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PHOTO FEATURE: M. Nelson

Köttigite should have colorless crystals but due to substituting chromophores (often iron) it shows a variety of colors ranging from red to red-orange to brown to rose-pink to gray to gray-blue (and probably more). The prismatic crystals have a silky to waxy luster, are soft (2.5-3.0 Mohs), flexible and transparent to translucent. The arsenates are perhaps my favorite minerals. In this group arsenic (As) combines with oxygen (O) to form the arsenate radical with a negative oxidation state of ³⁻ and then combines with a positive charged cation metal(s) and often with water (H₂O) or hydroxide (OH) to form minerals like köttigite [Zn₃(AsO₄)₂ · 8H₂O]. The specimen came from the Ojuela Mine, Mapimí, Mapimí Municipality, Durango, Mexico.

Contact: Mike Nelson: csrocksguy@yahoo.com

COLORADO SPRINGS MINERALOGICAL SOCIETY PO BOX 2 COLORADO SPRINGS, COLORADO 80901-0002

Photo: M. Nelson

(S) and goethite (G). Width FOV ~ 1cm.

CSMS Calendar									
Feb '21	Mar '21								
02/02/21	03/02/21	Fossil Group	1st Tues	7:00 PM	Pikes Peak United Methodist Church	Jerry Suchan	303-648-3410		
02/03/21	03/04/21	Board Meeting	1st Thur	6:00 PM	Pikes Peak United Methodist Church	John Massie	719-338-4276		
02/18/21	03/18/21	Pebble Pups (see session online)	3rd Thur	5:30 PM	Mt. Carmel Center	Steve Veatch	719-213-1475		
02/18/21	03/18/21	General Assy Meeting	3rd Thur	7:00 PM	Mt. Carmel Center	John Massie	719-338-4276		
02/25/21	03/25/21	Crystal Group	4th Thur	7:00 PM	Mt. Carmel Center	Kevin Witte	719-638-7919		
02/25/21	03/25/21	Faceting Group	4th Thur	7:00 PM	Berta's House	John Massie	719-338-4276		
By appt	By appt	Lapidary Group	By appt	By appt	Sharon's House	Sharon Holte	719-217-5683		

Other CSMS Events

Not cancelled actually:

General Assembly Meeting (Zoom) Board Meeting (Zoom) 18 Feb '21 7:00 PM 4 Mar '21 6:00 PM

Community Events (Pete Modreski)

Feb 9 6:30 PM "In the Shadow of Volcanoes" by Nicholas Famoso, Chief of Paleontology and Museum Curator, John Day Fossil Beds National Monument, Oregon. Monthly lecture (via Webex) hosted by Friends of the Colorado School of Mines Museum; all are welcome to attend.

Login online: friendsofthecsmgm.my.webex.com and meeting password is ##V0ICAn0

Abstract: It is clear that ecosystems are devastated after a volcanic eruption coats the landscape with a layer of ash; however, the ecological recovery of the local groups of mammals after eruptions is poorly understood. Volcanic eruptions vary with magnitude and type and only a fraction of them have been analyzed for effects on the groups of mammals that live in the area of devastation. To better understand the recovery of these affected communities, we will look at ecological changes across modern volcanic boundaries in the 1980 Mount St. Helens (MSH), Washington, and 1914-1917 Mount Lassen, California, eruptions. We will then then investigate the fossil record specifically focusing on the extremely volcanically perturbated Oligocene record at John Day Fossil Beds National Monument in central and eastern Oregon. We will also look at some other examples of volcanically perturbated ecosystems throughout the Cenozoic and how mammals have adapted to volcanism across the globe.

Community Events (Con't)

Feb 11 4:00 PM - 5:00 PM Van Tuyl Lecture (Virtual), Colorado School of Mines, "Drilling to Magma," by Dr. John Eichelberger, Geological Society of America Distinguished Lecturer, Professor Emeritus, University of Alaska, Fairbanks. Venue: Berthoud Hall, 1516 Illinois St., Golden CO (School of Mines).

Feb 18 7:00 PM Monthly meeting via Zoom, Colorado Scientific Society, Marieke Duschene (USGS), "North and Middle Park, CO." For more info upcoming see https://coloscisoc.org/

Feb 21 1:00 PM "Timing of the uplift of Pikes Peak and the demise of Lake Florissant," by Ned Sterne. A Zoom presentation for the Florissant Scientific Society; all are welcome to attend.

A more elaborate title for the presentation:

"Previously unrecognized Cenozoic structural controls on river courses along the eastern flank of the Southern Rocky Mountain epeirogen with a focus on "Pikes Dome," an interfluve high between the South Platte and Arkansas Rivers – How the Florissant Valley dates initial rise of Pikes Dome to the latest Eocene."

Zoom login: https://us02web.zoom.us/j/89441595045?pwd=MXdjNFV3K2dKUjZSTENTTHRYNy9vdz09 Meeting ID: 894 4159 5045 Passcode: 527440.

An extended abstract and additional information will be posted on the FSS facebook page, https:// www.facebook.com/FlorissantScientificSociety/ and website, https://florissantscientificsociety.co.education/

Mar 9 6:30 PM Monthly lecture via Webex of the Friends of the Mines Museum. Topic TBA.

Mar 18 7:00 PM Monthly meeting via Zoom, Colorado Scientific Society, Kyle Bracken "Layer-bound normal faulting in the Upper Cretaceous Niobrara Wattenberg Field, CO"

Apr 13 6:30 PM Monthly lecture via Webex of the Friends of the Mines Museum, "A virtual tour of the rock collection of the National Museum of Natural History," by Leslie Hale, National Rock and Ore Collections Manager and Collections Management Team Lead, Department of Mineral Sciences, National Museum of Natural History, Smithsonian Institution. Leslie will describe the rock collection on a virtual tour using photographs and stories from her experiences over the past three decades. All welcome to attend; login information TBA.

Apr 15 7:00 PM Monthly meeting via Zoom, Colorado Scientific Society, Teresa Schwartz (CSM) "Fluvial deposits of the Raton Basin: Implications for paleotopography and paleoclimate."

TBD Florissant Scientific Society: All live meetings are cancelled until further notice. Meanwhile check out some recent meetings that you may have missed on the FSS YouTube Channel: <u>https://www.youtube.com/</u><u>channel/UCmA-JzMgXLWbAtJLVzOFQTg/videos</u>

End of Event Section

Secretary's Spot

2020 CSMS Officers

John Massie, President Rick Jackson, Vice-President *NEW!* Francis Nimick, Secretary *NEW!* Ann Proctor, Treasurer Adelaide Bahr, Membership Secretary John Emery, Editor Chris Burris, Member-at-Large Renee Swanson, Member-at-Large Sharon Holte, Past President

2020 CSMS Chairpersons

Rick Jackson, Program Coordinator John Massie, Show Vol Coordinator Mike Webb, Field Trip Coordinator Steven Veatch, Science Fair Chair Frank and Ellie Rosenberg, Librarians Mark Schultz, Social Committee Chair Ann Proctor, Store Keeper Lisa Cooper, Show Chairman Lisa Cooper, Webmaster Lisa Cooper, Facebook Keeper Mike Nelson, Federation Representative Vacant, Federation Representative

Meeting Minutes Colorado Springs Mineralogical Society

First ever CSMS General assembly via Zoom:



Snapshot of first ever CSMS General Assembly meeting via Zoom 21 Jan 21. Some attendees are not shown. *Photo: F. Rosenberg (2nd from left, bottom row, the fellow with the camera raised and taking a picture, presumably with an iPhone or similar device).*

On 21 Jan 21 (01/21/21), the board of the Colorado Springs Mineralogical Society (CSMS) conducted the monthly General Assembly meeting via Zoom, a first for the club. American Federation of Mineralogical Societies Rocky Mountain Federation of Mineralogical Societies



AFMS

AFMS Convention and Show Dates: 2021, April 21-25, Sandy, UT (see notice below) 2022, Jan. 29 -30, Tyler, TX

RMFMS Conventions, Workshop and Show Dates:

2021, April 16-18 - Sandy, UT (with AFMS) (see notice below) 2022, May 7-8 - Las Vegas, NV



About the AFMS - A non-profit educational federation of seven similar regional organizations of gem, mineral and lapidary societies. The purpose of AFMS is to promote popular interest and education in the various Earth Sciences, and in particular the subjects of Geology, Mineralogy, Paleontology, Lapidary and other related subjects, and to sponsor and provide means of coordinating the work and efforts of all persons and groups interested therein; to sponsor and encourage the formation and international development of Societies and Regional Federations and by and through such means to strive toward greater international good will and fellowship. Founded in 1947.

About the RMFMS - A non-profit educational organization. The purpose of the Rocky Mountain Federation is to have a close association of all clubs in the Society to promote the study of earth sciences, including the lapidary arts, the study of fossils and paleontology, and related crafts. The RMFMS was organized in 1941, and held its first annual convention at the Argonaut Hotel in Denver, Colorado. There were 16 organizations in attendance. The RMFMS became one of the original four founders of the American Federation of Mineralogical Societies when it was organized in 1947.

Walking Among Ghosts: Ironton, Colorado

Steven Wade Veatch

Introduction

The secluded ghost town of Ironton, first known as Copper Glen, is between Silverton and Ouray along the so-called "Million Dollar Highway" (US Highway 550), in Colorado's Red Mountain Mining District—the site of a silver boom that lasted from 1882 until 1893. Ironton's historic townsite is in a beautiful park-like setting that can be accessed along County Road 20 and 20D east of US Highway 550. A once thriving supply and shipping point for the area mines, Ironton is now a scatter of crumbling wooden buildings among the pines and aspen. Spending time at this abandoned townsite and looking at the remaining structures is like walking among ghosts.



Above: Ironton, in Ouray County, is eight miles south of Ouray and just north of Red Mountain Pass. At an elevation of 9,800 feet, Ironton experiences heavy snows in the winter and pleasant days in the summer. The town's name is derived from the low-grade iron ore of the area. Today, a few houses still stand at the south end of Ironton. *Photo: S. W. Veatch dated 2020.*

The Red Mountain Mining District

While searching for a bonanza, prospectors located rich ore deposits that occurred in narrow, chimney-like structures in 1881 (Moore, 2004). Thanks to these and other subsequent silver strikes, the news spread like wildfire, and the rush to the eight-square-mile Red Mountain Mining District was on. Within a short time of these discoveries, six mining camps were established in the district: Ironton, Guston, and Red Mountain Town, along with several smaller camps: Congress (AKA Red Mountain City), Chattanooga, and Albany (Wolle, 1977). These settlements were established to support the mines.

The district quickly became the geography and geology of opportunity, as several important mines were developed. The Yankee Girl and the Guston mines were two of the most productive (Moore, 2004). By 1883, nearly 40 mines in the district were in operation.



Above: Map of the Red Mountain Mining District, Colorado. Modified from Legends of America: <u>https://www.legendsofamerica.com/red-mountain-mining-district/</u>



Above: Red Mountain from Ironton Park, Ouray County, Colorado. The Ouray-Silverton stage road ran through here, serving the Red Mountain Mining District. Red Mountain is three separate mountains numbered 1, 2, and 3 (from north to south), north is to the left in the photograph. The red, yellow, and orange colors that cover these mountains come from the oxidation of pyrite. *Photo date circa 1901 by Detroit Photographic Company. Library of Congress Prints and Photographs Division, Washington, D.C., LC-DIG-ppmsca-18010.*

The district's ore minerals included bornite, chalcocite, chalcopyrite, covellite, enargite, galena, pyrite, stromeyerite, sphalerite, and tennantite (Moore, 2004). Miners also found gold associated with some of the copper-bearing ore (Burbank, 1941).



Above: The Yankee Girl mine started a rush to the Red Mountain Mining District. Developed to a depth of 1,050 feet, it was the most productive mine in the district. *Photo: S. W. Veatch dated 2020.*

Ironton

Ironton (first known as Copper Glen) was started in the winter of 1882-1883 at the



Above: Silver ore from the Yankee Girl mine. Courtesy of the Denver Museum of Nature & Science, DMNH EGM5479.



Above: Fine small crystals of gold formed on quartz. Specimen from the Red Mountain Mining District. 48 mm wide x 57 mm tall. *Courtesy of the Denver Museum of Nature & Science, DMNH EGM10953.*



Above: Bornite. Specimen from the Yankee Girl mine. Courtesy of the Denver Museum of Nature & Science, DMNH EGM2329.

north end of the Red Mountain Mining District by prospectors and miners who slept in cotton tents and primitive cabins, some packed in like sardines, on dirt floors (Eberhart, 1969). Several cabins had makeshift roofs of canvas.

By January 1883 there were no less than 300 tents pitched in the snow in Ironton (Wolle, 1974). At the edge of a wilderness, Ironton was pounded by endless winter storms. Only with heavy blankets and a blazing fire could the bitter cold be kept at bay in the Ironton cabins. Spring always seemed like a rumor. When it came, so did the mud, but it was home.

Permanent construction soon followed, replacing the tents. The town was surveyed on March 4, 1883 (Smith, 2007). On March 9, Ouray's Solid Muldoon announced: "Three miles north of Red Mountain Town . . . is the new town of Copper Glen, or Ironton, which was surveyed Sunday, and on Monday evening had thirty-two cabins underway" (Wolle, 1974, p. 446). Within a few weeks

at least 100 buildings covered the flat spots. Merchants from Ouray and Silverton built branch stores (Smith, 2007). By spring, all the town lots were sold.

A special spirit existed in Ironton—a confidence to overcome the difficult physical environment that required a challenging set of adaptations of those who lived there. Tintypes of the period show faces of people who were determined, untrammeled individuals who faced hardships in this mountain setting, making it by gumption and by God. The residents were ready, and with a strong sense of community and family, Ironton was on its way to meet its future.

A post office was established on May 2, 1883. Watson Henderson Stuart served as the first postmaster (D. Griffee, personal communication, 2020). Mail delivery was not always a regular event. Once an avalanche swept a rider, who was hauling the mail, off the road to Ironton. By summer, Ironton was the largest town in the district with over 200 houses, tents, and log cabins (Smith, 2007).

Newcomers, from rainbow chasers, carpenters, misfits, miners, and merchants to tinhorn gamblers—all driven by dreams and seeking their fortunes—continued to arrive in Ironton daily by stage, on foot, or on horseback. Most who came were men in their early thirties, and not married (Ninneman and Smith, 2006). Some of these new arrivals stayed at the Strayer House, one of the first hotels in the district (Smith, 2007).

By the summer of 1883, the town was going up faster than smoke through a chimney. Hammers were pounding nonstop. Because of Ironton's growth and constant building, the supply of lumber could not keep pace with the demand. Soon, several sawmills were established and became beehives of activity (Smith, 2007). Besides providing lumber for building, trees were cut for log cabins, mine timbers, and burned to heat mine boilers and keep homes warm (Smith, 2007). Trees quickly began to disappear from the mountainsides.

Many businesses lined Ouray Street, the graded, mile-long main street of Ironton. These establishments, crowded along wooden-plank sidewalks, included 12 saloons (which kept the miners happy), four busy restaurants, livery stables, and a bookstore that sold newspapers and cigars (Smith, 2007; Southworth, 1997). The general store carried a wide range of goods, but the choices were restricted to what was on the shelves (Smith, 2009). Ironton even published a newspaper (Smith, 2009). By 1885, there were 125 permanent residents in Ironton (Smith, 2007). An untold number lived nearby.

A Catholic mission, under the young Father J. J. Gibbons, guarded the souls of Ironton (Gibbons, 1898). The small, white, wood-frame church was near the railroad depot. Four windows ran along the length of the little church. A simple bell tower over the entrance rang out the call to worship (Sloan and Skowronski, 1975). Father Gibbons served three congregations: he alternated services in Ironton every other week with the church in Ridgeway, and he also said mass at the Catholic church in Ouray each Sunday (Smith, 2007). Father Gibbons was assisted at the Ironton church by Paddy Commins, who was 80 years old. Commins was the sexton and maintained the church and its records (Gibbons, 1898). Commins had survived the Irish Potato Famine by eating grass that fringed the roads. He escaped those dire circumstances and came to America with only what he was wearing.

Churches were important in the mining camps. According to Father Gibbons, "It is customary for the miner to come to town at least three times a year, at Christmas, Easter, and the Fourth of July, and if he is a practicing Catholic, the church is one of the first places he visits" (Gibbons, 1889, p 28).

Ironton, like the other towns in the district, did not have a cemetery. There were no keepers of graveyards, there were no tombstones. The ground was frozen for long periods of time, and it was too hard to dig a grave (Smith, 2007). Those making their trip to glory went via a cemetery in Ouray or Silverton.

Records do not show any doctors, but death prowled around in the camp. Mining accidents, infections, disease, avalanches, and rockslides claimed lives. Home remedies and patent medicines were in high demand to treat health problems. Clean water was scarce. Nearby mines polluted the water, households dumped garbage outside, outhouses were everywhere, and horse and mule droppings were ubiquitous. All of these factors fouled the water and caused health problems (Smith, 2009).

Children grew up quickly in Ironton. They were packed into Ironton's schoolhouse for doses of discipline and the three Rs. During the winter, school closed due to the frequent snows, but it was in session all summer and fall (Wolle, 1977).

Miners worked twelve-hour shifts and sometimes went weeks without a day off (Smith, 2007). The work paid \$3.50 per day, was hazardous, difficult, and brutal on the body (Gibbons, 1898). Father Gibbons made this comment about miners: "The miner is nature's student. His special delight is to examine the various rocks and discuss the different formations. The geological knowledge he displays would do credit to some of our noted scientists" (Gibbons, 1898, p. 191).

Father Gibbons wrote that miners came to Ouray to "enjoy its famous baths [hot springs] and get a box of Doctor Rowan's pills . . . for all diseases under the sun" (Gibbons, 1898, p. 16). Dr. William W. Rowan served the Ouray area in the early days; the local cemetery was known as "Rowan's Ranch" since he sent so many people there. Father Gibbons wrote this about Mother Buchanan's popular bath house in Ouray:

Here is a boiling spring, which is one of the sights of the town, and many an afflicted miner has had the rheumatism dislodged from his bones in the big swimming pool of hot water which bubbles fresh from the earth at Mother Buchanan's. The water is hot enough to boil eggs, so it always needs tempering with cold water which is provided in the bathing rooms (Gibbons, 1898 p. 124).

One of Ironton's famous stories was about two miners who lived in town and constantly feuded over mining claims. According to one version of the story, one of the miners, to resolve the dispute, put half a box of blasting powder under the other miner's cabin one night—while that miner was fast asleep—and set it off (Brown, 1984). The bomb's blast shattered the night, blew the cabin apart, and sent the sleeping miner and his mattress flying through the air. When the mattress landed, the miner only suffered a broken leg.

Recreation in Ironton was limited. Saloons and gambling took center stage in the lives of many Ironton miners. Baseball was a popular diversion, and most towns in the district had baseball teams that played against each other (Smith, 2009). Ironton had a fierce baseball rivalry going with

Red Mountain Town. Holidays were moments of leisure from the endless round of toil. Thanksgiving, Christmas, New Year's Day, and the Fourth of July were the important holidays celebrated by Ironton residents (Ninneman and Smith, 2006).

Transportation in the district was key to its success, and Ironton played an important part in the development of transportation in the area. In 1882 Otto Mears, the "Pathfinder of the San Juan's," and Fred Walsen built a toll road (part of the route was blasted from the side of a mountain) from Ouray to Red Mountain Town (Sloan and Skowronski, 1975). After another year, they finished extending the road from Red Mountain to Silverton (Sloan and Skowronski, 1975). Horses had to be "well shod and the shoes sharp" to make it safely over the narrow parts of the toll road (Gibbons, 1898). This road stimulated the growth of Ironton as it kept its merchants busy supplying the district's mines and miners (Smith, 2007). Supply wagons arrived regularly from Ouray carrying mining supplies and equipment, lumber, hardware, merchandise, and food (Wolle, 1977).



The toll road, blasted from the side of a mountain, winds its way to Ouray. Heavy wagons were used to haul ore to smelters and to bring supplies into the mining camps. Traveling on this steep and narrow road was both difficult and dangerous. Photo date circa 1898. Keystone View Company, Manufacturers and Publishers. Library of Congress Prints and Photographs Division Washington, D.C., LC-DIG-stereo-1s11329.

Two horses pull a buggy and driver over the toll road from Silverton to Ouray, looking S.E. to Mt. Abrahams, Colorado. *Photo date circa 1905. Library of Congress Prints and Photographs Division Washington, D.C., LC-DIGstereo-1s11321.*

A typical freight team consisted of three pairs of mules or horses that pulled heavy freight wagons as they scrambled up rough roads, bringing supplies into Ironton and ore out of the district on the return trip (Smith, 2007). In the winter, the snow was piled so deep along the road that hundreds of men worked to shovel it away. In the winter, wagon wheels were replaced with runners, turning the wagons into sleds (Smith, 2007). Avalanches were a constant threat.

Ouray and Silverton competed to be the principal supply center for the Red Mountain Mining District. Silverton won this contest when Otto Mears brought the 20-mile-long Silverton Railroad into the district in September 1888. The track to Ironton was finished in 1889. There was great excitement in Ironton when the train steamed into Ironton's newly built railroad platform and depot the first time (Smith, 2007). Two trains, winding their way up and over from Red Mountain Pass, pulled into Ironton daily from Silverton. Heavy winter snows closed the railroad between January and May. The stagecoach from Ouray continued to make several daily stops in Ironton. Ironton replaced the small town of Albany as the end-of-the-line of the Silverton Railroad, making Ironton a transportation and freighting center for the Red Mountain Mining District (Smith, 2007).



Above: A stagecoach, pulled by six horses, carrying six passengers with baggage and mail in back, makes the daily trip between Ouray and Red Mountain Town, Colorado. *Photo date circa 1901. Library of Congress Prints and Photographs, Washington, D.C., LC-USZ62-110840.*



A view of Ironton's busy mile-long main street. A pack train of mules or horses is getting ready to leave town. A man stands next to his bicycle. A group of men gather in front of a building. Signs down the street read: "Livery & Feed Stable," and "Strayer House." *Photo date circa 1893-1895. Credit: Denver Public Library, Western History Collections, X-9548.*

The railroad was essential to the mining district; it reduced the shipping costs of ore to smelters in Silverton and Durango that processed the ore (Vendl and Vendl, 2015). The railroad also reduced the cost of supplies coming into the district.

The Silverton railroad, nicknamed the Rainbow Route, became a purveyor of scenery, taking passengers to the edge of the unbelievable where they viewed the scenic splendor of the Red Mountain Mining district. The Rainbow Route was known throughout the nation.

In addition to the train arriving in 1889, Ironton finished building its water works and electric plant (Smith, 2007). Ironton even had telephones, and by 1890, its population had peaked at 323 people (Smith, 2007).

Ruin came when the Panic of 1893 exploded across the district, causing the price of silver to plunge from 83 cents to 62 cents an ounce (Ubbelohde and others, 2015). This price drop forced the closure of many mines in the district, and mining never recovered. Economic conditions worsened in the Red Mountain Mining District over the next few years. The Silverton Railroad cut back service in 1897, and by December, the population of Ironton fell to 200. People continued to leave, and by 1900 there were only 71 people there. By 1910 the population dwindled to 48 and continued to decrease as residents left to follow their dreams somewhere else (Smith, 2007).

In 1904, the Joker Tunnel project began with the purpose of draining some of the mines closed by flooding. It was finished two years later (after extending 4,800 feet) and allowed some mines to reopen and produce ore (Smith, 2007). The tunnel operated until the 1940s (Smith, 2007). During the early 1900s, the Barstow mine and its mill were the main employers in the area. The Barstow kept the town going during the first decades of the new millennium until it closed in 1917 (Weiser-Alexander, 2020).

The post office closed on August 7, 1920. Because its closure occurred during prohibition, a few people in Ironton tried to talk the departing postmaster into allowing a still to operate inside the old post office (Brown, 1984). They were not successful in this endeavor. Only a handful of people stayed in town until the railroad shut down in 1921 (Dallas, 1985).

Harry and Milton Larson worked the Beaver and Belfast mines, and were the last residents of Ironton (Smith, 2007). Harry Larson died in the 1940s while Milton stayed in the abandoned town alone. In 1963, Milton appeared on the CBS television game show "I've Got a Secret." His secret: "I am the entire population of Ironton, Colorado" (YouTube, 2020). Milton Larson died in the

mid-1960s (Weiser-Alexander, 2020). The last mine in the district, the Idarado, closed in 1978 (Smith, 2007).

Windstorms and heavy, wet snows have leveled most of Ironton's houses and false-fronted stores. Paint has peeled away, the wood is split, and the shingles are mostly gone. Vandals have also taken their toll on the town by carting off pieces of it. Today, only a few homes remain. Through parting trees, a white house with bay windows comes into view while other buildings are hidden by overgrowth. The blue skies stretch into forever. These structures are owned by Ouray County and protected by conservation easements.



The "White House" with its shuttered bay windows once belonged to a mine superintendent who lived in Ironton. *Photo: S.W. Veatch dated 2020.*

When mining closed down, the dreams ended, and the people of Ironton moved on. Time stopped; left behind were wounds on the land: a minescape of broken headframes, empty shafts, silent mills, tailings, and a deserted town that harkens back to a time when saloons, hotels, stores, and homes once stood. Ironton has largely faded away, leaving only a ghostly page in the annals of Colorado's mining history.



A miner's cabin and shed in Ironton. The roof of the shed has collapsed from the weight of many winter snows. *Photo: S.W. Veatch dated 2020.*

Acknowledgments

I thank Ben Elick for preparing and modifying the map used for this paper. I appreciate the help of Dr. James Hagadorn and the Denver Museum of Nature & Science for their help in providing photographs of their specimens from the Red Mountain Mining District. I thank Shelly Veatch and the Colorado Springs Oyster Club critique group for reviewing the manuscript, and Dr. Bob Carnein for his valuable comments and important help in improving this paper.

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Find your assignments at: http://pebblepups.blogspot.com/p/merit-badge-assignments.html?m=1



Above: A fossil winged termite encased in amber. Photo micrograph by S.W. Veatch

This appears to be an image of a flying termite captured in amber. Since amber takes 10 million years to form, and since records show that the first termites came into existence around 130 million years ago, during the time of the Cretaceous period, this specimen appears to be a preserved termite from the late Cretaceous period to the middle Miocene Epoch.

Flying termites (also known as Alates) have 100 mm wing spans. After the colony reaches maturity (in about 3-4 years),

winged termites are produced. They leave the nest and eventually go to make new colonies. They belong to the order of the roaches called Blattodea. The termite species spans the entire world, yet they are known to thrive in the warm moist lowlands, and along coasts and tropic regions.

How to tell the difference between flying ants and flying termites:

The biggest difference between flying ants and flying termites is that ants have three body regions connected to each other, while termites appear to have only one body region.

About the author: Joshua Hair is a CSMS Pebble Pup in the sixth grade.



Graphic created by Cheri Mantz | Credit: PR Newswire

Flying Termites Joshua Hair

Grand Canyon Mining: Orphan Mine & Halotrichite

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The September 2019 issue of the Pick & Pack described minerals, especially philipsbornite and osarizawaite, collected from the Grandview Mine located on Horseshoe Mesa within Grand Canyon National Park (GCNP). The Mine had a long history of producing copper, and attracting visitors, until purchased and annexed into the Park in 1940. Specimens continued to appear from the Mine (collected illegally) until "bat gates" closed the entrance in 2009.

I have now acquired a second specimen, halotrichite (originally in the collection of David Shannon, noted Arizona rockhound), collected from a mine near Grand Canyon Village in the Park—the Orphan (Lost Orphan; Orphan Lode) Mine. I am indebted to George Munford of Northern Arizona University for the information in the paragraph below. See George's complete story at intermountainhistories.org.

The Mine was originally staked as a copper prospect by Danial Hogan (perhaps with Henry Ward as a partner?) in 1893 and then Hogan upped the ante by filing a patented claim with Charles Babbitt in 1906. The Mine was never a large copper producer and continued to struggle in the early 1900s. This struggle was compounded in 1919 when the Mine was incorporated into the new National Park. By the late 1930s Hogan saw a new opportunity for his land and invested in building the Kachina Lodge for tourists. But more troubles hit Hogan as World War II essentially stopped the flow of visitors to the Park. He ended up holding onto the claim until finally selling it in 1946, without ever hitting the big mineral bonanza. The new owners (several of them) continued struggling until rich uranium ore was discovered in 1951. "Big Mining companies" then moved in with money, purchased the claim, started mining, and greatly expanded the business during the "cold war" and uranium boom.



Danial Hogan built the Hummingbird Trail down to the mine entrance--not for me. *Photo: Public Domain courtesy of GCNP.*

Western Gold and Uranium, Inc. (the owners at that time) built a tramway from the south canyon rim down 1800 feet to where the Mine entered the side of the canyon wall. Ore was transported up to the rim and then hauled to a processing plant in Tuba City, AZ. On May 28, 1962, President John Kennedy signed into law, Public Law 87-457, which permitted Western Equities, Inc. to mine uranium ore in Grand Canyon National Park, adjacent to the Orphan

GRAND CANYON ORPHAN MINE



exchange for the title to the claim in 25 years (1987). The law specified that all mining would be underground and the tram would be dismantled by 1964. The Federal Government would receive

claim, in

Above: The tramway ran from the rim to the mine, 1800 feet of cable and fright. Book may be ordered from *Grandcanyonorphan.com*

a royalty ranging from 5 to 10 percent on the ore produced (Chenoweth, 1986). The tram was dismantled, and a 1500-foot shaft was drilled straight down from the rim to the mine and an elevator was installed.



Above: Headframe of Orphan Mine on rim of Canyon. *Photo: Public Domain and courtesy of GCNP.*

For those of us in Colorado it is interesting to note that in 1967 the Orphan claim and related properties were sold to the Cotter Corporation of Roswell, New Mexico, and Canon City, Colorado. Through 1967, the Cotter Corporation enlarged its mill at Canon City to process 400 tons of uranium ore per day in an alkaline leaching circuit and 100 tons per day in an acid circuit. A flotation cell was added to remove iron and copper sulfide minerals from the ore prior to alkaline leaching. The first ore was loaded for Canon City on rail cars at an Atchison, Topeka, and Santa Fe Railway Company's siding in Grand Canyon National Park on September 27, 1967. Since Cotter's Atomic Energy Commission contract had expired on February 28, 1965, all uranium produced after that date was sold on the private market to electrical utilities (Albrethsen and others, 1982).

By 1969 the mine had produced nearly 500,000 tons of ore that yielded about 4.2 million pounds of uranium oxide. By then mine owners were going bankrupt due to rising production and transportation costs, and federal regulations. The National Park Service finally acquired the abandoned mine and surrounding acres in 1987.

As with many mines in the West, bankrupt owners left U.S. taxpayers a cleanup bill. The Orphan Mine was declared a Superfund Site due to contamination by the uranium and we shelled out 15 million bucks to remediate the site. Even today uranium mining companies want to mine near the Park and a wide variety of groups and citizens continue to fight this proposition. In 2012, the Secretary of the Interior issued a 20-year temporary ban on exploration for new uranium mines (currently 831 active mining claims) on one million acres of public lands surrounding the Grand Canyon National Park. Rep. Raúl Grijalva (R-AZ) introduced the Grand Canyon Centennial Protection Act to ban new uranium mines around Grand Canyon National Park forever. The bill passed the U.S. House of Representatives on October 30, 2019. On December 19, 2019, Sen. Kyrsten (D-AZ) introduced a companion bill, S-3127, in the U.S. Senate; it is awaiting action.

Early reports on the Orphan Mine by Max G. Kofford, chief mine geologist for Golden Crown and Western Gold and Uranium, attributed the uranium ore origin to a cryptovolcanic structure or diatreme. However, as with the Grandview Mine previously described in the Pick & Pack the minerals at the Orphan Mine are concentrated in breccia zones situated alongside structural flexing features. The ore bodies are pipe-like structures entirely hosted in the upper Redwall Limestone (Mississippian in age) and are associated with the Breccia Pipe Uranium District described by Wenrich and others (1992, 2018). They noted "the northern Arizona metallic district can be thought of as a paleo-karst terrain, pockmarked with sink holes, where in this case most "holes" represent a collapse feature that has bottomed out over 3000 ft (850 m) below the surface in the underlying Mississippian Redwall Limestone. These breccia pipes are vertical pipes that formed when the Paleozoic layers of sandstone, shale and limestone collapsed downward into underlying caverns." The base-metal ores (copper and silver) may be related to, or similar to, Mississippi Valley Type deposits where emplacement of ores suggests low temperatures (as opposed to hydrothermal emplacement). Perhaps even



Mining the breccia pipe. Sketch: courtesy of Chenoweth, 1986.

more interesting in today's geopolitical world is that Rare Earth Elements (REEs), and especially Heavy Rare Earth Elements (HREEs), are significantly enriched in the uraninite (UO2) found in many breccia pipes. "Mixing of oxidizing groundwaters from overlying sandstones with reducing brines that had entered the pipes due to dewatering of the Mississippian limestone created the uranium deposits" (Weinrich and others, 2018). I wonder if REEs are also present at the Orphan?

So, the lonely mineral I have from the Orphan is halotrichite, a hydrated iron aluminum sulfate [FeAl2(SO4)4-22H2O]. The mineral is interesting in that it usually appears as acicular or hair-like fibers that may form tuffs, matted crust-like aggregates, or efflorescence. The colors are usually pastels - white, colorless, pale yellow, and pale green; crystals are quite soft at ~1.5 (Mohs). They have sort of a silky luster and are water soluble. Halotrichite may precipitate around hot springs and volcanic fumaroles or form as efflorescence in weathering sulfide deposits and oxidizing pyritic coals.



All above: Halotrichite crystals/fibers on matrix. Width FOV ~9 mm. I remain uncertain about the golden/yellow grains and the black grains; they may be some of the uranium minerals. *Photos: M. Nelson*

References Cited

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Weinrich, K.J., P. Lach, and M. Cuney, 2018, Rare-Earth elements in uraninite-Breccia Pipe Uranium District Northern Arizona in Delventhal, E. (ed), Minerals from the metallic ore deposits of the American Southwest symposium: Friends of Mineralogy-Colorado Chapter.



Depiction of a hotel proposed for the rim of the Grand Canyon. *Photo: courtesy of GCNP.*

A LITTLE TIDBIT

In the late 1950s, the mining company believed the uranium lode extended beyond their claim into federal property. In what appears to be some muscle, the company proposed building an 18 story, 800 room hotel overhanging the rim. This grand hotel would spill "down the side of the precipitous cliff like a concrete waterfall" ending at a swimming pool and sun deck below. The mining company thought that the public would prefer a small uranium mine in their Park rather than a giant hotel. Put some pressure on the Park Service!! The compromise was the 1962 Kennedy Law with the hotel taken off the drawing board.

President's Corner

Presidential Matters



John Massie



2020 Satellite Group Chairs

Kevin Witte/ Bob Germano, Crystals John Massie/ Bertha Medina, Faceting Jerry Suchan/ Joy Price, Fossils Vacant, Jewelry

Sharon Holte, Lapidary

Vacant, Micro-mount

Vacant, Photography

Steven Veatch/ Betty Marchant, Pebble Pups

2020 Liaisons

Florissant Fossil Beds National Monument: Steven Veatch

Western Museum of Mining and History: Steven Veatch

A Message from CSMS President Massie to Members:

I want to thank the members who attended our first club meeting via zoom. We will continue to meet via zoom until it is safe to return to Mt. Carmel.

The board of directors has decided to have the club participate in the Western Museum of Mining and Industry (WMMI) Family Day, which is tentatively scheduled to be held on April 10th. We are still looking for a volunteer to lead the silver (jewelry) group.

John Massie President





ohn Emery Editor

Thanks to our contributors. We encourage everyone to submit articles, photos, illustrations or observations.

Share your experiences, your new finds, or simply your enjoyment of our last field trip.

Handwrite it, type it, or email it. Format does not matter. All submissions are welcomed. The DEADLINE for items to be included in the next Pick & Pack is the **last day of the month.**

To submit an item:

For hardcopy photos or articles, mail to the address below or bring them to the General Meeting. All hardcopy photos remain the property of the submitter and will be returned. Electronic photos can be submitted at resolutions above 200 dpi in ANY format.

Articles are preferred in MS Word, preferably NOT pdf, but the editor will correct font.

e-mail to the editor: csmseditor@hotmail.com

Mail to: Pick & Pack Editor PO Box 2 Colorado Springs, CO 80901

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Classifieds and Announcements

CSMS Purchase of Large Crystal

The Colorado Springs Mineralogical Society purchased from a local prospector the third largest quartz crystal ever mined in Colorado. It was donated to the Western Museum of Mining and Industry as a memorial to Justice Leonard Sutton. Justice Sutton was a lifetime, very active member of CSMS.

Submitted by: Sharon Holte

Sharon Holte Past President, CSMS

CSMS Constitution Changes*

Third publishing:

The Amendment to Article IX p5, pg 17 - Annual Show. As published in the November 2019 Pick & Pack Page 5. "Vendors will be charged booth fees based on the size of the booths and the cost of the Venue. The fees will be determined by the Show Chairman." This change will allow the Show Chairman to determine the fees without each time having to change the constitution.

Third publishing:

The Amendment to Article X, pg 17 – Annual Picnic. As published in the November 2019 Pick & Pack, Page 5. "The annual picnic will be held on a Saturday in August." The reason for the change is that people tend to be away in July.

Second Publishing:

The Amendment to Article V, p1, pg 12, Dues change - New Members joining after May 30th shall pay one-half (1/2) the applicable due," and delete paragraph 5. This will allow those joining at the Show to receive the half a year discounted.

* This is a re-publication of changes made to the CSMS Constitution. Previous publication was in the Feb 2020 issue of the CSMS *Pick & Pack* newsletter.





Pick & Pack P.O. Box 2 Colorado Springs, CO 80901-0002



CSMS is an incorporated nonprofit organization with these goals:

- To promote and disseminate knowledge of the earth sciences, especially as they relate to mineralogy, lapidary, and fossils.
- To encourage study, collection, and fashioning of minerals.
- To accomplish the same through social meetings, lectures, programs, displays, shows, and field trips.
- The Pick & Pack newsletter is published 10 times each year to assist and promote the above.

Joining the Colorado Springs Mineralogical Society (CSMS):

- · Meetings are held the third (3rd) Thursday of each month, except January & August.
- 7:00 PM at Mt. Carmel Veterans Service Center; 530 Communication Circle, Colorado Springs, CO 80905
- · Visitors are always welcome.
- Individuals \$30, Family \$40, Juniors \$15, Corporate \$100.
- Find the application at the web site: <u>www.csms1936.com</u>. If you are interested in joining CSMS or would like more information, we encourage you to attend our next General Meeting or visit our web site.

Meetings:

CSMS also offers Satellite Group meetings that allow more focused attention in specific areas of our members' interests. Our current Satellite Groups consist of the following: Crystal Study Group, Faceting Group, Fossil Group, Lapidary Group, and Pebble Pups/ Juniors. For details on Satellite Group meetings, check out the calendars on page 2 and the web site.

Membership Benefits:

Yearly dues include 10 issues of the *PICK & PACK*, all field trips (additional fees may be required on some field trips, and members are responsible for all transportation to and from), participation in all Satellite Groups (some groups may request additional fees to help cover resource costs), free admission to the *Western Museum of Mining & Industry* (carry your card), a year of learning and enjoyment, plus a lifetime of memories.

Colorado Springs Mineralogical Society is a Member of the following organizations:

- American Federation of Mineralogical Societies (AFMS) www.amfed.org
- · Rocky Mountain Federation of Mineralogical Societies (RMFMS) www.rmfms.org