

28th

ANNUAL CONFERENCE
OF THE

MINING
HISTORY
ASSOCIATION

DEADWOOD-LEAD, SOUTH DAKOTA
JUNE 6 – 10, 2018

Mining History Association Conference

Deadwood-Lead, June 6-10, 2018

WELCOME

Located in the beautiful Black Hills, Deadwood and Lead are among the most famous frontier gold mining towns. Prospectors discovered gold in Deadwood Gulch in late 1875, and by the summer of 1876, a full-blown rush had hit the northern Black Hills. The thousands of people who came soon realized that only about six miles of Whitewood and Deadwood creeks held paying quantities of gold. Although limited in scope, the claims yielded abundant wealth. For instance, Deadwood Creek's Claim Number 2 below discovery yielded \$140,000 in four months, while the Black Hills' gold production is estimated at \$1.5 million for 1876.

Some of the miners went into townsite speculation, locating a number of camps in Deadwood Gulch, including Gayville, Elizabethtown, Deadwood City, and Montana City. Because of its location at the confluence of Deadwood and Whitewood creeks and just below some of the richest claims, Deadwood soon emerged as the preeminent gold camp, attracting a variety of frontier notables, including Wild Bill Hickok and Calamity Jane. The Deadwood of today aggressively embraces the lore of these Western legends. Visitors looking for the town's gold mining past will have to look beyond these stories and do a little digging (so to speak.).

Just as the placer rush heated up in the spring of 1876, other prospectors sought the origin of the gold. As the snow melted off the hillsides, prospectors discovered quartz outcroppings just a few miles above Deadwood. On April 9, four men, led by Fred and Moses Manuel, staked the Homestake Claim. Other prospectors soon followed, locating numerous claims along what became known as the Homestake lode, and the camp of Lead City followed.

The value and extent of Homestake ore attracted the attention of George Hearst and he came to the Black Hills in late 1877, buying every claim he could and incorporating the Homestake Mining Company. The Homestake Mine operated until 2001, and for many years was the largest gold mine in the US, producing over 40 million ounces of gold by the time it closed. The mine is now the location of the Sanford Underground Research Facility, a physics research laboratory for studying neutrinos and deep-space science. While many of the Homestake facilities have been reclaimed, the Homestake legacy is preserved in excellent museums and the Homestake Open Cut.

Other regions in the Black Hills produced gold, with the Bald Mountain and Ruby Basin districts, just west of Lead, standing out as the most prominent. They, however, never came close to the Homestake's output. Today, Coeur Mining operates its Wharf Mine in these districts.

The mineral wealth of the Black Hills was not limited to gold. South Dakota is also famous for other mineral resources including those found in the pegmatite deposits near Custer and Keystone. Overlooked by the early gold prospectors, the pegmatites were mined sporadically from the 1880s through World War II for mica, tin, lithium, beryllium, tantalum, and feldspar to name a few of the more "exotic," critical, and strategic mineral products. Both surface and underground mining were used to extract the ore from the pegmatite dikes and podiform deposits.

Another mining activity of historic proportions is the development of the Powder River Coal Basin located just west of the Black Hills in Wyoming and Montana. In the 1920s, the mines initially supplied the Homestake operations. By the 1980s, the demand for low sulfur coal had greatly expanded production.

ACKNOWLEDGMENTS

Many people helped make this conference possible, and the MHA owes thanks to the following:

Organizing Committee: Bob Otto, Carolyn Weber, and David Wolff with the help of Donna Loughlin and Kathy Wolff. Paper Committee: Brian Leech-Chair, Bob Spude, Bob Otto, and David Wolff

Many other MHA people also helped. Peter Maciulaitis' support has proven invaluable and the assistance of Mike Kaas, Jay Fell, Rebecca Lange, Ruth Zalewski, Nathan Delaney, and Barbara Clements is appreciated. People in the Deadwood-Lead area who helped include: Todd Duex, Matt Zietlow, Jeff Burich, Donna Job, Sarah Carlson, Constance Walter, Mike Stahl, Chelsie Bauer, and Kevin Kuchenbecker. In the wider Black Hills region Paul Horsted, Michael Hilton, Mike Cepak, Jeff Jacobsen, Tom Loomis, Brenna Williams, Ted Spencer, and Pat Zeimet also deserve recognition. Carolyn Weber, Rose Speirs, and the entire staff at Deadwood History, Inc. helped greatly with several of the key events. To all of these people we owe a great amount of thanks.

We also appreciate the companies who assisted with the conference or allowed us to visit their properties. Deadwood History, Inc., Homestake Mining Company, Coeur-Wharf Mining Company, Dakota Matrix, Black Hills Gravel, Black Hills Energy, Sanford Underground Research Facility, Sanford Lab-Homestake Visitor Center, Black Hills Mining Museum, Homestake Opera House, South Dakota Department of Environment and Natural Resources, Cheyenne Crossing, and The Lodge at Deadwood.

Finally, a big thank you goes to our sponsors who provided financial support: Homestake Mining Company, Coeur-Wharf Mining Company, the City of Lead Historic Preservation Commission, and the Deadwood Historic Preservation Commission.

Thank You to our Conference Sponsors.
Their financial support is greatly appreciated.



SCHEDULE OF ACTIVITIES

Wednesday, June 6

1:00 P.M. – 5:00 P.M. Homestake Fanatic Tour

Meet at the Sanford Visitor Center (in front of the Open Cut) Main Street, Lead, at 1pm. Former Homestake geologist and MHA member Bob Otto will lead the tour, with stops in Lead, Central City, Terraville, and Deadwood. Vans will be used to tour the sites. Please eat lunch beforehand and bring water and snacks. If you have steel toed boots please wear them.

1:00 P.M. – 3:00 P.M. Deadwood Walking Tour

Meet at the Homestake-Adams Research and Cultural Center (HARCC), 150 Sherman St., Deadwood, at 1pm. MHA Member David Wolff will lead the tour. Please eat lunch beforehand and bring water. Wear comfortable shoes and a hat. The tour is not strenuous, but it will cover about 2 miles.

4:00 P.M. – 7:00 P.M. Registration Table Open at The Lodge

Thursday, June 7

7:00 A.M. – 11:00 A.M. Registration Table Open at The Lodge

8:00 A.M. – 2:00 P.M. Wyodak Tour

This tour leaves from The Lodge and will head to the Powder River Coal Basin near Gillette, WY. Black Hills Energy will take the group into the Wyodak open pit coal mine and through the Wygen power station. Acquired by the Homestake Mining Co. in 1921 the Wyodak mine is the oldest open pit operation in Powder River Basin. A box lunch is provided. You need to wear closed-toe shoes.

8:00 A.M. – 5:00 P.M. Southern Hills Tour

This tour leaves from The Lodge and heads to the Southern Black Hills and Pegmatite Country. It will include a visit to the Keystone gold belt, with stops at historic sites, and the Tip Top pegmatite mine. Bob Otto and Tom Loomis of Dakota Matrix Minerals in Rapid City will serve as guides. A box lunch is provided. Proper footwear is essential.

2:30 P.M. MHA Board Meeting, Roosevelt Room at The Lodge

3:00 P.M. – 6:00 P.M. Registration Table Open, at the HARCC, 150 Sherman St., Deadwood

**4:00 P.M. – 5:30 P.M. HARCC Tour: (Homestake Adams
Research and Cultural Center)**

This tour will meet at the HARCC at 150 Sherman St.. The HARCC holds the records of the Homestake Mining Co.'s Lead operations. Carolyn Weber, Director of Deadwood History, and her staff will lead the tour.

**5:30 P.M. – 7:30 P.M. Opening Reception at the HARCC,
150 Sherman St., Deadwood**

Peter Maciulaitis, Opening of Conference

Bob Otto, "A Black Hills Geology Overview."

David Wolff, "An Introduction to Black Hills Mining History."

Friday, June 8

7:00 A.M. – 11:00 A.M. Registration Table Open at The Lodge

8:00 A.M. – 5:00 P.M. Vendor Tables Open at The Lodge

8:30 A.M. – Noon Partners Tour

This tour is for spouses and partners who may not be interested in attending the conference presentations. It will start in front of The Lodge and will visit various Deadwood locations. The tour will end in time for those registered for the Days of '76 lunch to attend that gathering. Transportation will be available from the museum to The Lodge.

Paper Presentations in the Pine Crest Rooms at The Lodge

8:00 A.M. – 8:15 A.M. Conference Opening

Peter Maciulaitis, MHA President 2017-2018, Welcome

David Wolff, Conference Site Chair, Conference details

**8:15 A.M. – 9:30 A.M. Session 1: Black Hills Mining: From Past to
Present, Bob Otto, Chair**

Dennis Bryan & Dave Shaddrick, "50 Years Ago: Our Adventures in Black Hills Mining History and How We Stumbled into Careers in that Industry."

Ross Grunwald, "The History and Mines of the Black Hills' Galena District."

Paul R. Spyhalski, "The Homestake Railroad and Related Railroad Interests."

9:30 A.M. – 9:45 A.M. Break:

**9:45 A.M. – 11:00 A.M. Session 2: Understanding the Mining
Landscape of the Black Hills, David Wolff**

Jeff Buechler & Michael Runge, “Archaeological Evidence of Underground Placer Drift Mining within the City of Deadwood.”

John Henris, “Contested Waters: Mining, Farming, and Recreation on Spearfish Creek, 1897-1919.”

Stephen S. Hart, “From Whitewood Creek to Grizzly Gulch: The Evolution of a South Dakota Superfund Site.”

11:00 A.M. – 11:15 A.M. Break:

11:15 A.M. – 12:15 P.M. Session 3: Mining Adventures: Telling Stories about Mining, Catherine Spude, Chair

Jane Bardal, “Mrs. Captain Jack Goes Prospecting in the Gunnison Gold Belt, 1894-1897.”

Brian Leech, “From King Solomon’s Mines to Jungle Gold: The Popular Culture of Mining Adventures.”

12:15 P.M. – 2:00 P.M. Lunch: Chuck Wagon Lunch and Tour at the Days of ‘76 Museum. Transportation is available, but people may drive their own vehicles.

2:00 P.M. – 3:15 P.M. Session 4: Communities, Corporations, and Mine Workers on the Western Plains, Eric Clements, Chair.

Ginny Kilander, “Glimpses into the Iron Ore Mining Past of Sunrise, Wyoming.”

Ryan Driskell Tate, “‘Hard Hat Cowboys’: Labor and Coal Surface Mining in the Powder River Basin.”

John Koerth, “Once Upon a Time in the West . . . The History and Legacy of a Western Coal Mining Center, Sand Coulee, Montana.”

3:15 P.M. – 3:30 P.M. Break:

3:30 P.M. – 4:45 P.M. Session 5: A World of Mines: Human and Environmental Networks, Memory and Change, Brian Leech, Chair.

Mica Jorgenson, “In Defense of Unscientific Instinct: International Expertise and Environmental Problems in Northern Canada, 1909-1929.”

Heather Green, “Mining, Environment, and Cultural Heritage: Tr’ondëk Hwëch’in Representation in the Klondike’s Mining History.”

Lorena Campuzano Duque, “Return to El Dorado: British Mining Companies and Mazamorreros in Late Nineteenth-century Colombia.”

5:30 P.M. – 6:30 P.M. Social Hour at The Lodge

6:30 P.M. – 8:30 P.M. Awards Banquet at The Lodge

Dr. Mike Headley, Executive Director of the South Dakota Science and Technology Authority, speaking on big science at Sanford Underground Research Facility and how current and future experiments affect our education and outreach efforts, as well as the local, regional, and state economy.

Saturday, June 9

8:10 A.M. – 9:25 A.M. Session 6: Back East and Up North: Making and Unmaking U.S. Mining Communities, Eric Nystrom, Chair

Johnny Johnsson, “9 Lives: Copper Smelting Campaigns in South Strafford, Vermont.”

Rudy Davison, “A Photographic Comparison of the Present and Past Iron Mining Centers at Tahawus, Port Henry, Lyon Mountain, and Benson Mines in the Northern Adirondacks of Upstate New York.”

Sydney Deussenberry, “Independence Mine: Life and the Gold Industry in the Mountains of Alaska.”

9:25 A.M. – 9:35 A.M. Break

9:35 A.M. – 10:50 A.M. Session 7: Transforming Mining’s Mechanics: Major Changes in Mining Technology, Methods, and Law, Stephanie Saager-Bourret, Chair

Bill Hawes, “Evolution of the Porphyry Coppers.”

Marty Johnston, “The Use of Pneumatic Locomotives in North American Mining.”

Eric C. Nystrom, “Any Zone or Belt of Mineralized Rock: The Eureka-Richmond Case and the Making of Western Mining Law.”

10:50 A.M. – 11:00 A.M. Break

11:00 A.M. – 12:15 P.M. Session 8: Roundtable: “An Assessment of James Douglas at the Centenary of his Passing.”

Participants: Ronald C. Brown, William W. Culver, James E. Fell, Jeremy Mouat, Robert L. Spude.

12:15 P.M. – 1:15 P.M. Presidential Lunch at The Lodge

Passing of Presidential Rock Pick: Peter Maciulaitis, MHA President, 2017-2018.

Keith Long, MHA President, 2018-2019, “The Perpetual Prospect: How Prospects, Fairly Tested and Found Wanting, Keep Coming Back to Life.”

1:30 P.M. – 2:30 P.M. MHA Business Meeting at The Lodge

1:30 P.M. – 7:00 P.M. Lead Tour and Homestake Opera House Reception

This tour will start at the Sanford Visitor Center on Main Street, Lead and will include stops at the Homestake's Yates Hoist House, the Black Hills Mining Museum, and the Homestake Opera House. The tour of the Opera House will include a reception with light hors d'oeuvres and a cash bar.

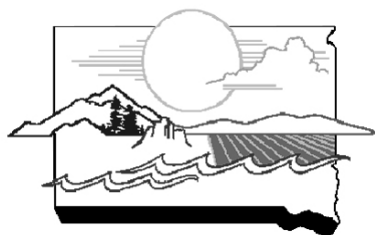
At 7:30, the Opera House will have a special performance, and all MHA tour participants are encouraged to attend. South Dakota composer Jesse Dunaway will be conducting 20 Black Hills vocalists and musicians in performing "The Homestake Mine" – a musical composition of sounds, speaking voices, and melody woven together to depict the 125 year history of the Homestake Gold Mine and its transformation into an underground science laboratory.

Sunday, June 10

8:00 A.M. – 5:00 P.M. Northern Hills Tour

This tour will leave from The Lodge and make stops at mining related locations in Deadwood, Central City, the historic Bald Mountain and Ruby Basin mining districts, with a stop at the Coeur-Wharf gold mine. From there the tour will go to the Gilt Edge mine for a look at this Superfund site. It will wrap up in the silver camp of Galena. A box lunch is provided. Since the tour includes visits to active and historic mine sites, proper footwear is essential.

Thank you to these organizations for assisting with tours.



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PAPER ABSTRACTS

Jane Bardal

“Mrs. Captain Jack goes Prospecting in the Gunnison Gold Belt, 1894 – 1897.”

SESSION 3: Friday, June 8, 11:15 A.M. – 12:15 P.M.

When Ellen Elliott was a young girl a gypsy told her that she would be a widow early in life and that she was born to find hidden treasure. After her husband and her three children died, Ellen set out to search for the prophesied treasure. She headed west, ran a boarding house in Gunnison, Colorado and became involved in various mining ventures in the 1880s.

Ellen Elliott Jack went prospecting and staked several claims in the Gunnison Gold Belt in 1894. This six by thirty-mile area south of Gunnison had seen a flurry of activity in 1880 which soon fizzled out, but following the silver crash of 1893 over one thousand out of work miners scoured the hills with renewed vigor in search of gold. Ellen Jack had to fend off claim jumpers and she turned down a sizeable offer for her claims, as many people believed that this area would become the next Cripple Creek. On the eastern end of the Gunnison Gold Belt the towns of Chance and Iris sprung up around nearby mines. Anne Ellis and her husband lived in Chance, and in her autobiography she described the hardscrabble reality of how her husband and his mining partners struggled to develop a paying gold mine. Her account stood in contrast to the boosterish opinions expressed in the local newspapers. The excitement over gold discoveries brought in money from some big mining interests, but unfortunately many people's dreams of striking it rich faded as veins pinched out and investment dollars dried up. Ellen Jack found some gold, but not enough for her prospects to become paying mines. She later sold her autobiography to tourists in Colorado Springs, touting herself as “Mrs. Captain Jack, mining queen of the Rockies.”

Jane Bardal is writing a biography of Ellen Jack. She authored *Southwestern New Mexico Mining Towns* and continues to conduct oral histories of uranium miners from the Grants Uranium District.

Ronald C. Brown, William W. Culver, James E. Fell, Jeremy Mouat, Robert Spude

“Roundtable: An Assessment of James Douglas at the Centenary of his Passing.”

SESSION 8: Saturday, June 9, 11:15 A.M. – 12:30 P.M.

This session is part of a larger commemoration of James Douglas's contributions at 100 years of his passing. James Douglas (b. 1837 Quebec

– d. 1918 New York) is well known in copper mining circles in a general way for his achievements in metallurgy and for shaping the Phelps-Dodge Company into a major mining corporation. He is honored by the American Institute of Mining Engineers with the annual gold medal for “Distinguished Achievement in Non-Ferrous Metallurgy.” At University of Arizona, Queen’s University and McGill University buildings are named for him. Yet his life is today little known. These presentations are intended as both a corrective, and as a contribution to the centenary commemoration of his death with a significant addition to North American historiography.

James Douglas was a prolific writer. He published upwards of 300 articles and a handful of books. One privately published biography treats his writing as an interesting sidelight. Now, a century after his passing, it is his writing which endures and the content of his essays and reports deserve a wider readership than is presently available. His bibliography documents a range of perspectives on North American life and early industrialization.

Each presentation is based on Douglas’ most significant writings about a period or a topic. Today, with so much available via the internet there is no longer a need to reprint pieces as much as provide commentary, context, and annotation. All of the presenters are scholars who have already worked on aspects of Douglas’ career. Douglas was someone drawn into mining by accident (the need to recoup the family’s Quebec finances) and possessed little or no practical experience when he began his mining career. And at a time when English Canadian identity was staunchly British (and frequently anti-American), Douglas could pursue a successful and high-profile career in the US. Both of these points gesture to the inherently interesting nature of the Douglas. His career is also a way of seeing the early history of the mining industry, hydroprocessing of ore, and lack of professionalism (chaos theory comes to mind). He was someone without any mining background who became a leader of the highest caliber.

William W. Culver, Political Science, SUNY at Plattsburgh – *Emeritus*,
“1862-1875: The Early Hunt & Douglas Copper Process in Quebec & Chile”

James E. Fell, Jr., History, University of Colorado at Denver., “1875-1883 – Chemical Copper Corporation at Phoenixville”

Robert L. Spude, Cultural Resources, National Park Service (Santa Fe),
Retired., “1880-1918 – Arizona, Mexico, and the Phelps Dodge Corporation”

Ronald C. Brown, History, Texas State University, “1880s-1918 – Douglas and Labor Relations”

Jeremy Mouat, History, University of Alberta - *Emeritus*, “1870s-1918 – Douglas as a Public Intellectual”

Dennis Bryan and David Shaddrick

“50 Years Ago - Our Adventures in Black Hills Mining History and how we Stumbled into Careers in that Industry.”

SESSION 1, Friday, June 8, 8:15 A.M. – 9:30 A.M.

Think of this as a history within a history. It starts with a look back to the late 1800s from the historical perspective of 50 years ago when we were there and concludes with a brief look at the “modern” period of Black Hills mining history subsequent to the 1960s.

Back then we were students at the South Dakota School of Mines and not much different from college kids everywhere. 50 years ago the “hills” were a very different place than they are today, we wandered freely and camped where we wished. Access was relatively easy and old mines and mining camps seemed to be everywhere. Their history was still staring you in the face, old workings, abandoned buildings, rusty iron, including ore cars, could still be found. One of our passions became old bottles; we even developed an exploration “model” for where to find bottles. The U.S. Forest Service administered most of the land in a fairly benign way and there were a lot of old roads and trails that once connected active mines and the towns that sprang up around them. Most of the camps were patented mining claims so there were a fair number of accessible private in-holdings as well. These were real ghost towns in the late 1960’s but today many are part of more recent open pits or inaccessible due to road closures.

Mining had been king ever since the Hills were settled by the white man shortly after the first discovery of gold by the Custer Expedition in 1874. The history of many of these old mining camps and ghost towns we visited was certainly compelling. Most of the camps were established between the late 1870’s and the early 1900’s. The mining camps that especially caught our interest were those between Spearfish Canyon, to the west, and Lead, home of the then active Homestake Mine. This area covers nearly 60 square miles and includes literally dozens of old mining camps. The flurry of mining activity in that area can be attributed to the discovery of precious metal mineralization hosted in the upper portions of the Pahasapa Limestone. These deposits were commonly very small so most of the mining camps only existed for a few years. We will briefly review the history of a couple of these mining camps, our activities there and what happened to them subsequent to our adventures.

Today, Wharf Resources is the only operation remaining in the Northern Hills, generally exploiting mineralization in the Deadwood Formation

where deposits are considerably larger. What happened to those old camps? A series of companies explored them, tried producing from some and finally Wharf Mining Company incorporated a very few into their operation at Bald Mountain.

Over the years the Black Hills have changed as well. There are a few more folks in the area, there are modern houses along some of those trails where we used to 4-wheel. Deadwood is much less “wild,” it has no brothels (at least none that advertise so blatantly as they once did), you can’t drink on the street and modern gaming casinos are everywhere replacing the boot and appliance stores and small bars and restaurants that used to line Main Street. And they have cleaned up Whitewood Creek that runs right through Deadwood.

So, 50 years later we look back on long careers in the mining industry, mostly in Nevada but internationally as well. Our nascent curiosity and wanderlust were originally stoked and inspired by the wonder and romance of the fascinating mining history and unique geology that surrounded us in the Black Hills so many years ago.

Dennis P. Bryan has 45 years experience in engineering and geology for the mining industry, primarily specializing in Industrial Minerals. He is currently a consultant, retiring in 2017 from Nevada Lithium Corporation (previously Western Lithium) where he served for nine years as Senior Vice President of Development. He started his career in the construction materials industry, forming his own geotechnical engineering and materials testing firm in the 1980s. Subsequent to that he was a consultant and senior management in several engineering firms in Northern Nevada personally specializing in industrial minerals and construction materials throughout the western United States.

Mr. Bryan has a BS in Geological Engineering from the South Dakota School of Mines and Technology in 1970 and a MS in Geology from the Mackay School of Mines, University of Nevada in 1972. He is a Registered Professional Engineer in Nevada and Idaho and a Registered Geologist in California. Dennis currently serves as Vice Chairman of the Nevada Commission on Mineral Resources, representing the small miner and prospector and the industrial minerals sector of Nevada’s mining industry. He has been active throughout his career in the Society of Mining Metallurgical and Exploration (SME), receiving several awards relating to the industrial minerals sector of the industry, has served on their Board of Directors and recently served as the President of the SME Foundation. He has also served on the Nevada Mining Association Board of Directors. He is a member of the Executive Advisory Board for the Mackay School of Earth Sciences and Engineering at the University of Nevada, is a Trustee on the University of Nevada Foundation and is also involved with various professional and community organizations locally.

David R. Shaddrick has 45 years of diverse experience in the mining industry. He has been an officer, director and consultant for numerous public and private companies. He is active in several professional societies and has published numerous papers in technical journals. He has participated in the discovery/development of several ore deposits and has extensive experience with the ore deposits of North America. Mr. Shaddrick holds a B.Sc. in Geology from the University of Minnesota, Institute of Technology and a M.Sc. in Geology from the South Dakota School of Mines and Technology. He is a “Qualified Person” as defined by NI 43-101 and holds designations as a Professional Geoscientist (P.Geo.) from the Association of Professional Engineers and Geoscientists of British Columbia and a Certified Professional Geologist (CPG) from the American Institute of Professional Geologists.

Jeff Buechler and Michael Runge

“Archaeological Evidence of Underground Placer Drift Mining within the City of Deadwood.”

SESSION 2, Friday, June 8, 9:45 A.M. – 11:00 A.M.

In the past two decades, construction monitoring activities within the City of Deadwood’s national historic landmark district identified two archaeological features associated with “coyoting” placer drift mining of conglomerate gravels along Whitewood Creek. In 1996 as part of the Broadway Parking Structure project, the primary feature consisted of a shaft collar and windlass platform. Dendrochronological (tree-ring) analysis suggests the structure was constructed during the late summer or early fall of 1876 and represents perhaps the only intact structure to survive the devastating Fire of 1879.

In 2017, an alignment of upright posts and cross-beam supports were identified at the Cadillac Jacks expansion project, located along Deadwood’s lower Main Street. Dendrochronological analysis has been initiated to establish a likely date of construction for this feature. Combined, the two archaeological features provide archaeologists and historians a rare opportunity to compare “coyoting” placer drift mining prior to the development of hardrock mining operations in the northern Black Hills mining districts.

Jeff Burchler, Dakota Research Services, Cultural Resources Management, Rapid City, SD.

Michael Runge, City Archives, Deadwood Historic Preservation Office.

Rudy Davison

“A Photographic Comparison of the Present and Past Iron Mining Centers at Tahawus, Port Henry, Lyon Mountain, and Benson Mines in the Northern

Adirondacks of Upstate New York.”

SESSION 6, Saturday, June 9, 8:15 A.M. – 9:30 A.M.

This past September I went to the Adirondacks to visit my cousin Bill McGarry who is quite an historian on the Adirondacks. He and I have been trading history of the San Juan Mountains and Adirondacks for some years, but when I inquired about historic iron mining that took place in the Adirondacks and whether he thought this would be significant enough for me to put together an MHA conference in 2020, he put together a four day field trip that focused on the four main iron mining areas in the northern Adirondacks. The first part of this field trip involved a two hour seaplane flight that provided an overview of Tahawus where an 1854 blast furnace still stands, Moriah and Mineville in the Port Henry area that border the important transportation link down the southwest shore of Lake Champlain to canals and the Hudson river that led to iron works at Troy, Lyon Mountain at the northern tip of the Adirondack Park where the Chateaugay Ore & Iron Company operated, and the Benson Mines near Clifton that during the 1950s had the largest open pit mine in the world. The flight certainly gave me a geographical appreciation of the immensity of the Adirondack Park, which is larger than any US National Park, and that there would be significant travel time to get to field trip destinations at all locations except the Benson Mines that are located too far away.

Following the flight, Bill and his wife Pam, another cousin named Laurene Lozoski (a current MHA member), and I took three days to drive to Tahawus, Lyon Mountain, Lake Placid, and the Port Henry area. What we concluded is that Lake Placid has exceptional conference facilities, but the June MHA dates fall inside the peak tourist season making accommodation and conference rates high, along with restaurant prices and field trip transportation costs. Regarding the pre and post conference field trips that have become integral to any conference, only Tahawus tipped our interest meter because the Adirondack Historical Society has made preservation efforts and provides excellent interpretive signage of the ruins. There are acceptable museums at Lyon Mountain and Port Henry that offer iron mining displays and two rather excellent models of mining operations. On the other hand, a visit to ruins at Lyon Mountain offered only a few large abandoned buildings surrounded by encroaching forest. And only the tailings piles are visible in the Moriah and Mineville areas because the ruins are off limits. As a few other MHA members at the Fairbanks conference that are familiar with these sites told me, “there is just not that much left.” That was true. Thus, there was not enough left of interest to merit the time it would take to drive conference goers to the two locations.

However, I am able to portray this area's unique iron mining history without needing to organize a conference. This would be done by creating a power point presentation using photos I took from the seaplane and on the ground that compares what exists today with historic photos I collected on our field trip that show what existed at each site in the past. A brief history of each site would be integrated with the photos, both old and current. This way, every conference goer would see how iron mining progressed in the northern Adirondacks from the early 1800s to the late 1960s and 1970s when everything stopped. Of particular historical importance is the fact that during the Civil War, most of the Union's iron ore was mined here, and some of it was used in the development of iconic creations such as the ironclad Monitor. In contrast to this period of glory, everyone will see what little remains today and how some of what is left, like massive piles of sandy tailings, are being used for road base and to spread on roads during the snowy part of winter.

Rudy Davison: BA Degree in Geography from the University of Colorado at Boulder. Underground mining experience at Climax Molybdenum at Fremont Pass, Colorado and Dixilyn Mining Company at Silverton Colorado and Payson, Arizona. Zookeeper at the Denver Zoo. Brucellosis Eradication Scheme technician for the New Zealand Ministry of Agriculture & Fisheries. Publisher *The Telluride Times* newspaper. Part-owner of Telluride Travel Connection and independent tour leader for trips to Australia, Africa, and South America. Telluride real estate developer. Author *Rudy's View, a Driving Guide from Telluride to the Top of Imogene Pass*. Rocky Mountain PBS program creator, commentator, and executive producer for the Colorado Experience historical documentary series. Board member, lecturer, and field trip organizer for the Telluride Historical Museum. Married to Andie Davison and have two cats. We live in both Durango and Telluride, Colorado.

Sydney Deussenberry

“Independence Mine: Life and the Gold Industry in the Mountains of Alaska.”

Session 6: Saturday, June 9, 8:15 A.M. – 9:30 A.M.

Gold was first discovered in the Hatcher Pass region in 1906. In the years immediately following this placer discovery the area became inundated with prospectors. Two of the early lode operations which grew out of this discovery were the Independence Mine and the Martin Mine. In 1938 both of these mines were purchased and combined by the Alaska-Pacific Consolidated Mining Company under the single name of Independence Mine. During the years of operation, diverse groups of workers made their way through the mines, mills, and machine shops, often bringing their families along with them. The rigors of mining and the hardships of

the severe Alaskan conditions made for a challenging lifestyle.

The Independence Mine property was transferred to the State of Alaska in the late 1970s and became a state historical park, which has allowed much of the site to be preserved. The sites which housed the married miners and their families, however, have not been preserved, making oral accounts of the living conditions particularly valuable. This project explores the history of Independence Mine primarily through oral histories, archival materials, and archaeological evidence at the site and seeks to add to the documented history of the mine and the Willow Creek Mining District, with a particular emphasis on the lived experience of miners and their families.

Sydney Deusenberry: B.S. Anthropology from University of Alaska Anchorage 2017; B.S. Natural Sciences with a concentration in Geological Sciences from University of Alaska Anchorage in progress.

Ross R. Grunwald, Ph.D.

“The History and Ore Deposits of the Galena District, Lawrence County, South Dakota.”

SESSION 1, Friday, June 8, 8:15 A.M. – 9:30 A.M.

The Galena district was discovered in 1875 by prospectors illegally looking for gold. When they began to discover lumps of galena in their sluices, they followed the ore float up to the outcrop of the Sitting Bull mine. When the Black Hills were opened for development in 1876, prospectors streamed into the area and several other discoveries were made. The Galena district is unique in that it is hosted by the Cambrian Deadwood formation but, unlike the other northern Black Hills districts, it primarily produced silver instead of gold. The district had its primary production from 1880 to 1912 when several mills and a smelter were constructed. The district saw renewed exploration efforts in the 1960s and 1970s but the work did not result in any significant economic discoveries. While not a large producer, the district had a celebrated history and even found its way into legal history in a dispute over apex rights.

Stephen S. Hart

“From Whitewood Creek to Grizzly Gulch: The Evolution of a South Dakota Superfund Site.”

SESSION 2, Friday, June 8, 9:45 A.M. – 11:00 A.M.

From 1877 to 1977, 100 million tons of Homestake gold-mill tailings, an average of 2,700 tons daily, were deposited into creeks around Lead. Gold ores from the Black Hills contain sulfide minerals composed of sulfur,

aluminum, cadmium, copper, zinc, iron, selenium, lead and arsenic. Historically, gold was recovered by gravity separation and amalgamation with mercury, but cyanide, used at times since 1900, replaced mercury completely in 1970. From 1920 to 1977, ~270,000 tons of arsenic were also discharged into Whitewood Creek. These hazardous substances moved, and continue to move, along Whitewood Creek into downstream sediments and flood plains of the Belle Fourche, Cheyenne, and Missouri Rivers, even reaching Oahe Reservoir over 200 miles downstream.

The practice of releasing tailings directly into the creeks ended when the Federal Pollution Control Act of 1972 set a 1977 limit for compliance. In 1975, Homestake contracted with Dames & Moore to design an engineered dam to contain its future mill tailings. The \$12 million, centerline clay-core, Grizzly Gulch tailings dam was constructed from 1976 to 1978 and, through subsequent raises, continued to be used until the mining ceased in 2001. In 1984, Homestake also implemented wastewater treatment for its mine water.

In 1981, USEPA, SD DENR, and Homestake began a remedial investigation under CERCLA along an 18-mile stretch of Whitewood Creek immediately upstream of the Belle Fourche River. Beginning in 1983, the Whitewood Creek Superfund Site was investigated, with arsenic identified as the primary concern. The Remedial Investigation/Feasibility Study completed in 1989 indicated that unacceptable levels of arsenic contamination existed in Whitewood Creek surface water, alluvial ground water, tailing deposits, and residential soils.

On March 30, 1990, the EPA issued a Record of Decision (ROD) which detailed selected remedial alternatives for protection of human health and the environment. After signing a negotiated Consent Decree, Homestake contracted with Jacobs Engineering Group in 1991 to implement the selected remedy. This involved covering and/or removing contaminated soils at existing residential properties, establishing institutional controls to restrict access to tailings deposits, and monitoring Whitewood Creek for hazardous substances. The remedial action, other than ongoing monitoring and reviewing activities, was completed in 1994. Based on the successful reintroduction of fish into Whitewood Creek and other environmental indicators, USEPA removed the Site from the NPL in 1996.

Steve Hart is a geological engineer who spent 42 years in government service and private consulting. His education at the Colorado School of Mines and Texas A&M University was followed by 12 years with the U.S. Geological Survey and Colorado Department of Natural Resources. Work as a reviewer of Mined Land Reclamation and Radioactive Source Material permit applications led

to consulting on radioactive waste cleanup projects at uranium mines and mills, Superfund lead-zinc-silver smelter remediation projects, and coal mine subsidence mapping. During his time at Dames & Moore and Jacobs Engineering Group, he was involved in both the Grizzly Gulch Tailings Dam and the Whitewood Creek Superfund Site as a consultant to the Homestake Mining Company.

From 1995 through 2001, Steve taught a graduate course in “Case Histories in Engineering Geology and Hydrogeology” as an adjunct at his alma mater, the Colorado School of Mines. In 2006, he retired from URS Corporation (now AECOM Inc.), the world’s largest engineering design firm at the time, then worked as an independent consultant until 2011. A long-time MHA member, he served as chairman of the 2014 MHA Annual Conference in Trinidad, Colorado.

Bill Hawes

“Evolution of the Porphyry Coppers.”

SESSION 7, Saturday, June 9, 9:45 A.M. – 11:00 A.M.

The world generally accepts that Daniel Jackling is the person responsible for the porphyry copper industry, and he is widely honored for this. As one delves into mining history, it is apparent that humility wasn’t Jackling’s strength. There are both other people and mine sites that could legitimately lay claim to being the first porphyry copper. Some of the people and places overlooked in paying homage to Jackling and Bingham Canyon include: Enos Wall, who brought Jackling to the claims Wall had acquired, and who felt the property could be profitable, gets overlooked. James Colquhoun, the brilliant Scotsman who saved Arizona Copper Co. at Morenci with innovations of leaching (using acid made from local material) and concentrating the copper minerals scattered in the rock, made a seemingly depleted vein type mine highly profitable, before Jackling started work at Bingham. Samuel Newhouse, who located numerous claims at Bingham Canyon and promoted the property as a viable venture. He also had steam shovels operating in Bingham Canyon months ahead of Jackling.

Southwest of Bingham Canyon, near the eastern Nevada town of Ely the US Geologic Survey reported that between 1901 and 1904, bodies of chalcocite bearing porphyry were discovered. By 1913, the same organization reported that perhaps 80 million tons of concentrating ores (1 to 3 % copper, with minor gold and silver) had been developed. The major figures of this district include Mark Requa, F.W. Bradley, J. Parke Channing and W.B. Thompson. Other, equally important figures in the success of the porphyry industry are those who financed the endeavor. These people (and places) all had a role in the establishment of the porphyry copper industry. It is not the sole achievement of just one person, but of many.

John Henris

“Contested Waters: Mining, Farming, and Recreation on Spearfish Creek, 1897 – 1919.”

SESSION 2, Friday, June 8, 9:45 A.M. – 11:00 A.M.

This paper examines the environmental impact of gold and silver mining on Spearfish Creek and the concurrent conflict over the quality and allotment of Spearfish Creek water between mining corporations, recreational fishermen, and Spearfish Valley farmers and ranchers prior to the conclusion of the First World War. Between 1897 and 1905 the Spearfish watershed was transformed by the simultaneous introduction of cyanidation into mining operations, state and federal propagation of an artificial non-native trout fishery, and the emergence of an irrigated horticultural district in the lower valley. Small mining operations in the Bald Mountain, Ragged Top, Iron Creek, and Carbonate districts utilized Spearfish water for placer mining or general mining operations, the growing Homestake Mining Company appropriated water for the Lead-Deadwood Mining District or by redirecting water for hydroelectric power, while local sportsmen forged a recreational trout fishery in the canyon, and lower valley farmers produced winter apples and small fruits which ended up on the shelves of Lead and Deadwood grocers. It seemed – at first – that there was water enough for all.

By 1915, however, the accumulation of mine tailings in the Spearfish Canyon and concurrent cyanide runoff caused conflict with sportsmen and anglers. At the same time mine laborers challenged new state fish laws, and a series of droughty summers demonstrated the limits of water resources in the Spearfish Valley by turning miners against valley farmers. The connections between mining, fishing, horticulture, and the disruptions caused to each by the natural limits of the water flow of Spearfish Creek, speak powerfully to the interrelated environmental histories of mining, recreation, conservation, and agriculture in the Black Hills during the first decades of the twentieth century.

John Henris is a 2001 graduate of Black Hills State University and is currently Assistant Professor of Early U.S. and Environmental History at the University of Arkansas at Monticello.

Johnny Johnsson

“9 Lives: Copper Smelting Campaigns in South Strafford, Vermont.”

SESSION 6, Saturday, June 9, 8:15 A.M. – 9:30 A.M.

For many decades of the 19th and early 20th Century copper smelting was

part of the practice as the Vermont copper mines waxed and waned. In South Strafford there were at least 9 distinct smelting operations/campaigns conducted between 1830 and 1916. Technical and operational successes were sometimes achieved, but there was limited financial success. Several attempts were utter failures. There is much we do not know, yet historical research has yielded some interesting information and anecdotal accounts. Through narrative and slides we will survey some of the historical, operational, and technical highlights of the various copper smelting campaigns conducted on the Elizabeth Mine site.

Johnny Johnsson received his B.S. in mining engineering from Virginia Tech in 1985. He later acquired his Professional Engineer's License and earned his M.B.A. at the University of Baltimore. Until 2007 he was Director of Environmental Affairs for The Arundel Corporation, a Mid-Atlantic subsidiary of Florida Rock Industries, a major aggregates and concrete manufacturer. He now works for Vulcan Materials in a similar capacity in Hanover, PA. Mineral collecting as a youngster led to his career and to an interest in mining history, particularly the mining and manufacture of chromium, copper, and iron related to Maryland's Tyson family. Johnny serves as a Volunteer Ranger at the Soldiers Delight Natural Environment Area, a serpentine barrens near Reisterstown with historic chrome mines, one of several locations where he conducts interpretive mining history hike programs. He resides in Finksburg, Maryland with his wife Dawn. Johnny has presented papers at mining history conferences, as well as local historical societies and mineral clubs, and published several articles in the MHA Journal and elsewhere.

Marty Johnston

“The Use of Pneumatic Locomotives in North American Mining.”

SESSION 7, Saturday, June 9, 9:45 A.M. – 11:00 A.M.

Efficiently moving material from the working face to the dump has been a challenge from the start of mining. So it must have seemed like a good idea in 1868 when the Smith and Porter Co. constructed a steam locomotive modified for underground use because the Baldwin Locomotive Works quickly followed suit. While steam locomotives had great pulling power and mobility, using them underground was problematic. The smoke fouled air they produced did not improve the working conditions and the fire hazard was significant. It was clear that better technology needed to be developed.

Similar in design to a steam locomotive but driven instead by compressed air, pneumatic locomotives were a natural fit with an underground setting. First used in a North American coal mine in 1883 it took time for the technology to catch on but by 1905 compressed air powered locomotives

were ubiquitous in large scale mining operations. Although they were primarily used in coal mines, pneumatic locomotives could be found in the gold mines of South Dakota and the copper mines of Montana and Arizona. Many of the major locomotive manufactures of the late 19th and early 20th century offered pneumatic locomotives for sale. Baldwin Locomotive Works, H. K. Porter Co., Dickson Locomotive Works, and later Vulcan Locomotive Works all listed compressed air locomotives in their sales literature. With only a few notable exceptions, the early designs between the competing manufactures were fairly similar. That changed in 1908 when the H. K. Porter Co. introduced a novel two-stage design that significantly increased the efficiency of the locomotive. Protected by patents and with a well-run company that specialized in light locomotive production, H. K. Porter Co. grew to dominate the pneumatic locomotive market.

Electric power was pneumatic locomotives biggest competition and the engineering literature of the day was full of articles arguing the merits of one technology over the other. Eventually compressed air technology could not compete with advancements in electric motive power and in 1931 H. K. Porter's last pneumatic locomotive rolled out of the factory. In the ensuing years small compressed air locomotives were produced by EIMCO, Universal Dredge and Mfg., Co. and a handful of other firms. Powered by rotary air motors, these later locomotives had little in common with the earlier designs. Displaced by electric motors and internal combustion engines, by 1970 the demand for air powered haulage had all but vanished from the industry.

Marty Johnston is a Professor of Physics at the University of St. Thomas in Saint Paul, MN. His primary work focuses in experimental investigations of deterministic chaos but he also enjoys the history of technology through the eyes of a physicist. His history of the Iron Mountain Mine in Pardee Montana was published in The Journal of the Society of Industrial Archeology, Vol 38, No. 2.

Mica Jorgenson, Heather Green, and Lorena Campuzano Duque

“A World of Mines: Human and Environmental Networks, Memory, and Change.”

SESSION 5, Friday, June 8, 3:30 P.M. – 4:45 P.M.

By the turn of the nineteenth century the extraction of gold around the globe connected science, geology, capital, and labor in ways that transformed communities and landscapes. These new human and environmental networks produced major inequalities. Within mining scholarship and the popular imagination, large-scale, foreign owned, external extractors

often get linked with environmental destruction and injustice. Yet wherever they worked, large-scale mining companies did not arrive to find a blank slate: their extractive regimes became superimposed on complicated local realities. Inhabitants witnessing and interacting with extraction formed memories and relationships with mining companies based on their pre-existing relationships with land. The relationships between mines and communities has never been one-sided.

Miners in Colombia claim that the multinationals displace them from work they have been performing since colonial times. They link artisanal mining with less environmental damage and multinational companies and large-scale mining with destruction and poverty. They deploy several discourses about living in the region before the foreign companies arrived, and link peace with their independence from foreign companies to manage their resources. However, the foreign companies that arrived to Colombia in the nineteenth century spread a new mining culture that endures until today. Meanwhile, in the Yukon, the Tr'ondëk Hwëch'in continue to deal with the consequences of early twentieth century landscape change in the Klondike Valley. Dispossession, government regulations, and strict social boundaries in the Klondike led to new human and environmental networks worth examination. In Northern Ontario, human, scientific, and corporate networks with transnational partners in Australia, Europe, South Africa, and the United States helped mining communities overcome environmental limits. Although Canada's and Colombia's resource economy is historically framed as foundational to the nation's identity and development, the gold mining industry's membership in this international community was arguably much more important than its ties to the nation-state. This panel compares Colombian and Canadian mining experiences to understand the encounter between mining enterprises and local communities looking to decenter the socio environmental problems from the foreign-national dichotomy.

"In Defense of Unscientific Instinct: International Expertise and Environmental Problems in Northern Canada, 1909-1929."

Mica Jorgenson

In the spring of 1913, American mining Engineer H. Brian Pearson came to the booming goldfields of Porcupine, Northern Ontario, and produced what the Canadian Mining Journal called "one of the most extraordinarily inaccurate reports that it has ever been our duty to pursue. Only an incompetent or a knave could write such nonsense." His study, which sampled the country rock rather than the gold-bearing schists, incorrectly concluded that the rock contained no gold. The incident was touted as

one of the dangers of relying on international expertise to understand the nuances of the Canadian landscape, as opposed to the “unscientific instinct” that made prospectors so valuable even on modern industrial mining frontiers.

Since 1909, mining had become tightly connected to international communities of industrial mining areas via human, ideological, and material networks. Facing technological shortcomings, scientific problems, or environmental disaster, the Ontario Bureau of Mines and Canadian mining companies frequently turned to international precedents for solutions. The broader industrial mining community, stretching from Australia to New Zealand, South Africa, Europe, Latin America, and the United States, shaped the environmental history of Canadian mining to a considerable extent.

Between 1909 and 1929, government and mining companies worried about this trend. Recognizing the growing scale of their industry, bureaucrats and mine managers lamented the loss of men with practical, hands-on experience with the mining landscape. Through education and legislative support, those in positions of power in the Canadian industry sought to actively cultivate local knowledge and experience. This project became an essential part of creating a sustainable industry within a rapidly expanding transnational context. Using the archival documents from the Queen’s Mining School, I examine how miners and the Canadian government sought to mesh local knowledge with international expertise to solve environmental problems in early twentieth century industrial mines. “Mining, Environment, and Cultural Heritage: Tr’ondëk Hwëch’in Representation in the Klondike’s Mining History.”

Heather Green

The Klondike Gold Rush has been a famously celebrated narrative in global history. Between 1897 and 1900 approximately 30,000 people came into the Klondike region of the Yukon Territory from around the world to participate in the Klondike gold rush. Culture, social structures, and land use ideologies accompanied these miners in the Klondike and influenced the ways in which they perceived and acted upon the local landscape. Outsiders gave little consideration to the pre-existing networks of indigenous groups and their relationships to the local land and animals. The gold rush years began the transformation of the Klondike Valley through placer mining but the industrial dredging approach after 1906 into the 1940s rapidly increased environmental change in the region.

Extraction of gold from 1897 to 1940 in the Yukon transformed both landscape and communities in the Klondike Valley. The Tr’ondëk Hwëch’in felt the burden of mining through dispossession of traditional

territory, attempted social segregation, and government regulations. Though the Klondike Gold Rush brought little benefit to the Tr'ondëk Hwëch'in, they attempted to integrate themselves into the mining economy in a variety of ways, while simultaneously working to maintain their culture in the face of inequalities. This paper examines past and present issues of environmental injustice the Tr'ondëk Hwëch'in have dealt with, including an ongoing attempt for equal representation in the mining heritage of Dawson City and the Klondike through the Tr'ondëk-Klondike World Heritage Site Nomination.

“Return to El Dorado: British Mining Companies and Mazamorreros in Late Nineteenth-century Colombia.”

Lorena Campuzano Duque

In 1865 the British company known as the Compañía de Minas de la Nueva Granada Ltd. manufactured the first steam machine for mining in Colombia. Local newspapers in Medellín, Colombia, described how “[Colombian] pristine jungles will shake seeing the machine pass through their mysterious solitude of this huge propeller of modern civilization that came to disturb their century-old idleness.” Aided by foreign capital, Latin American elites sought to modernize and create industries to get revenues for their emergent nation-states. Gold, extracted in Colombia since pre-colonial times, offered a perfect opportunity to do so in Colombia, where geographical isolation and lack of infrastructure had prevented the massive extraction of other commodities. But industrializing mining involved more than bringing machines to carve the undergrounds. Labor arrangements, use of distant resources, changes in the seasons of mining, and abundance of alluvial deposits made the task daunting. British companies in Colombia struggled with local miners to monopolize gold and integrate labor into their lode gold mining projects. Before their arrival, independent prospectors known as Mazamorreros extracted around 2/3 of the gold produced in Antioquia, the leading province in gold production. Around 95% of the gold produced was alluvial and the techniques relied mostly on human power.

This paper analyzes the ways in which local knowledge and labor interacted with British mining plans and techniques. I aim to understand the resilience of artisanal gold mining political ecology and cast light on the patterns of foreign extraction of mineral resources in Colombia. As Latin American nations grant concessions to multinationals, it is timely crucial to study extractive industries as part of a broader global transformation from a subsistence economy to capitalism and the ways in which local communities, nation-states, and large-scale companies adapted, fought, or promoted this transformation.

Mica Jorgenson is a doctoral candidate in History at McMaster University. Jorgenson studies the environmental history of the Porcupine Gold Rush 1909-1929. Jorgenson's research focuses on the transnational exchange of technology, legislation, science, and people between Northern Ontario and goldfields in Australia, California, New Zealand, and South Africa.

Heather Green is a doctoral candidate in History at the University of Alberta. Green's research focuses on the environmental and socioeconomic impacts of gold mining in the Klondike Valley, specifically the ways that mining activity and government regulation effected the Trond'ek Hwëch'in from 1890 to 1940. Green examines themes of internal colonialism in Northern Canada, indigenous labour, and dislocation.

Lorena Campuzano Duque is a doctoral candidate in History at Binghamton University. Campuzano's research examines ecological relationships and environmental change associated with the entrance of foreign gold mining companies during the late nineteenth and early twentieth century in Antioquia, Colombia, dissecting five major interrelated problems that possibly define an ecology of gold: patterns of uses of the land, environmental transformation, technological innovation, emergence of different social structures, and economic regimes.

Ginny Kilander

"Glimpses into the Iron Ore Mining Past of Sunrise, Wyoming."

SESSION 4, Friday, June 8, 2:00 P.M. – 3:15 P.M.

This talk will explore the Colorado Fuel & Iron Company's Sunrise Mine and the town of Sunrise, Wyoming, through historic photos and sketches. Now a ghost town, the ore mine was in operation from 1890 to 1980. The Sunrise Mine Historic Mining District was listed on the National Register of Historic Places in 2005, and the nomination form states, "The Sunrise Mine did not succumb to the fate of many mining locales in the West, whose operations were short-lived. Sunrise lasted for more than 80 years, longer than any other iron-ore mine in the state, providing work for several generations in eastern Wyoming. The mine also operated longer, and produced and shipped more iron ore (a total of 40 million tons), than any other C.F. & I. mine. In 1980, C.F. & I. abruptly ended operations at Sunrise, ending an important era in the mining history of Wyoming and the West." Visuals are drawn primarily from archival collections at the American Heritage Center, University of Wyoming, including photos by A.C. Boyle and S.H. Knight (in the papers of geology professor S. H. Knight), the Sunrise Mine and Town Site photo album (1899-1920), and sketches of life in the company town in mid-century, created by illustrator Carrie Arnold (from the Carrie Arnold papers).

A.C. Boyle and S.H. Knight (in the papers of geology professor S. H. Knight), the Sunrise Mine and Town Site photo album (1899-1920), and sketches of life in the company town in mid-century, created by illustrator Carrie Arnold (from the Carrie Arnold papers).

Ginny Kilander is currently Reference Services Manager and a faculty member at the American Heritage Center, University of Wyoming. In addition to serving in the Reference Department since 1999, she is also the Anaconda Geological Documents Collection Manager, and the archivist responsible for overseeing the acquisition of mining, petroleum & energy collections. She holds an MA in American Studies from the University of Wyoming, and a BA in Anthropology and Folklore from Indiana University.

John Koerth

“Once Upon a Time in the West... The History and Legacy of a Western Coal Mining Center, Sand Coulee, Montana.”

SESSION 4, Friday, June 8, 2:00 P.M. – 3:15 P.M.

The small community of Sand Coulee, Montana became a significant factor in industrializing the west when it started mining coal in the 1880s. Its coal helped to power locomotives over the Rocky Mountains to the West Coast and to smelt and refine Anaconda Copper Mining Company ore in Anaconda and Great Falls, Montana. People from 21 countries and 30 U.S. states came to Sand Coulee to work in or support the mines. The opening of Sand Coulee Coal’s mine in 1888 marked the beginning of a 60-year run of coal mining by Great Northern Railway subsidiaries in the Sand Coulee area. By 1893, coal production exceeded 2,000 tons per day and fueled virtually all of the railroad traffic on Great Northern’s western division between Minneapolis and the Cascade Range in Washington.

This source of coal allowed Minneapolis to extend its railroad and influence west, creating a bridge to Seattle and the Northwest Coast. However, by 1946 when the last mine closed, the coal mining centers of Sand Coulee, Stockett, and Tracy were surrounded by a complex of abandoned coal mines. The State of Montana has spent the past 30 years addressing the abandoned mines in the Great Falls Coalfield. This work has included abating coal fires and mine subsidence features, replacing contaminated domestic water supplies, and reclaiming areas filled with coal wastes.

The State of Montana is currently working on the much more difficult task of finding a long-term solution to the acid mine drainage problem.

The poor water quality in streams flowing through the Sand Coulee coal basin has been investigated by federal and state agencies since 1966. The mines discharge approximately 200 tons of iron and 1800 tons of sulfates annually. No definitive plan for water treatment has been developed to date.

John Koerth has been employed by the State of Montana in mining regulation and abandoned mine programs since 1989. He is currently a hard rock mining regulator. Formerly he was the program manager for Montana's abandoned mine program.

Brian Leech

“From *King Solomon's Mines* to *Jungle Gold*: The Popular Culture of Mining Adventures.”

SESSION 3, Friday, June 8, 11:15 A.M. – 12:15 P.M.

Gold rush narratives in the 19th Century emphasized the excitement men and women felt while navigating exotic, often extreme environments with the hope of striking it rich. By the late nineteenth and early twentieth centuries, the same kinds of stories had become even more fictionalized, making their way into adventure novels like *King Solomon's Mines* and *The Call of the Wild*. These colonialist themes have returned yet again in more recent reality television. In Animal Planet's *Alaska Gold Diggers* and *Ice Cold Gold* or The Discovery Channel's *Jungle Gold* (set in Ghana), young Euro-Americans are still battling natives (sometimes) and weather (always). This presentation hopes to explore why and how mineral exploration became an important pastime for American and British pop culture.

Brian Leech is Assistant Professor of History at Augustana College in Rock Island, Illinois and he is currently the Secretary of the Mining History Association. His book *The City That Ate Itself: Butte, Montana and Its Berkeley Pit* was published in February of 2018 by the University of Nevada Press.

Eric C. Nystrom

“ ‘Any Zone or Belt of Mineralized Rock’: The Eureka-Richmond Case and the Making of Western Mining Law.”

SESSION 7, Saturday, June 9, 9:45 A.M. – 11:00 A.M.

Mining law in the American West should be considered the product of three distinct phases of law-making. The first consisted of the formation of mining districts, where local rules, based on miners' traditions from other countries, were formed to collectively govern access to mineralized ground where no other specific rules existed. The second phase saw these local rules, in turn, serve as the inspiration for federal laws passed in 1866 and 1872. Important elements of the earlier mining district rules, such as the extralateral right that permitted a claimant to follow the “dips, angles, and spurs” of a vein into adjoining property, were incorporated in the federal laws, and some new twists – such as the rule that the extralateral right applied to any vein whose “apex” was covered within a rectangular claim – were created by these laws. The third phase of making Western

mining law took place in federal and state courts, where judges gradually refined the broad, ideal-case language of the federal laws by creating and applying specific rules based on test cases to a wide variety of lawsuits representing the geological diversity of the mineralized West. Together, these three phases of activity made the body of law that governed, and continues to govern, hardrock mining in the West.

Considered this way, the history of the extensive litigation that characterized Western mining takes on added importance. Lawsuits not only determined the fate of particular mining companies or districts, but also contributed to creating a collective body of legal thought that governed future mining firms. Some specific cases contributed mightily to this legal tradition, due to the issues they addressed, the participants on each side, the timing of their contributions, or all three.

The lawsuit between the Eureka Consolidated Mining Company and the Richmond Mining Company, decided in August 1877, is one of these mining law classics. Using archival sources, trial transcripts, and newspaper accounts, my paper will closely examine the issues at stake in the trial, the extensive legal preparation for the case, its outcome in court, and the case's legacy in American mining law. The Eureka-Richmond case made a number of lasting contributions to American mining law, including providing a definition of the term "lode," settling questions of lines dividing claims, and constructing a framework for the legal interpretation of contested mining terms in the federal laws. Additionally, Rossiter W. Raymond and Clarence King served on opposite sides as expert witnesses, and the case featured what I believe is the first American glass plate underground mine model. The case was ultimately supplanted as a cornerstone of mining law by subsequent cases that spoke more succinctly to later legal questions, but its history can reveal much about the dynamic process of making mining law in the 19th century West.

Eric C. Nystrom is an associate professor of history in the Interdisciplinary Humanities and Communication faculty at Arizona State University. He created and edits the scholarly book series *Mining and Society* for the University of Nevada Press. In 15 years as a member of the MHA, Nystrom has served on the council, the nominating committee, the research grant committee, and as editor of the MHA newsletter.

Paul R. Spyhalski

"The Homestake Railroad and Related Railroad Interests."

SESSION 1, Friday, June 8, 8:15 A.M. – 9:30 A.M.

I would like to present the development of railroad transportation as a resource in the Black Hills mining region by initially focusing on the

Homestake Mining Company's development of rail resources in the Lead, South Dakota area. In doing so, I hope to also educate the audience about the initial isolation of the Black Hills from the rest of the country due to the lack of outside rail connections by discussing how overland transportation by animal train actually allowed these developments to take place.

The Homestake Mining Company brought the first steam locomotive, the "J.B. Haggin," to the Black Hills in 1879. Due to the lack of rail connections, the locomotive was delivered by the Northern Pacific at Bismarck and freighted overland by bull train to Lead. Fortunately, the locomotive was relatively small being only a 22" gauge locomotive. From 1879 to 1901, the J.B. Haggin served the Homestake by moving ore from mine to mill before giving way to air compressor locomotives.

In 1881, the Homestake and Custer Railroad was chartered with the intention of bringing lumber and timber supplies to the Homestake at Lead. Going through a variety of name changes, the road was still generally referred to as the Homestake Railroad. The J.B. Haggin was soon pressed into service in aid of the construction of this new narrow gauge line. Originally built to 22" gauge to accommodate the Haggin, the gauge was converted to 36" with the arrival of a new locomotive, this time via overland freight from Fort Pierre, SD.

The rails of what became known as the Black Hills & Fort Pierre were eventually extended to take in Woodville, Bucks, and Piedmont with a separate line from Bucks to Este. The Homestake established lumber camps along the route to provide timber to the mills. Over time, the BH&FtP provided access to additional mines, served passengers and provided an outlet to the outside world once the Fremont, Elkhorn, and Missouri Valley Railroad reached the Black Hills.

The route of the Fremont Railroad to the Black Hills is also significant as the other major Midwestern roads were unable to pass through the Indian territories west of the Missouri. The Fremont road, however, accessed the Black Hills by coming up through Nebraska and touched only the western corner of South Dakota. The Fremont Road provided the initial all-rail connection to the east for freight in and out and carried gold shipments to the east.

As time permits, I would also introduce the Deadwood Central, incorporated in 1888, as a narrow gauge mining related railroad as it eventually provided connections to Lead and the Homestake Mine as well as a number of other mining related properties. In 1901, the Black Hills & Fort Pierre was merged into the Burlington & Missouri River Railroad along with the Deadwood Central. The tracks between Lead and Deadwood electrified

to allow narrow gauge interurban passenger service and the addition of dual gauge tracks allowed “standard” freight cars to reach the Homestake shortly thereafter.

Paul R. Spyhalski is a practicing attorney in Austin, Minnesota. He has co-authored two books on Minnesota regional railroad histories and is currently writing a history of the Minneapolis & St. Louis Railway. He also presents locally and nationally on baseball history with an emphasis on black baseball teams.

Ryan Driskell Tate

“‘Hard Hat Cowboys’: Labor and Coal Surface Mining in the Powder River Basin.”

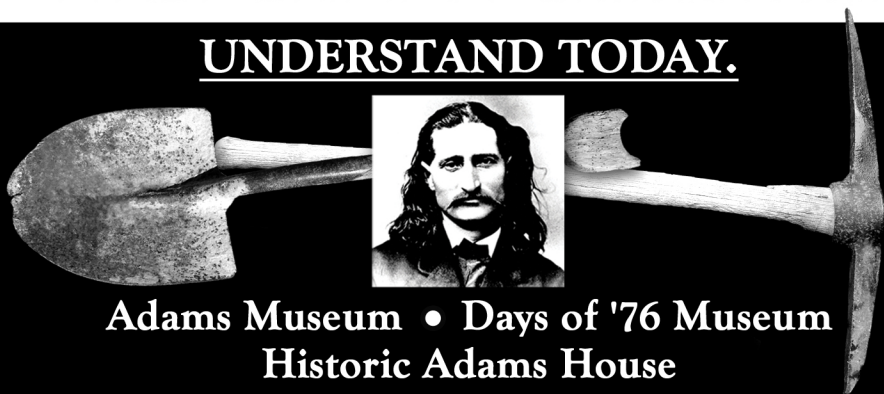
SESSION 4, Friday, June 8, 2:00 P.M. – 3:15 P.M.

The coal rush that engulfed the northern Great Plains in the late-twentieth century inaugurated a new era in the American coal business: the ascendancy of the non-union workforce. The coal companies built their energy complexes in the western states to deliberately contour the “union-free environment” that so eluded them in Appalachia and the rest of the country. Many coal surface miners and power-plant workers in the 1970s and 1980s fought back and tried to unionize and exert their collective power on the job in the Powder River Basin. But these workers tried and (mostly) failed to organize in the face of formidable barriers. This paper shows how the mine companies actually gained the upper hand, and how the Powder River Basin became the first non-union stronghold in the coal business. By examining the recent shifts in the coal sector’s politics, technology, and labor, this paper joins a chorus from new scholars, including Lane Windham and Michael Stewart Foley, who have uncovered robust history of labor activism in the 1970s and 1980s despite popular portrayals of these years as “last days of the working class.”

Ryan Driskell Tate is a PhD candidate in U.S. history at Rutgers University. He specializes in the labor, environmental, and political history of the American West. His dissertation is a study of coal development on the northern Great Plains over the last half century.

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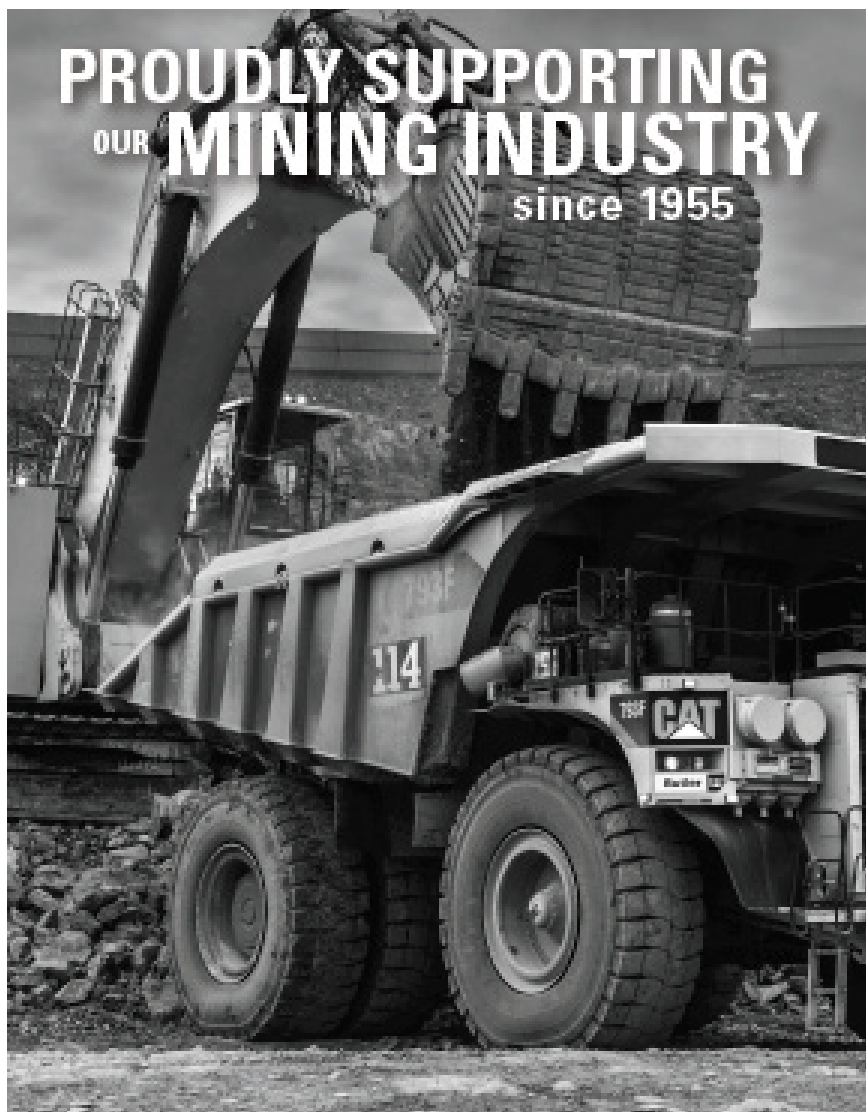
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