interest in fluorescence started in elementary school. As a kid he was always involved in collecting rocks and fossils. He first learned about fluorescent minerals from Franklin, NJ, while attending a local mineral show. Brian has a B.A.in Earth Science – Geology from the University of Northern Colorado. He has taught Earth Sciences in Chadron, NE and Longmont, CO. When the first personal computers came out, he switched careers to IT and received his Master's in Software Engineering from the University of Denver. He spent 33 years in IT, working as a project manager specializing in the healthcare industry, until his retirement. Currently, he is the Fluorescent Mineral Society, Rocky Mountain Chapter Lead and President of Boulder County's Flatiron Mineral Club. He is also a consultant to the Denver Museum of Nature and Science's creation of their Fluorescent Mineral room. Additionally, he is co-host of the Fluorescent Room at the annual Denver Gem and Mineral Show®.

Sand Calcites and Barite Roses from South Dakota, Wyoming, Nebraska, Oklahoma., Kansas, and Colorado

Mark Ivan Jacobson
Denver, CO

Sand calcites and barite roses are uncommon varieties of these two minerals, occurring only in low temperature sedimentary deposits. Sand calcites form in poorly-cemented quartzose sedimentary sandstones where post-depositionally calcium carbonate-rich water solutions precipitate in the highly porous sandstone as calcite in single crystals enclosing the sand and ignoring its presence during crystallization. Sand barite crystals or barite roses form similarly, in a poorly cemented quartz-rich sandstone where post-depositionally barium and sulfate-rich water solutions infiltrated the sandstone along vertical fractures and precipitated as large barite crystals in nested rosettes within and adjacent to the fractures. The crystals of calcite and barite both crystallized at very low temperatures, probably at less than 100º centigrade.

The most well known United States locality for sand calcite crystals is from Rattlesnake Butte, Pine Ridge Indian Reservation, Jackson County, South Dakota. These crystals formed in the uppermost layers of the Miocene (23-5 My) Arikaree Formation. Besides this locality, other sand calcite crystals from the Arikaree Formation are found along the North Platte River near the Wyoming-Nebraska state line in Mitchell and Sioux Counties, Nebraska and Goshen Hole area, west of Yoder, Wyoming. Other sand calcite localities in different sandstone formations are known from Cholame Hills, Monterey County, California; Stoneham, Weld County, Colorado; Garfield County, Utah; Sierra County, New Mexico, Sandoval County, New Mexico and Mohave County, Arizona.

The occurrence of sand barite crystals is more restrictive compared to calcite. The barite specimens are found as intergrown multiple crystals that form rosettes or a radial pattern, commonly called roses, in the lower part of the Permian Garber Sandstone. This unit outcrops in a roughly north-south trend from north of Edmond, Oklahoma County to south of Slaughterville, Cleveland County. For both sand calcite and barite roses, all these localities are on private property, so collecting requires building permission and building relationships.

The best summary articles on these sand crystals that discuss localities and crystal formation were done by Huizing and Richards (2021) and London (2008). This presentation relies strongly on these two articles; readers should obtain these two articles if further information is desired.

Huizing, T. E, and R. P. Richards (2021) Connoisseur's choice: sand calcite, Rattlesnake Butte, South Dakota. *Rocks & Minerals* 96 (5): 414-431.

London, D. (2008) The barite roses of Oklahoma. *Mineralogical Record* 39(4): 277-292.
Official state rock

The Fisher quarry pegmatite, Topsham feldspar mining district: history, geology and minerals

Mark Ivan Jacobson, speaker
Denver, CO

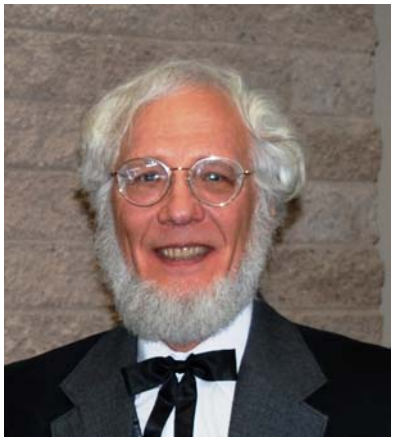
Jim Clanin
Gardiner, ME

The primary source of potassium feldspar, a critical ingredient for creating ceramic products such as plates, cups, pitchers, sculptures and other art objects, is in pegmatites. The Topsham pegmatite field in Sagadahoc county, Maine provided these raw materials to the developing pottery industry in the United States starting in the mid 1800s until 1960 when other less costly sources ended the mining for feldspar in southern Maine.

The 1929 discovery by Benjamin B. Burbank of topaz, lepidolite, blue elbaite, and beryl in a vug at the south end of the Fisher quarry led to its later mining by Harvard University mineralogists in July 1933. Collecting by Dudley Groves (1966), Gary Howard (1995), Cliff Trebilcock (1962, 1995) and many others, since that time has led to specimens, both from matrix and pockets of beryl, apatite, cleavelandite, elbaite, quartz crystals, and other minerals.

Starting during the summer of 2013, the southernmost quarry on the Fisher pegmatite was re-opened by Jim Clanin in partnership with the landowner, Linda Barton. The initial work focused on exploiting the area where mineral pockets were last found during quarrying operations in the 1930s and documented by Burbank (1934) and Palache (1934). Between 2013 and 2019, Jim Clanin with the help of Linda Barton, Doug Smith, John Taylor, Mark Libby, and Mark Stovall worked in the southern pit to open many small pockets containing green elbaites, blue topaz, quartz crystals, pink and blue gemmy beryl, albite variety cleavelandite groups, lepidolite, and dark spessartites. Within the cleavelandite masses near the vugs were recovered microlite, gahnite, apatite, columbite, spessartite, and anhedral bluish beryl.

This presentation will briefly review the mining history of the entire feldspar mining district and focus on the more recent mineral discoveries from 2013 to 2019.



Mark Ivan Jacobson biography

Mark Ivan Jacobson is a geologist-mineralogist specializing in pegmatites. He obtained a BS in mineralogy-geochemistry from Pennsylvania State University in 1973 and a MS in sedimentary geology from the University of California at Berkeley in 1976. After graduate school, he worked for Amoco and Chevron in oil and gas development as an earth scientist, completing 35 years with Chevron before retiring in 2013. He has collected in pegmatites in Canada, Norway, Czech Republic, China, Australia as well as most of the

pegmatite districts in the United States. Besides collecting minerals, he has had numerous articles published on the geology, mineralogy, and mining-collecting histories of pegmatites since 1978 as well as three major books: “The Gems of Hiddenite, North Carolina: mining history, geology and mineralogy (2021),” “Guidebook to the pegmatites of Western Australia (2007)” and “Antero Aquamarines: Minerals from the Mount Antero - White Mountain region, Chaffee County, Colorado (1993).” He has been a consulting editor for *Rock & Minerals* since 1984, a member of the Friends of Mineralogy-Colorado Chapter since 1982, their president (2014-2016), and also the FM National president (2017-18, 2021-23).