



Mining History News

Quarterly Newsletter of the Mining History Association

Winter 2015/ Spring 2016

History and Hydrotechnology

Tailings dam failure is the major concern mentioned by opponents of new metal mine projects. This is so worldwide. Yet today's low grades of ore require hydroprocessing in order for profitable mining operations – and hydroprocessing requires dams to hold the processing wastewater. If society requires metals in the future, dams to hold watered tailings and wastewater seem inevitable. Is fearful opposition justified?

I took notice of the “danger” created by tailings dams when I first went to Chile in 1965. I cannot recall having any interest in mining other than that in Chile at the time three major American-owned mines (Chuquicamata, Potrerillos/El Salvador and El Teniente) were the focus of serious political debate. In June of that year a friend took me to El Cobre, where just a few months earlier, the town was buried after a magnitude 7.1 earthquake caused two tailings dams to fail. The tailings were from a relatively small copper mine, the Chilean-owned El Soldado. The wave of sludge from the flotation plant's tailings pond caused 300 fatalities.

When I began writing about copper mining in the 1970s, I often recalled El Cobre. I wondered if mining was a Faustian bargain – mining was dangerous, but society required the resulting minerals. While open-pit mines are comparatively safe, today dry piles of tailings are everywhere replaced by tailings ponds – ponds held back by dams. My current research concerns the nineteenth century, and I have found myself studying the early false steps of hydrotechnology – a term I use to refer

to both hydrometallurgy and froth flotation. Both processes require ponds where evaporation eventually reduces the volume of wastewater.

Water, where to get it and what to do with it as a waste, is every year a greater concern in mining. Chile, as a mining country, is naturally a center for in-service training for mine engineers and metallurgists. A case in point is Chile's GECAMIN. It is a successful effort by mining professionals from universities, suppliers, consulting firms, and mining companies to gather and share experiences. In 2016 GECAMIN is running 15 multi-day seminars. Four are about water: 1) process hydrometallurgy, 2) paste and thickened tailings, 3) desalination and wastewater, and 4) wastewater management. The question always boils down to how to achieve safe but affordable disposal of wastewater.

All of this leads me to wonder if we, as mining historians, can provide any useful perspectives on hydrotechnology and tailings dams? Are the failure of dams a question of technology, or is it the skill of mining professionals? Where does the integrity of corporate management come in – too much attention to cutting costs? Are failures a matter of inadequate state regulation? Or is it all of the above or some combination? Tailings pond construction is well into its second century – safe practices are a settled matter. Yet the debate seems to continue over safety versus cost. By going back in time, can we add to current policy reform proposals? Can historians help the general public un-

Hydrotechnology... (continued on page 2)

Hydrotechnology...

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derstand that just asserting a mine project is “toxic” when opposing a mine is not enough. Society really does need minerals.

Any reading of the mining industry press quickly reveals a tendency for the industry to view almost any regulation as over-regulation. Rules and inspections are a cost. Can historians add to the conversation over an optimal balance between regulations setting standards for safety and a clean environment while promoting the commercial viability of mines? Experience has shown that despite past dam failures, new ones continue to occur. Here is a selection of a few recent dam problems:

August 4, 2014 – Cariboo Region, British Columbia: Mount Polley Gold and Copper Mine (owned by Imperial Metals, a British Columbia corporation) suffered a major tailings dam failure. A final report determined that the tailings dam collapsed because of its construction on underlying earth containing a layer of glacial till that had been unaccounted for by the company’s original engineering plan.

August 6, 2014 – Cananea, Sonora: Buenavista Copper Mine (owned by Southern Copper Corporation, a part of Grupo Mexico) began a prolonged spill of wastewater into the Bacanuchi and Sonora Rivers. Rain from Hurricane Odile is said to have overfilled tailings ponds.

November 5, 2015 – Mariana, Minas Gerais: Samarco Iron Ore Mine (owned as a joint venture by Brazil’s Vale, S.A. and English-Australia’s BHP Billiton) lost two of its tailings dams. Their collapse sent a wave of wastewater and sludge over the locality of Mariana, killing at least 17 people – two people are still listed as “missing.”

The recent failures to contain wastewater in British Columbia and Mexico led to large fines and costly clean-ups. In Brazil the public reaction has gone a step further. Initially Ricardo Vescovi, CEO of Samarco Mineração, S.A, and another manager, were

both accused of environmental crimes by the Federal Police. Then on February 23 the Minas Gerais State Prosecutors charged Vescovi and five others, plus a contractor, with murder arguing they knew the dams were over-filled and did not order proper monitoring.

How can mining operators be held accountable when the scale of possible damage to the environment and to people is potentially huge? Is limited-liability and the formation of incorporated subsidiaries part of the problem? Perhaps as historians of mining, we can contribute to the search for a way ahead by providing context and memory.

Bill Culver

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Candidate Biographies for MHA Elections

Please cast your vote by mailing in an official ballot (page 4) by May 1, 2016

Peter Maciulaitis

Candidate: Vice President/President-elect

Peter Maciulaitis earned a Professional Degree in Geological Engineering from the Colorado School of Mines 1967 and 20 years later undertook graduate studies in mineral economics there. For over four decades he has conducted exploration for precious and basic metals, barite, and uranium in the US, Canada, Mexico, Ireland, and Scotland. The latter half of his career has largely involved prospecting for gold in the Great Basin country of Nevada and Utah. In practical terms Peter is a prospector and heretical geologist who incorporates research into historical mining data as part of the exploration process. A long-time member of MHA, he has presented numerous times at MHA and International Mining History Congress conferences.

Cathleen Norman

Candidate: Nominating Committee

No Biography

Biographies... (continued on page 3)

Candidate Biographies for MHA Elections

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Dana Bennet

Candidate: Council

Growing up in northern Nevada, Dana Bennett's interest in history was nurtured by many family trips to explore the old mining towns that dot the Great Basin landscape. She left her home state to earn a BA in history from Boise State University and an MA in history from the State University of New York at Binghamton. Returning to Nevada, she utilized her research and writing skills to build a career as a policy analyst and legislative advocate and spent much of her leisure time pursuing her interest in Nevada history. Dana's first book, *Forward With Enthusiasm: Midas, Nevada, 1907-1995*, documented a 20th century mining town. She interrupted her public policy career to earn a PhD in history from Arizona State University in 2011. Her latest book, *All Roads Lead to Battle Mountain: A Small Town in the Heart of Nevada, 1869-1969*, focused on one of Nevada's oldest and most enduring mining towns. Published in 2014, it was designated a Sesquicentennial Legacy Project in honor of Nevada's 150th anniversary of statehood. Dana currently serves as the President of the Nevada Mining Association, the 102-year-old trade organization that represents all facets of the mining industry in Nevada.

Jennifer Hildebrand

Candidate: Council

My name is Jennifer Hildebrand and I would love the opportunity to be part of the MHA council. I have been working on historic mining sites as an archaeologist in Nevada since 2008 and currently am the Abandoned Mine Lands (AML) lead archaeologist for Nevada. I have 10 years of archaeological experience in academia, cultural resource management, and the government sector of archaeology within the Midwest, Plains, Southwest, and the Great Basin regions of the U.S. I have worked as an archaeological technician, field supervisor, and currently as a project manager at the Great Basin Institute. Originally, from Indiana, I received my Bachelor's Degree from Indiana State University and my Master's degree in Anthropology from the University of Nebraska before making the permanent move to Nevada. Mining history is a true passion of mine and I am thankful to have a career that allows me to research, record, and analyze historic mines. With expertise in historical

archaeology, mining archaeology, 19th century material culture, and historical research and preservation, I would be able to contribute to the organization by bringing an archaeological perspective of mining from the west.

Paul White

Candidate: Council

I am a relatively new member to the Mining History Association, joining in 2012 after about seven years of finding myself regularly drawn to the journal. I am an assistant professor in Anthropology at the University of Alaska Anchorage who has spent the last 18 years investigating the archaeology of North American mining sites. My trial-by-fire introduction to mining history began as a graduate student with the survey of archaeological resources at the Kennecott Copper Mine and the Bremner Gold Mining District in southcentral Alaska. The outstanding preservation of these sites--including a wall tent standing from the 1930s and still stocked with food and clothing--left a lasting impression. Simply put, I was hooked. I have documented mining sites in Michigan, Vermont, and California. Now back in Alaska, I have initiated a multi-year project to record historic gold mills throughout the state, which is providing a prime opportunity for training students in the art of structural documentation and technological history. This past summer, I returned to the Bremner District to document a collapsed mill, supported in part through funds of the Mining History Association. I, along with my fellow Alaskan MHA members, are looking forward to hosting the association at the 2017 annual conference in Fairbanks.

I would be delighted to serve on the board. A key issue, raised in various ways at the past couple of meetings, concerns the question of how to expand membership without losing the supportive character of the association. I feel I can contribute here, and would be interested in working with the board to explore ways to increase student membership and enhance opportunities for mentorship. To my mind, it is this combination that will be successful for growing the organization and maintaining its strengths.

2017 Mining History Association Ballot

Vice President/President-Elect (one-year term beginning June 2016)

Vote for one:

- Peter Maciulaitis
- _____ (write in)

Nominating Committee (one position, three-year term beginning June 2016)

Vote for one:

- Cathleen Norman
- _____ (write in)

Council (three positions with three-year terms beginning June 2016)

Vote for three:

- Dana Bennet
- Jennifer Hildebrand
- Paul White
- _____ (write in)

Biographies are on page 2 and 3.

Mail ballot by May 1, 2016 to:

**Mining History Association
c/o Diane Dudley
323 Daniels Place
Cañon City, CO 81212**

Welcome to the 2016 MHA Conference in Telluride, Colorado

Introduction

Located in the beautiful San Juan Mountains of Southwest Colorado, the historic town of Telluride and the neighboring modern community of Mountain Village are the host sites for the 2016 Mining History Association Conference that will take place from June 9-12. Historic Telluride is one of the most famous mining towns in the state. It is a National Historic Landmark District where preserved buildings recall the community's gold and silver mining roots and plenty of ruins and mine dumps in the surrounding mountains still fascinate history buffs.

In more recent times, however, the name "Telluride" includes the creation of a world-class ski area and the development of Mountain Village, a resort town that is integrated into the ski slopes. In order to connect these two separate communities, an innovative and free gondola transports people from the box canyon where the historic town sits over See Forever Ridge to Mountain Village. The views are spectacular. On the Telluride side, you see a magnificent mountain panorama of peaks and basins where the biggest mines were located. On the Mountain Village side, the scene spreads out from the majestic Wilson Peaks and striking San Miguel River Canyon where carnotite mining took place all the way west to uranium country and the La Sal Mountains near Moab, Utah. Without a doubt, the gondola ride is the most scenic public transportation system in North America.

During the conference, the Peaks Resort & Spa in Mountain Village will be the venue for hosting registration, accommodations, dining events, and other social functions. The nearby Telluride Conference Center will be used for presentations all day on Friday, June 10 and half a day beginning in the morning on Saturday, June 11. The Conference Center will also host the Saturday afternoon

Business Meeting. In the Town of Telluride, the Telluride Historical Museum will be the setting for a number of other activities on Saturday afternoon. These include a visit to the museum where a special mining map exhibit will be on display and an historic walking tour of Telluride will be offered.

Accommodations at the Peaks Resort & Spa in Mountain Village

Conference attendees are encouraged to make room reservations at the Peaks Resort & Spa where special room rates are available at \$155 per night plus tax for an Alpine Vista Room with one king bed or \$165 per night plus tax for an Alpine Vista Room with two king beds. Call toll free at 888-696-6734 for 24-hour reservation service, or the front desk at 970-728-6800 for reservations and information, www.thepeaksresort.com. Please reference the [MHA Conference Room Rate](#). To obtain the conference rate, reservations need to be made by **May 2**. Included in the room charge is a membership to the Peaks Resort Spa that allows guests to use the indoor-outdoor pool, hot tubs, sauna, weight room, exercise equipment, and lockers. Not included in the room rate is a reduced \$18 daily valet parking fee at the Peaks Resort & Spa garage, but this is the least expensive and most convenient 24-hour parking available in both the Mountain Village and Telluride.

Accommodations in Telluride

For those that would rather stay in Telluride, here are two choices:
Mountainside Inn: call toll free at 800-376-9769, or 970-728-1950, www.telluridelodging.com and search for Mountainside Inn. Rates start at \$139 per night plus tax and includes free parking on site, hot tub, and a coffee & tea service in the lobby. It is a 6 block walk to the gondola.

Victorian Inn: call locally at 970-728-6601. The website is www.victorianintelluride.com. Rates start at \$139 per night plus tax and includes some parking on site, hot tub, and a free continental breakfast. It is a 1½ block walk to the gondola.

Accommodations outside Telluride

Angler Inn: 970-728-5580, www.theanglerinn.com. Rates start at \$95 plus tax per night and includes free parking and free breakfast. A restaurant on site is open Tuesday-Saturday with brunch served on Sunday. It is a 15 mile drive to the Mountain Village Gondola parking garage (Free, 7 a.m. to 9 p.m.) and connecting gondola.

Camping

For those that prefer to camp, here are 3 choices:
Telluride Town Park Campground: 970-728-2173, www.telluride-co.gov -look for Parks & Recreation. Rate is \$23 per night plus tax, no reservations, 18 tent sites & 10 RV sites. All sites are on a first come basis; free parking. It is a 9 block walk to the gondola.

National Forest Service Sunshine Campground:
Rate is \$18 per night, no reservations, 18 tent & RV sites are first come basis, firewood available for purchase, tent pad & RV space with no full hook-ups but water is available, fire pit & picnic table, composting toilets and no showers. It is an 8 mile drive to the Mountain Village parking garage and connecting gondola.

National Forest Service Matterhorn Campground:
Call 970-252-4010 for tent & RV site reservations, otherwise sites are first come basis, 25 tent & RV sites with 4 sites with full hook-ups, sites accommodate RV's up to 40ft. Rate is \$22 per night, picnic tables, fire pits, firewood available for purchase, water, flush toilets, showers, garbage and recycling. It is a 12 mile drive to the Mountain Village Gondola parking garage (Free, 7 a.m. to 9 p.m.) and connecting gondola.

Getting to Telluride by Air

The three closest regional airports to Telluride are Montrose (65 miles), Durango (120 miles) and Grand Junction (125 miles). Rental cars are available at each airport. Driving times to the Peaks Resort & Spa are 3 hours from Durango, 2½ hours from Grand Junction, and 2 hours from Montrose. Telluride Express offers a van shuttle service between Telluride and the Montrose Airport. Reservations, 970-728-6000, www.tellurideexpress.com. Limo service between Telluride and the Montrose Airport is also available. For reservations call Mountain Limo toll free at 888-546-6894, www.mountain-limo.com. For Alpine Luxury Limo call 970-728-8750, www.alpineluxurylimo.com.

Getting to the Peaks Resort & Spa by Car

Driving to Telluride can be pure joy because its location in Southwestern Colorado offers an opportunity to see some of the magnificent scenery or visit some of the National Parks and Monuments in the Four Corners area of Colorado, Utah, Arizona, and New Mexico. So think about taking extra days to explore sights along the way or after the conference.

From Montrose, drive US 550 south to the stop light in Ridgway and turn right onto Colorado 62. Continue over the magnificent Dallas Divide to Placerville and turn left onto Colorado 145 towards Telluride. When you come to a roundabout at the head of the Telluride Valley, going straight takes you on a spur road into Telluride, so bear right and continue on Colorado 145 to reach the Mountain Village entrance that will be on your left. Follow Mountain Village Boulevard about 2 miles to the Peaks Resort & Spa, a large white building whose entrance is on the left.

From Durango there are two choices. Choice one is to follow US Highway 550 north over the Million Dollar Highway to Silverton, Ouray and Ridgway. At Ridgway, turn left at the stop light onto Colorado 62 and continue over the magnificent Dallas Divide to Placerville. At Placerville turn left onto Colorado 145. Follow this to a roundabout and continue right

on Colorado 145 to a turn off on the left to Mountain Village. Follow Mountain Village Boulevard about 2 miles to the Peaks Resort & Spa, a large white building whose entrance is on the left.

Choice two from Durango is to take US 160 West towards Mancos, Mesa Verde National Park and Cortez. When you come to the town of Mancos, turn right at the stop light onto Colorado 184 and follow this to Dolores where you turn right onto Colorado 145. Follow this highway over stunning Lizard Head Pass and around the Ophir Loop to the turn off to Mountain Village that is on the right.

Follow Mountain Village Boulevard about 2 miles to the Peaks Resort & Spa, a large white building whose entrance is on the left.

To get to the Peaks Resort & Spa from Cortez, take US 160 east to a junction with Colorado 145 on the east side of Cortez. Turn left to Dolores and continue following Colorado 145 over stunning Lizard Head Pass and around the Ophir Loop to the entrance to Mountain Village on the right. Follow Mountain Village Boulevard about 2 miles to the Peaks Resort & Spa, a large white building whose entrance is on the left.

Telluride's Colorful Mining History

During August 1875, John Fallon and a partner were the first prospectors to find what would be called the Smuggler Vein in Marshall Basin. They staked their adjoining Sheridan and Union claims on the rich looking upper section of the vein just below the 12,000 ft. elevation line and mined what they could before winter weather forced them to retreat. At the time, the only way in and out of Marshall Basin was a bushwhack animal trail that crossed through the "Keyhole" into the Ouray side of the Mountains.

This remote setting, however, did not hinder a three man party led by J.B. Ingram from reaching Marshall Basin early the following summer. Apparently, these men entered the basin ahead of Fallon and his partner, and were canny enough to recognize that their predecessors had staked more ground than was allowed by current mining law. As a result, the interlopers staked a new claim called the "Smuggler" that incorporated a lower parcel from the Sheridan claim with an upper parcel from the Union claim. As luck would have it, the Smuggler proved to be located on the widest, richest, and deepest part of the vein.

Altogether, these three discoveries and the rush that followed led to organizing the Upper San Miguel Mining District. Hundreds of mining claims covered the rugged alpine topography. Down below in the east end of what would be called the Telluride Valley, a camp named Newport was established, and

over time, this area was renamed Pandora and became the spot where a succession of reduction mills were erected.

In 1877, the town of San Miguel was platted further west in the Telluride Valley, but a year later a new community named Columbia was incorporated a mile closer to the mines. Due to a superior location, the new town grew quickly. Eight years later though, the U.S. Post Office asked Columbia to change its name. The reason given was that there was a Columbia, California, and too much mail was being misdirected between the two communities because poor penmanship used to write the initials "CALA" for California or "COLO" for Colorado was often too hard to decipher.

Since Columbia, Colorado, was a newer town, it had to choose a new name. By chance, a large chunk of gold ore misidentified as a telluride form of sylvanite had recently been found at the Sheridan Mine. This led to renaming the town "Telluride" because telluride gold ore was considered to be very rich and the catchy name might attract mining investors. Ironically, the element tellurium is practically non-existent in the entire San Juan Mountains.

Between the years 1887-1889, consolidation of the mines along the great Smuggler Vein led to the formation of the Smuggler-Union Mining Company. Seven years later in 1896, the wealthy Rothschild family from Europe organized the Tomboy

Gold Mines Company in neighboring Savage Basin. Altogether, these two mining companies were the best producers in the Upper San Miguel Mining District until they closed in the late 1920's.

It was no accident that consolidation occurred because two major events were about to usher in the heyday of Telluride mining during the decade of the 1890's. The first event occurred in 1890 when the Rio Grande Southern Railroad (RGS) arrived and made Telluride more accessible to the outside world. More importantly, when tracks were extended eight months later to the mill at the east end of the Telluride Valley, the mines finally had an inexpensive means to ship greater quantities of ore concentrates to the smelter in Durango. Likewise, with the arrival of more ore, smelter rates dropped to the point where low grade ores worth only \$20 per ton were now profitable to mine,

The second event was the 1891 introduction of alternating current (AC) electricity. At the time, George Westinghouse and Thomas Edison were in stiff competition to bring AC or DC systems to America. Eventually, Westinghouse won the battle because it was easier to send AC electricity over a long distance. This feat of distance was proven during the summer of 1891 when the Ames Hydroelectric Power Plant located a few miles south of Telluride at the head of Illium Valley successfully sent AC electricity three miles uphill to the Gold King Mine. As a result, most of the mines above Telluride were electrified by 1894 and Telluride had electricity ahead of many of the country's larger cities. The Ames Power Plant is still generating electricity today and will be featured on two of the Sunday field trips.

The advent of cheap and plentiful electricity also contributed to the construction of aerial trams that replaced the need for hauling ore from mines to the mills by less efficient and more costly pack mules or wagons. As a result, the Marshall Creek Gorge that lay at the head of the Telluride Valley became a veritable spider web of trams that ran uphill to Smuggler-Union properties, and allowed the Tomboy Mine to send concentrates from its mill in Savage Basin down to a warehouse that straddled the RGS tracks. Even smaller mines were now outfitted with a jig-back or another type of aerial tram.

In 1893 when the repeal of the Sherman Silver Purchase Act devastated silver mining in Colorado, Telluride was fortunate to find enough new gold ore bodies to keep its mines open. In fact, by 1896, two-thirds of the district's \$3 million in ore production came from gold, and only a year later, this value jumped even higher. Gold production was so robust that the town adopted the motto "City of Gold" and even hung a banner on the side of an excursion train that boasted it was "A Town Without A Bellyache." Such a vigorous mining economy also enhanced the town's population so that it topped out at slightly more than 5,000 residents.

With the turn of the 20th Century, Telluride mines became embroiled in the famous Colorado Labor Wars that raged in the coal fields along the Eastern Slope and at the Cripple Creek and Victor gold mining camps near Pikes Peak. There were two sets of strikes in Telluride. The first one occurred in 1901 when the Telluride Miners Union, an affiliate of the Western Federation of Miners (WFM), demanded that miners should be paid \$3 a day for an eight hour work day. In response, Smuggler-Union manager Arthur Collins initiated impossible company policies that forced union miners to quit work and strike. When they were replaced by scabs, the local union took matters into its own hands, an act that resulted in a dramatic gun battle at the Sheridan Mine that left two men dead. Although the union had taken possession of the mine, a special commission sent by Colorado Governor James Oram concluded that the mine owners were responsible for instigating the strike and forced them to rehire union miners.

During the uneasy peace that followed, union hatred of Collins came to a head when he was brutally murdered at his home on company property. In response to this outrage, Bulkeley Wells was made Manager of the Smuggler-Union by his father-in-law Colonel Thomas Livermore of Boston who had organized the syndicate that bought the mine for \$3 million in 1899. Wells, who was fiercely anti-union, realized that victory could only be achieved by discrediting the WFM. He was aided in this plan by the election of Governor James H. Peabody who favored law and order and had Wells commissioned as a captain in the National Guard.

Thus, when union violence once again threatened Telluride and a new strike was called in 1903, Peabody sent in National Guard troops on two separate occasions to keep the peace. In between these episodes, Wells used his military rank to enlist the Telluride Mine Owner's Association and Telluride Citizen's Alliance to run San Miguel County as his personal fiefdom. During the spring of 1904 when WFM President William Moyer became Wells' personal prisoner, the union attempted to rescue him by force. However, their arrival in Telluride was repulsed by a huge show of anti-union sympathy. The strike was called off a few months later due to lack of support. Although the WFM was defeated in Telluride, it went on to become the International Union of Mine, Mill & Smelter Workers organization.

An eventual slowdown in mining occurred around 1913. The mines stayed open though because a newly introduced flotation milling process recovered a higher percentage of minerals, especially base metals like zinc and lead that had industrial and military uses during World War I. However, during the decade that followed the end of the war, the Liberty Bell, Tomboy, and Smuggler-Union mines all closed. Mining dwindled until resurgence occurred with the creation of San Juan Metals Corporation in 1934, Veta Mines in 1936, and Telluride Mines in 1938. San Juan Metals concentrated on reprocessing tailings from the defunct Liberty Bell and Smuggler-Union mines, Veta Mines found good ore further down on the Smuggler Vein, and Telluride Mines leased property under the old Tomboy workings.

Then in 1939, the biggest mine that would ever operate in the San Juan Mountains was founded by a group of mining men from Idaho and Colorado that partnered with Newmont Mining Corporation to form the Idarado Mining Company. Initially, Idarado operated out of the Treasury Tunnel which was located near the top of Red Mountain Pass on the Ouray side of the mountains. The goal was to access lead and zinc deposits that underlay the old Black Bear Mine on the Telluride side. During the late 1940's when the trail of ore from the Black Bear headed towards Tomboy property, Idarado was able to acquire leases that were layered between

leases worked by Telluride Mines.

This arrangement ended in 1953 when Newmont finally bought the financially troubled Telluride Mines and added their Telluride property to the Idarado Mine. However, after a fire destroyed the mill outside the Treasury Tunnel, the old flotation mill in Telluride was revamped and renamed the Idarado Mill. Historically it was called the Gray Mill due its exterior color or the Pandora Mill due its location. Now that all ore was being processed on the Telluride side of the mine, its output made San Miguel County the second biggest mining county in Colorado. The Climax molybdenum mine in Lake County near Leadville remained in first placed. Beginning in 1976 though, dropping metal prices and rising costs for transportation and smelting led to Idarado's inevitable closure on September 30, 1978. When underground activity ceased, this was the end of 103 consecutive years of mining in the Telluride area. Total production from the Telluride, Sneffels, and Red Mountain Mining Districts is estimated to be \$7 million troy ounces of gold along with substantial amounts of silver, lead, zinc, and copper.

Starting in 1985, Idarado and the State of Colorado conducted an extensive study of the mining and milling impacts on the floor of the Telluride Valley and surrounding high country. In 1992, the two parties reached agreement on an appropriate plan for reclamation and remediation with minimum disturbance to the historic landscape and impact on the town of Telluride. Idarado completed most of this plan by 1997. The success of those efforts can be seen on two of the Sunday field trips where reclaimed tailings lie between the east edge of Telluride and a series of settling ponds that collect mine water near the Idarado Mill. Today, monitoring the water quality that flows from these settling ponds into the San Miguel River continues. However, the question of whether the historic Idarado Mill building will be preserved or dismantled as required by the current remediation plan is still a work in progress.

There is a silver lining to the end of this story, because the demise of mining occurred concurrently with the beginning of the Telluride Ski Area. Historically, skiing, or "snowshoeing" as it

was called, originated at the Tomboy Mine during the late 1890's when Scandinavian miners exported this pastime from their homeland. During the early 1960's, local Telluride ski enthusiasts created two ski hills for their children on the south side of town. One was located at the Bear Creek end of Town Park and the other called the "Kid's Hill" is now part of the Telluride Ski Area that comes down to the base of the gondola. A documentary film called "We Skied It," a collection of old 16mm home movies that shows more of Telluride's early skiers pursuing this sport in the high basins, is now a permanent exhibit at the Telluride Historical Museum.

Later on in the 1960's, a local visionary named Billy Mahoney, Sr., became convinced that Telluride could develop into a real ski area and began looking for a financial backer to make his dream come true. Eventually, Mahoney's efforts attracted Los Angeles industrialist Joe Zoline to visit. Zoline was familiar with Aspen, another former Colorado mining camp that was now a world class ski resort, and realized that Telluride's setting could be developed into a similar town at the bottom of a ski area. With Zoline's backing, trails were surveyed in 1969 and the first lifts began operating in 1972.

After Zoline sold his interests to Ron Allred's Benchmark Corporation in 1978, plans were put in place to create Mountain Village and expand the ski area. In 1984, Mountain Village was approved by the San Miguel County Commissioners as an independent community that would be connected to Telluride by a free gondola. An earlier idea to connect the two towns by a cog railway purchased from the Broadmoor Hotel in Colorado Springs was nixed after a Telluride Rotary Club fact finding trip to Zermatt, Switzerland in 1979 found out that gondolas provided the most efficient transportation system. Conference goers will certainly enjoy riding the gondola.

By 1989, the complexion of the historic town of Telluride was rapidly changing. Most of the former mining residents had sold their properties and moved to warmer places, and the hippie culture that had arrived during the early days of the ski area were now business owners and were starting families. An incoming surge of new newcomers now looked at Telluride as a place to set up permanent residences or invest in vacation homes. Thankfully, architectural controls and sensible planning for growth has kept Telluride's historical perspective intact so that its mining town character is still respected. By accomplishing this, one can truly say that mining still exists, but the quest for wealth from mineral gold and silver has been transformed into prosperity provided by white gold from winter snow.

Reading & References

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Field Trips

All field trips leave from the Peaks Resort & Spa

Thursday June 9 - 8:00AM-4:00PM

Pre-conference Field Trip to Colorado Plateau Uranium Country

This is an all-day self-driving field trip to the Colorado Plateau "Uranium Country" that lies an hour's drive west of Telluride in the Uravan Mineral Belt. Anyone interested in going on this trip should make an additional booking at the Peaks Resort & Spa for the night of Wednesday June 8. However, this field trip will be offered again on Sunday June 12, but it is one of three field trips taking place on that day. Higher clearance vehicles are suggested for negotiating many of the rougher back country roads, although 4-WD is not necessary. Participants drive their vehicle to the Rimrocker Historical Museum in Naturita where a decision will be made to leave non roadworthy vehicles and partner with someone that has a suitable vehicle. A map and full description of the route will be provided, along with a box lunch.

Finding former radium and vanadium mine ruins actually begins a few miles west of Telluride along the San Miguel River where in 1908 the Vanadium Alloys Company found good ore and built a processing plant at a site called Newmire. Later on, this is where the Primus Chemical Company and then Vanadium Corporation of America took over mining operations. In 1910 though, richer strikes of radium and vanadium ores were discovered further to the west in the east end of Paradox Basin. As a result, this is where the Standard Chemical Company set up mining operations and built a processing mill at a site that would become Uravan. Much of the radium from the Telluride area and mines located further west was sent to Madame Curie in France. However, by 1920, the Telluride area ores were mined out and all radium and vanadium mining was concentrated in the Uravan Mineral Belt, which is the main focus of this tour.

Our hosts at the Rimrocker Historical Museum in Naturita will be our guides to show us the ghost town at the Coke Ovens in the east end of Paradox

Basin that was once headquarters for the Standard Chemical Company. From there, we climb up Long Park Mesa that borders the north side of Paradox Basin to visit a combination of historic and more recent radium, vanadium, and uranium mines and another ghost town site called Long Park that once had a semi-pro baseball team in the 1940's. On our descent down the east side of Long Park Mesa we stop at a reclamation site where the former town of Uravan now lies buried under a thick layer of rock after it was removed from its original location a few miles further on. Looking at the former mill and town site where Uravan once stood is the final stop on the radium, vanadium, and uranium part of the tour. This mill produced uranium that was enriched for the atomic bomb during World War II and stopped production after the 1979 disaster occurred at the Three Mile Island Nuclear Power Plant. If there is time, we will visit the Hanging Flume Overlook where a wooden trough was constructed along a sheer rock face of the Dolores River Canyon to bring water to a placer gold mining operation that failed shortly after the flume was finished. We will arrive back at the Peaks Resort & Spa in time to freshen up before attending the opening reception, dinner, and after-dinner entertainment.

Sunday June 12

8:30AM - Post-conference Field Trip #1: Bridal Veil Falls & Ames Power Plants

This all-day tour is limited to a total of 30 people that will be chosen on a first to sign up basis. This trip is physically demanding and is not recommended for anyone that has trouble walking or has a fear of heights. No handicap facilities are available. Due to cramped space inside the Bridal Veil Power Plant, there will be two groups of 15 participants each. Group 1 will visit the Bridal Veil Power Plant in the morning and Ames Power Plant in the afternoon. Group 2 will visit the Ames Power Plant in the morning and Bridal Veil Power Plant in the afternoon. Telluride Outside 4-WD vehicles will meet both groups outside the Peaks Resort & Spa in the morning and return there in the afternoon. A box lunch will be provided for each group.

The visit inside the Bridal Veil Power Plant is being sponsored by Newmont Mining Corporation that operates the power plant as part of its Idarado Legacy venture in Telluride. The visit to the Ames Power Plant is being sponsored by its operator Xcel Energy. As time permits, your guides will also take each group to other Telluride area mining and narrow gauge railroad sites, scenic views, and possibly a ghost town.

8:30AM – Post-conference Field Trip #2: Driving Tour of the Historic Telluride Region

Telluride Outside 4-WD vehicles will pick up tour participants at the Peaks Resort & Spa in the morning and return there in the afternoon. Your tour guide is Telluride mining historian Rudy Davison who will lead you to historic mining sites that are not snowbound at this time of year and follow the most spectacular parts of the Rio Grande Southern Railroad (RGS) route that served the Telluride area.

The first stop is at the head of the Telluride Valley where various mills, the RGS, and aerial trams all converged from the mines located higher up in Marshall, Savage, and Ingram basins. Following this orientation, we drive up the lower part of Black Bear Pass on a zig zag road that offers us a closer view of impressive waterfalls that includes Bridal Veil Falls, the tallest waterfall in Colorado. Be prepared to get wet. Continuing uphill to a turnaround at the Bridal Veil Falls Power Plant, we pass the Meldrum Tunnel that was originally drilled as

a railroad tunnel to connect Telluride with the Red Mountain Mining District between Ouray and Silverton. Once we reach the power plant, the views are fabulous, but anyone that has trouble walking or has a fear of heights should stay with the vehicles.

After leaving the Telluride Valley, we drive to the Illium Valley Overlook where impressive mountain views mingle with RGS and mining history. Next, we stop at the Ames Power Plant where Rudy will narrate the story about how a Telluride banker named L.L. Nunn convinced the Westinghouse Corporation to invest in building an alternating current (AC) power plant that became the first in the world to send AC electricity a long distance. The next part of our trip will be spent traveling towards the beautiful mountain setting at Trout Lake and Lizard Head Pass where we will see amazing narrow gauge railroad engineering at the Ophir Loop, an original RGS water tank, and a well preserved trestle. Depending on time, the remainder of the day may take us up the Ophir Valley to the former mining camp of Ophir, or the Alta ghost town and Gold King Basin where the Gold King Mine received the first Ames Power Plant electricity. A box lunch is provided.

8:30AM – Post-conference Field Trip #3: Repeat of self-driving tour to Colorado Plateau Uranium Country. See the Thursday June 9 Pre-Conference Field Trip for details.

Newsletter Editor Wanted

MHA NEWSLETTER EDITOR:

- Collect and curate information for four issues per year
- Work with typesetter and approve final layout
- Yearly report to the MHA Board at the Conference

Start: Immediately for Summer 2016 issue

Contact: Bill Culver at william.culver@plattsburgh.edu

Mining History Association

Annual Meeting June 9-11, 2016

Registration, Reception & Social Events at Peaks Resort and Spa Sessions at Telluride Conference Center

Thursday June 9

- 8:00-04:00 **Pre-conference field trip to Colorado Plateau Uranium Country**
All-day tour, drive your own vehicle, route map and description included, box lunch provided. Start from the Peaks Resort & Spa, see the full description in the newsletter. Trip repeats Sunday June 12.
- 10:00-noon Early registration at Peaks Resort and Spa.
- 01:00-04:30 Early registration at Peaks Resort and Spa.
- 12:00 Lunch – open
- 01:00-03:00 MHA Council Meeting at Golden Slipper Conference Room I, Peaks Resort and Spa
- 03:15-04:30 MHA Editorial Board at Golden Slipper Conference Room II, Peaks Resort and Spa
- 05:00-06:45 Welcoming Reception & BBQ Buffet Dinner at Palmyra Deck, Peaks Resort and Spa
Bill Culver, *Opening of 26st Mining History Association Meeting*, MHA President 2015-16
- 07:00-07:30 **Rudy Davison**, *Life of Bulkeley Wells*, Big Billie Ballroom, Peaks Resort and Spa
- 07:30-08:30 **Steve Lee**, *Meet Bulkeley Wells - A Glamorous Man*, Big Billie Ballroom, Peaks Resort

Friday June 10

- 08:00-04:00 Registration at Telluride Conference Center
- 08:00-04:00 Book displays and vendors at Telluride Conference Center
- 08:00-08:25 **Session 1: Conference Opening**
Bill Culver, MHA President 2015-16, *Welcome*
Duane Smith, Program Chair & MHA Past President 1995-96, *Welcome*
Rudy Davison, Conference Site Chair, *What to Expect from Telluride*
- 08:30-10:00 **Session 2: The San Juans**
Chair: **Brian Leech**, MHA Secretary, Nominating Committee 2015-18, Research Grants Committee
Jane Bardal, *Postcards of Mining from Silvery San Juan: Then and Now*
Ed Raines, *The Tomboy Gold Mine*
Rudy Davison, *J. H. Ernest Waters and the Sheridan Mine*
- 10:15-11:15 **Session 3: Colorado Uranium Country**
Chair: **Rudy Davison**, Conference Site Chair, Council 2013-16
Jane Thompson & Joel Lubenau, *Standard Chemical Company in Western Colorado & Pennsylvania*
Jane Thompson & Joel Lubenau, *Uravan from Early Placer Gold to Manhattan Project*
- 11:30-12:30 **Session 4: Mining in the Americas**
Chair: **Eric Nystrom**, Newsletter Editor, Council 2014-17
Mark Wasserman, *Mining in the Mexican Revolution: Tragedy or Opportunity*
Elena McGrath, *Drinking and Dynamite: Ritual and Political Protest in Bolivian Mining*
- 12:30-02:00 Lunch –open
- 02:00-03:30 **Session 5: The Corners of Mining**
Chair: **Stephanie Saager-Bourret**, Council 2013-16, Besleme-Orell Heritage Award Committee
Barbara Clements, *Silver, Gold, and Vanadium Dreams: One Family's Adventures in Mining*
Christian Wright, *"A Respectable Way to Make a Good Living Without Any Discrimination:" United Mine Workers and the Lady Miners of Utah, 1974-1985*
Erik Melchiorre, Tera Ochart, Daryl Schendel, *Post-mining Estimation of Silver Production from the Silver King Mine, Calico District, California*

- 03:45-04:45 **Session 6: Beyond Metal and Coal Mining**
 Chair: **Jane Bardal, Council 2015-2018**
Justin Whitney, *“The Great Steam Rush”: Geothermal Mining on California’s Subterranean Energy Frontier, 1960-2015*
Magen Hudak, *Beach Sand and Gravel Mining in the Canadian Maritimes*
- 06:00-08:00 **Awards Banquet** at the Legends Dining Room and Appaloosa Bar, Peaks Resort & Spa
 Banquet Moderator: **Bill Culver**, MHA President 2015-16
 The MHA Awards Program
 Featured Speaker: **Duane Smith**, *The Life of a Mining Historian*

Saturday June 11

- 08:00-01:00 Registration at Telluride Conference Center
 08:00-02:00 Book displays and vendors at Telluride Conference Center
 08:30-08:45 **Bill Culver**, *Day’s Announcements*
- 08:45-09:45 **Session 7: Mining Professionals**
 Chair: **Eric Clements**, MHA Journal Editor
Jeff Bartos, *Mining Engineers as Public Intellectuals*
Stan Demsey, *The Bulletin of the Mining and Metallurgical Society of America: Primary evidence of the Attitudes of the Leaders of the Mining Industry of the late 19th and Early 20th Centuries*
- 10:00-11:30 **Session 8: Mining’s Odds and Ends**
 Chair: **Terry Humble**, Council 2015-18
Bob Spude, *Re-Discovering Jerome, Arizona*
Brian Leech, *Selling a Risky Business: Gambling, Mining History and Popular Culture*
Nathan Delaney, *American Metal Company from North America to Africa*
- 12:00-02:00 **Presidential Luncheon** at Big Billie Ballroom at the Peaks Resort and Spa
Passing of Presidential Rock Pick: Bill Culver, MHA President 2015-16
Erik Nordberg, MHA President 2016-17
 Presidential Lecture: *Whither Mining History?*
- 02:15-03:15 **MHA Business Meeting** at the Telluride Conference Center
- 03:30-05:30 **Visit to the Telluride Museum & Special Map Exhibit** – ride the free gondola from Mountain Village to Telluride. Transportation from the gondola base to the Telluride Historical Museum provided by Telluride Outside – or walk
- 04:00-05:00 **Historical Walking Tour of Telluride** – starts at the Telluride Historical Museum

Sunday June 12

FIELD TRIPS REQUIRE PRE-REGISTRATION

- 08:30 **Post-Conference Field Trip #1 Bridal Veil Falls & Ames Power Plants**
 All-day tour limited to 30 people chosen on a first to sign up basis. This trip is physically demanding and is not recommended for anyone that has trouble walking or has a fear of heights. Telluride Outside 4-WD vehicles will meet participants outside the Peaks Resort & Spa in the morning. Box lunch provided. More details in the Spring Newsletter.
- 08:30 **Post-Conference Field Trip #2 Driving Tour of the Historic Telluride Region**
 All-day tour led by Telluride mining historian Rudy Davison. Telluride Outside 4-WD vehicles will meet participants outside the Peaks Resort & Span in the morning. Transportation provided by Telluride Outside. Box lunch provided.
- 08:30 **Post-Conference Field Trip #3 Colorado Uranium Country Tour**
 All-day tour, drive your own vehicle, box lunch provided. Tour sponsored by the Rimrock Historical Society. See the full description in the newsletter. This is a repeat of the June 9 pre-conference tour.

MHA Conference Registration Form - Telluride, Colorado June 9-12, 2016

Your name (for badge): _____
 Spouse/Partner Name: _____
 Mailing Address: _____
 City/State/Zip/Country _____
 Email/Telephone _____

___ Please list me in the conference packet ___ I am a current MHA member

	<u>Cost per person</u>	<u>No. Attending</u>	<u>Total per Event</u>
Conference Registration:			
Members	\$35	_____	_____
Non-Members	\$50	_____	_____
Spouse/Partner/Children	\$10 - Each	_____	_____
Student with school ID	\$20 - Each	_____	_____
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Thursday June 9:			
*Uranium Country Field Trip	\$15	_____	_____
* Repeats on June 12			
Opening Reception & BBQ Dinner	\$20	_____	_____
Steve Lee Performance of Bulkeley Wells	Free	_____	_____
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Friday June 10:			
Awards Banquet - must pre-register	\$25	_____	_____
<hr/>			
Saturday June 11:			
Presidential Luncheon - must pre--register	\$20	_____	_____
Telluride Historical Museum	Free	_____	_____
Walking Tour of Telluride	\$10	_____	_____
<hr/>			
Sunday June 12:			
*Field Trip #1: Bridal Veil & Ames Power Plants	\$25	_____	_____
* Space limited to two groups of 15 people for a morning & afternoon tour. First to sign up basis. This trip is physically demanding and is not recommended for anyone that has trouble walking or has a fear of heights. No handicap facilities are available.			
Field Trip #2: Driving Tour of the Historical Telluride Region	\$25	_____	_____
*Field Trip #3: Uranium Country	\$15	_____	_____
* Repeat of Thursday pre-conference field trip			
			Total Cost _____

Mail completed registration form and payment to:
 Rudy Davison
 PO Box 2998
 Durango, CO 81302

Make checks payable to:
Mining History Association
 (payment in U.S. dollars: Credit Cards not accepted)

For additional conference information, www.mininghistoryassociation.org or r_a_davison@frontier.net

*Mining History Association
323 Daniels Place
Cañon City, CO 81212*

First Class Mail

Mining History Association Dues Reminder

If there is a "2015" on your address, we have not received your dues for 2016.

<i>Student:</i>	<i>\$20.00</i>
<i>Individual:</i>	<i>\$35.00</i>
<i>International:</i>	<i>\$45.00</i>
<i>Institutional (journal only):</i>	<i>\$30.00</i>
<i>Sustaining:</i>	<i>\$60.00</i>
<i>Patron Membership:</i>	<i>\$100.00</i>
<i>Corporate Member:</i>	<i>\$500.00</i>

Diane Dudley, Membership Chair
Mining History Association
323 Daniels Place
Cañon City, CO 81212

Upcoming Events

2016 Mining History Association Conference
June 9-12, 2016, Telluride, CO
Details Inside

**The 11th International Mining
History Conference**
2016 September 6-11 in Linares, Spain
<http://www.mining2016linares.com/>

2017 Mining History Association Conference
June 2017, Fairbanks, AK

The Mining History News is published quarterly by the Mining History Association. It is sent to MHA members who also receive the annual *Mining History Journal*. MHA is an organization of individuals interested in the history of mining and metallurgy. Submissions for the newsletter are encouraged and should be sent to Barbara Clements, bclements@seofficeservices.com, until further notice.

Deadlines: Spring issue: February 15th
 Summer issue: June 15th
 Fall issue: August 15th
 Winter issue: November 15th

Change of Address: Please send all address changes to Diane Dudley, Membership Chair, at:

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