

# Mining History News

Newsletter of the Mining History Association

September, 2002



Volume 13, Number 3

## President's Column

Jeremy Mouat

Globalization is one of today's buzzwords but it's old hat to most mining historians. From at least the time of classical Greece, people have sailed to distant lands in search of mineral wealth. Participants in California's gold rush were conscious of these ancient precedents, of course, which is why they referred to themselves as argonauts and gave their towns names like Ophir, the source of King Solomon's wealth in the Bible.

The gold rush was just one example of the mobility of a determined miner. At our 2001 Butte conference, Sharron Schwartz described the way in which Cornish miners moved to the Americas in the early nineteenth century, in the process helping to establish a reputation they would jealously guard for many years to come.

But skilled miners were often on the move, even before the Cornish diaspora of the nineteenth century. This was brought home to me when I was visiting the University of Leeds in England some years ago. Through a friend, I was introduced to a local group of mining historians. They were kind enough to invite me along for an expedition they were making to the Lake District, famous for its scenery and its association with poets like William Wordsworth.

The point of our trip was to film the

operation of an old flotation plant before it was demolished. The plant was on a property north of Keswick, a mile or so down a dirt road. The machinery was in a small brick building, which looked like it had been there for at least a century. I was a little curious about the need to demolish the building and asked my new friends what had made this necessary. It turned out to be a sensitive topic. "The National Trust," muttered one of them, in a tone suggesting that he did not look fondly on this heritage organization. I looked puzzled and then he explained. The National Trust was responsible for decreeing that the plant had to be torn down. When I still appeared bewildered, he went on to say that the National Trust wanted to return the region to its natural state. As far as he was concerned, Wordsworth's poetry was to blame. "Many years before Wordsworth ever came to the Lake District," he said bitterly, "there were miners here. Queen Elizabeth I brought German miners to the Lake District in the sixteenth century." Clearly this was a bit of local heritage that had not found favor with the National Trust.

Queen Elizabeth I was involved in another mining venture, closer to my own home. This followed Martin Frobisher's first trip across the Atlantic from England, in 1576. Frobisher was in search of a northern passage through to the wealth of the East. Although he did not find a suitable route through the cold northern waters, he did bring back some black rock, found on a small island near Baffin Island. One English assayer confidently pronounced the

stone to be gold-bearing. This led to a second expedition to Baffin Island, with help from the queen. Three ships, including a handful of miners and several metallurgists, returned to the spot where the "ore" was found. This time two hundred tons were mined and brought back. With reports that the ore would return a good profit, a more elaborate expedition set off in 1578. This time fifteen ships sailed, carrying materials to build a fort and establish a colony of 100 people. Rough weather ended these plans, however, as the ship carrying the bulk of the supplies went down in a storm. Despite the setback, some fifteen hundred tons of ore were mined and brought back to England. The truth had come out during Frobisher's absence, however: the ore was worthless and contained no gold. Europeans' first recorded effort to develop a North American mine came to its unhappy end, although a few scars are still visi-

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ble on the Arctic landscape.

In England, Frobisher's rocks were left in a heap beside the plant designed to treat them. Eventually a good use was found for the distinctive black stones. They became part of a long wall that still stands, next to a busy shopping center east of London. I worked out the location and traveled out to look at the rocks. Running my fingers over them, I laughed to think of the long trip that they had made and the fond hopes that Frobisher and others must have had. But then globalization has always been a risky business, even for miners.

## Organization Notes

### MHA Journal

The editor urges anyone interested to submit articles for the 2003 Journal to: Eric Clements, Mining History Journal, Department of History MS2960, Cape Girardeau, MO 63701, <eclements@semovm.semo.edu>.

### "Who, What and Where" Contest

By popular demand, the "What is It?" slideshow contest, newly titled "Who, What and Where?", will return to the June 2003 MHA meeting in Colorado. In this revised format, illustrated questions will include famous mining men and mines as well as mining equipment. Prizes will be awarded for each category as well as for best overall score. The time of the contest will be in the final program. Give yourself an edge by sending one or more of your favorite slides, copy prints, or \*.jpg digital files to Who, What, Where? , attn: Ron Limbaugh, P.O. Box 1333, Gualala, CA 95445, email <limbaugh@mcn.>. Please do not send originals! Contest officials will consider all material sent, but cannot promise to use everything or to return material to sender.

### Museum Notes

Seven legendary figures of American mining will be enshrined in the **National Mining Hall of Fame**, Leadville, Colorado on Saturday, September

7 in Salt Lake City, Utah. The inductees are: Arthur Murray (Bud) Wilson, Elmore F. and Payes Boyles, James Colquhoun, Donald Miner Davidson, Cornelius H. Keller, and Benjamin D. (Ben) Stewart. Duane Smith, from Fort Lewis College in Durango, Colorado, will be the banquet's keynote speaker. Smith's slide-illustrated talk is titled, "The History of the Homestake Mine" from his recent book *Staking a Claim in History, The Evolution of Homestake Mining Company*. Also, the National Mining Hall of Fame's Miner's Poet Laureate for 2002 is Charles A. Beasley of Keswick, Virginia. He will recite his winning verse in the Fourth Annual Miner's Jamboree Poetry contest at the meeting in Salt Lake City on September 7.

The **Western Museum of Mining and Industry**, Colorado Springs, Colorado opened its new exhibit "Mr. Stratton's Business: His Life & Mines" on July 22, 2002. Based on the recent acquisition of the Stratton collection, this exhibit will present an overview of Stratton and his Cripple Creek Mining District operation papers.

## Clark C. Spence Award



The Mining History Association is pleased to announce that it is accepting nominations for the first biennial Clark C. Spence Award for the outstanding mining history book. Clark Spence is a pioneer in the study of mining history, as well as one of the founding fathers of the Mining History Association. The first award will be given for books published in 2001 and 2002. Publishers and authors are encouraged to submit their nomination, plus three copies of the book by January 31, 2003 to:

Mining History Association  
P.O. Box 150300  
Denver, CO 80215

# CALL FOR PAPERS



## FOURTEENTH ANNUAL MEETING OF THE MINING HISTORY ASSOCIATION

CRIPPLE CREEK/VICTOR, COLORADO  
JUNE 5-8, 2003

The program committee for the Cripple Creek/Victor meeting of the Mining History Association invites proposals for individual papers or complete sessions (including chair) on any topic or aspect of mining history. Sessions normally include three papers of twenty minutes each. There are no temporal or geographic limits.

Proposals should include an abstract (one paragraph) for each paper, plus biographical information about each presenter and session participant. Please note, speakers must register for the conference in order to give their presentations. Please send the written proposals to the program committee chair by **December 31, 2002.**

2003 Program Chair:

Duane Smith  
288 SW Center  
Fort Lewis College  
Durango, CO 81301

## Meeting Notes

The next annual conference of the **Australian Mining History Association** (AMHA) will be held in the City of Broken Hill, New South Wales, on July 2-6, 2003. Broken Hill is Australia's longest-lived and best-known mining city and has had a significant influence on Australian economy. Many major mining and metallurgical developments have taken place in Broken Hill, and it is a significant site in the union movement in Australia.

Mining commenced production in 1883 and, at its peak, more than ten world-class mines worked the world's richest lode. Today, its mines sites and settlements form a complex and fascinating landscape. The conference will feature a number of short tours to sites of interest within the city, spread amongst the sessions. It is hoped that the conference will coincide with the commencement of silver-lead-zinc mining on the Broken Hill Lode.

Broken Hill's location allows for planning of pre/post conference tours to world-class mining heritage sites within half-a-day by road. These include the Cornish copper mining towns of Burra, Kapunda, and Moonta-Wallaroo, and the gold mining centers of Ballarat and Bendigo. The AMHA would be pleased to assist any individuals or small groups to prepare travel arrangements.

The Association invites papers on any subject relating to the history or archeology of mining industry and settlement. If you wish to submit a paper, please send an abstract (or at least a title), to Peter Bell of Adelaide by November 30, 2002.

Dr. Peter Bell, P.O. Box 3044, Rundle Mall, SOUTH AUSTRALIA 5000, Email <[pbell@adelaide.on.net](mailto:pbell@adelaide.on.net)> or [pbell\\_history@yahoo.com.au](mailto:pbell_history@yahoo.com.au)

For any other information or assistance with arrangements, please contact:

Greg Drew, GPO 1671, Adelaide, SOUTH AUSTRALIA 5001, Email<[drew.greg@saugov.sa.gov.au](mailto:drew.greg@saugov.sa.gov.au)>

**The 6th International Mining History Congress** will be held September 26-29, 2002 in Akabira Hokkaido, Japan. The goal of the International Mining History Congress has always been to gather specialists from private, government, and academic sectors involved in mining history to present and discuss their latest research. A wide range of topics will be discussed, including problems related to the social and economic history of mining development in different countries and regions. The official languages of the Congress will be English and Japanese. Those wishing to present research papers at the Congress are requested to prepare an abstract, and complete the registration procedures no later than November 30, 2002, on the website of the Congress (<http://www.imhc2003.com>).

**The 42nd Annual Western History Association Conference**, "Western Roots and Migrations" will be held at the Sheraton Colorado Springs, Colorado Springs, Colorado, October 16-19, 2002. Sessions of interest to mining historians include: Mining in the Rocky

Mountain West: Perspectives on Labor, Class & Environment (Thursday, 10:30-noon); Mining Landscapes as Cultural Spaces (Friday, 8:30-10:00 a.m.); The Far North: Representations of the Gold Rush and Alaska's Pioneer Past (Friday, 2:30-4:00 p.m.); Mining and Western Migration (Friday, 2:30-4:00 p.m.); and Rags to Riches: Collaborations among Historians and Historical Archeologists in Western Mining History (Saturday, 8:30-10:00 a.m.). A bus tour of the Cripple Creek and Victor mining district will take place on Saturday from, 12:30-10:00 p.m. The group will travel through the historic Vindicator Valley and see the town of Goldfield. Participants will view the mining operations of the Cripple Creek and Victor Gold Mining Company's Cresson mine, including drilling, excavation, and recovery. From there, participants will go to Victor for a walking tour of the historic downtown area, including the Miner's Union Hall and the Lowell Thomas Museum. The tour will then head back to the Garden of the Gods, a natural collection of red rocks jutting skyward, where participants will dine at the Visitor's Center of the Park. The Mining History Association Breakfast will be held on Thursday, October 17, 2002 at 7:00 a.m. For more information please check out WHA's website <[www.unm.edu/~wha](http://www.unm.edu/~wha)>. Please plan to attend.

Check out the new  
location of the  
updated MHA website:



[www.mininghistoryassociation.org](http://www.mininghistoryassociation.org)



## Cripple Creek/ Victor Mining District's Mini-history

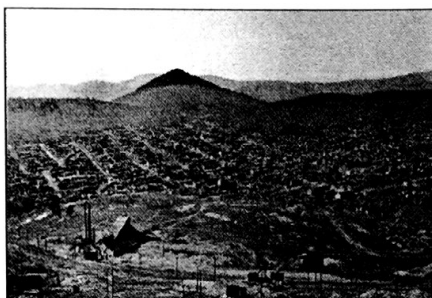
By Ed Hunter

Welcome to the Cripple Creek/Victor world class gold deposit! For countless years, the deposit remained hidden under a grassland on the west flank of Pikes Peak, an area suitable for summer grazing range. Unfortunately, the area boasted no burros capable of finding gold mines and defied many human attempts to locate the deposit.

The great overland trek of gold seekers in 1849 for the gold in California either went on the route to the north or to the south of the area. No one had time to look around - the goal was gold and time was of the essence. Ten years later, the "Pikes Peak gold rush" of 1859 brought many prospectors to the foot of Pikes Peak, but only the few that went north to Cherry Creek or Gregory Gulch found any of the shiny stuff that dreams are made of. The rest went home "busted" and the Pikes Peak region got a poor reputation as a potential gold area, even though one of the great north American gold deposits lay undisturbed on the other side of Pikes Peak.

The presence of gold on the west side of the peak was noted in 1874 by H.T. Woods of the Hayden Survey, but little notice was taken of this observation. Hayden's mission was to survey for homesteads and establish the height of Pikes Peak.

To add insult to injury for the area's gold reputation, merchants in the Canon City, Colorado area in 1894, allegedly hired "Chicken Bill", aka S.J. Bradley of Leadville, to salt some claims about 10 miles west of what we know today as the Cripple Creek Mining District. The merchants were able to sell supplies to the reported 4000 prospectors who rushed in. "Chicken Bill" narrowly escaped hanging when the "Mt. Pisgah hoax" was disclosed. T.



*Cripple Creek, 1901*

A. Rickard reported that a little gold chloride prompted the rush. Although the salting actually took place on Mt. McIntyre, 10 miles west of Mt. Pisgah, the site of the future town of Cripple Creek, Pisgah got all the "credit". Negative reviews continued.

The district then lay dormant, save for ranching and part-time prospecting by Bob Womack, ranch hand for the Broken Box Ranch. He was convinced that gold was present, but he was also noted for his tall tales and propensity for the spirits. Woods of the Hayden Survey brought in a group to drive a short adit, but they found nothing. A homesteader, B. F. Requa, tried also, as did Henry Cocking, a miner from Central City, both to no avail. Finally in 1890, rocks from Womack's persistent digging were assayed in Colorado Springs, showing that the rock actually contained gold. This led to the formation of the Cripple Creek Mining District on April 5, 1891.

The mining district is the site of a steep-walled volcano or diatreme. Thirty-two million years of geologic activity resulted in an area of about 6-3/4 square miles that was highly brecciated, mineralized, and surrounded by impermeable granites.

The visual form of the gold in the district had played an important part in hiding the great gold field from the early prospectors. Gold miners, from antiquity through the rushes to California, Fraser River, the Yukon and Nome, were looking for placer gold. Much of the gold in the Cripple Creek district was chemically bound with the

element tellurium, giving the gold a far different appearance than expected. Sylvanite, a gold telluride mineral, was silver in color - highly unfair, gold ought to be gold-colored!

Small placer deposits that were found on Mineral Hill, immediately north of Cripple Creek, were traced to a vein where machinery was required to break up the rock to free the gold. The experienced California and Gilpin County miners immediately brought in stamp mills, and by 1892, 270 stamps were reported to have been working in the district. However, the gold recovery was very poor, for the free gold that was present was coated with a film or tarnish of iron telluride which resisted amalgamation, the time-honored method of recovering gold. High-grade ores, running several ounces of gold to the ton, could be sent by wagon to the Colorado Midland Railroad at Florissant, and shipped from there to the smelters in Pueblo and Denver by rail.

The increasing amounts of gold being mined led to the urgent need for better transportation close to the mines. The Florence and Cripple Creek Railroad reached the district from the Arkansas River to the South in 1894. This was quickly followed by the standard gauge Midland Terminal line, coming from a connection with the Colorado Midland to the north. The two railroads, competitive at first, joined forces forming a monopoly. Mine owners with mills in Colorado City, adjacent to Colorado Springs, organized and built the Colo-



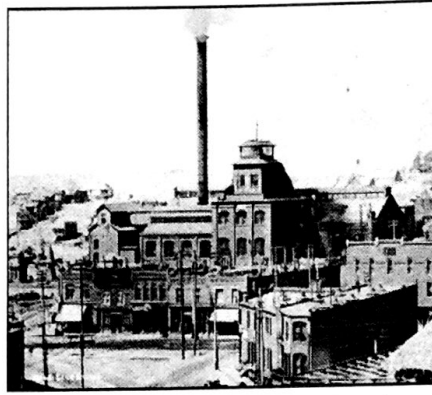
*Gold King mine, Cripple Creek*

rado Springs and Cripple Creek Railroad, or "Short Line", traversing the south slope of Pikes Peak. The new railroad was able to force freight rates downward accelerating production.

But what was to be done with the bulk of the Cripple Creek ores, which did not contain sufficient values to pay for mining, transportation to the smelter, and the smelting charges? Alternate methods of gold recovery were sought to exploit this bonanza. Area miners who had come from the Black Hills of South Dakota brought the chlorination process with them, and this became the common method of gold recovery.

Through the work of the MacArthur Brothers in England, gold was being recovered in New Zealand and South Africa using cyanide by 1890. The application to Cripple Creek ores was enhanced by the work of Philip Argall at the Brodie Mill in Anaconda Gulch, which had a license from the MacArthurs for use of the process. By 1895, Argall had improved the recovery by cyanidation so much that David Moffat, the railroad mogul, hired Argall to build a 400 tons per day Metallic Extraction Mill along the Arkansas River at a place aptly named "Cyanide".

Several small chlorination and cyanide mills were in operation in the district in the 1890's, but problems arose. Fuel for mill boilers was nearly nonexistent in the area. What little timber had been present was rapidly consumed for building and heating houses, as well as mine and mill structures. Coal and fuel oil were available from the mines and the oil field to the south along the Arkansas River, however, it was cheaper to haul ore downhill than to haul the fuel uphill. Water for mills and homes was rather scarce, as the region has an annual precipitation rate of around 20 inches. There was also a shortage of flat area that could be used for large capacity mills, which could offer economies of scale. These factors led to construction of the larger mills nearer



*Gold Coin mine, Victor Colorado*

fuel supplies, quantities of water, and adequate room for enlargement. At first these larger mills were along the Arkansas River between Florence and Canon City. Later, Colorado City, adjacent to Colorado Springs, became the milling center for the ores of Cripple Creek.

The chlorination and cyanidation process competed for the Cripple Creek market through the end of the 1890's and early 1900's. Chlorination was favored at first, but following the work of Argall and others, cyanidation proved to be the most efficient, and by 1911, all of the chlorination mills had burnt down or gone out of business. Newfangled electricity seemed to have been responsible for many of the mill fires.

From 1891 to 1900, the district boomed. The rapid rise in production was accelerated by the financial crisis of 1893. One third of the nation's railroads were in receivership, over 600 banks had failed and 15,000 commercial establishments went bankrupt. The federal government could not issue more gold certificates, for the country's gold reserves were below the authorized limit of 100,000,000 ounces (an old concept called fiscal responsibility). Silver miners were hurt when the mint in India stopped their large silver purchases, but the crowning blow to the Colorado mining economy came when Congress repealed the Sherman Silver Purchase Act. These two actions were reflected in the immediate drop in the price of silver. The great silver camps of Creede and Leadville virtually shut

down. The exodus of the ex-silver miners headed for Cripple Creek. Gold production boomed and in 1899 nearly 1,000,000 ounces of gold were recovered.

Like most mining camps, Cripple Creek's and Victor's wooden framed buildings were fodder for extensive fires just before the turn of the century. Cripple Creek burned twice in three days, Victor only once. Both towns rose overnight from the ashes into modern cities of brick. The three railroads and two trolley lines tied the small settlements around the district to Cripple Creek and Victor, creating a metropolitan area. Good times rolled; the district boasted of an amusement park called Pinnacle Park at Cameron, served by trolley and train. The park had a zoo, where the pits built to house the bears are visible today. Entertainment reached a new high (or low) when the only recorded bull fight in North America was held at Gillett. It was rumored that no one ever died of thirst in the district, even when water was sold by the bucketful.

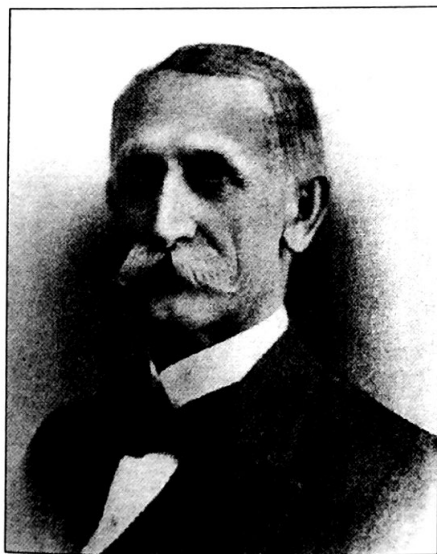
In 1898, Winfield Scott Stratton, a one-time carpenter and part-time prospector, sold his great Independence Mine to the Venture Corporation of England for \$11,000,000. This transaction helped focus attention on the gold camp both nationally and internationally. The original lone prospectors were giving way to large companies with the resources to expand ever deeper into the golden caldera.

After the turn of the century, production started to slide as the mines went deeper, ore grades decreased with depth, and water underground increased with depth. It was perhaps ironic that a district, with a scarcity of water on the surface, was plagued with an overabundance of water underground. The Cripple Creek District has been likened to a granite bottle, with a large sponge inside saturated with melting snows and rain water from early geologic time.

In 1900, underground mine pumps were, at the best, inefficient. The great Cornish beam pumps had reached their epitome at the Comstock in Nevada. Centrifugal pumps had yet to become the efficient machines we know today. Bailing water with special buckets using the mine hoist was very inefficient as depth increased.

Meeting the challenge of the water required the use of an old technique, going back at least as far as the German Mines at Rammelsburg in 960 AD. Tunnels could be driven from lower elevations in nearby valleys into the heart of the caldera. This technique can be compared to drilling a hole through the granite bottle and letting the water drain. In the Cripple Creek District, five major tunnels were driven through the years at successively lower elevations to aid in the drainage. The fourth, or Roosevelt Tunnel, was 4 1/2 miles long at an elevation of 8000 ft., and took ten years to complete.

In spite of the relief provided by the drain tunnels on operating costs, production continued to decline. One bright spot occurred in 1914 when a vug or cavity on the 1200 level of the Cresson mine was broken into. Sixty-thousand ounces of gold were taken from the geode-like cavity. Armed guards protected the bonanza all the



Winfield Scott Stratton

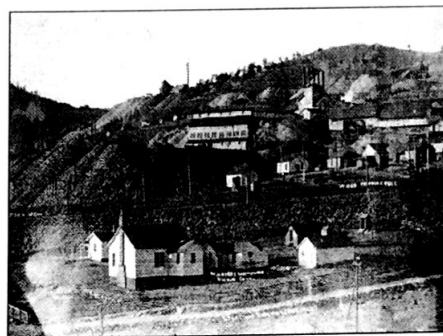
way to the smelter in Denver.

Production continued to decrease through the WWI period and the 1920s. A slight increase occurred in 1934 when the price of gold was officially raised from \$20.67 to \$35.00 per troy ounce. However, it became evident by the late 1930s that, in spite of the gold price increase, a deeper tunnel would have to be driven to drain production levels below 8000 feet.

Not surprisingly, the Southern Colorado Power Company championed the continued use of electric pumps (with their power, of course). However, the Golden Cycle Company decided on a deeper tunnel at the 7,000 foot elevation for drainage. The attempt to obtain federal funding through bonds failed, and Golden Cycle financed the project themselves at approximately 1.2 million dollars. The portal was collared in July of 1939 at Marigold on Oil Creek. Each mile was driven faster than the previous one. The total advance through the granite into the caldera was 6.11 miles, and was accomplished in 2 years and 5 days. The advance averaged over 47 feet per day, and set many records. The goal to drain the caldera under the deepest mine workings was accomplished. The Carlton Tunnel was a masterpiece of underground mining construction and yet, through no fault of the miners and the mining company, a victim of poor timing.

The entry of the United States into WWII brought on the L-208 Act, restricting mining of nonessential metals, and the gold mines were shut down. Miners were to be sent to mine copper, lead and zinc for our war effort, or to serve in the armed forces. The L-208 Act virtually shut the district down for the duration. Although the Act was declared unconstitutional in 1954, no compensation for damages was ever awarded.

After the war, the district did not immediately recover. The idle mines had deteriorated, and former miners did not



Stratton's Independence mine

return for many reasons, including better pay for mining uranium on the Western Slope of Colorado, than gold in Cripple Creek. Postwar inflation drove up the cost of materials and supplies. In an effort to revive the district, the Golden Cycle Company shut down the only remaining mill in Colorado Springs, and built the Carlton Mill midway between Cripple Creek and Victor. The mill was officially started in 1951 by Lowell Thomas, author, radio commentator and world traveler. The Carlton was the largest custom gold mill in North America, at 1000 tons per day. A state-of-the-art facility, the mill was the third mill to utilize carbon adsorption for collecting the gold. During the 10 years of operation, the mill produced 437,077 troy ounces of gold before its shutdown in 1961. In that year, with gold still pegged at \$35.00 per ounce, most of the gold mining operations in the United States closed shop, with operational costs per ounce at or higher than \$35.00 per ounce.

Two periods of labor unrest (1893-1894 and 1903-1904) led to the Cripple Creek District being union-free after 1904. Government troops were called out in both instances, but most violence took place in the 1903-1904 period. Albert Horsely, better known as Harry Orchard, who was nearly trapped in the Gem Mill in the Coeur d'Alene when he helped the Western Federation of Miners blow it up, moved to this district. Here, he set a bomb on the 600 level of the Vindicator Mine, resulting in the death of the Superintendent and one of the foremen. Shortly thereafter,

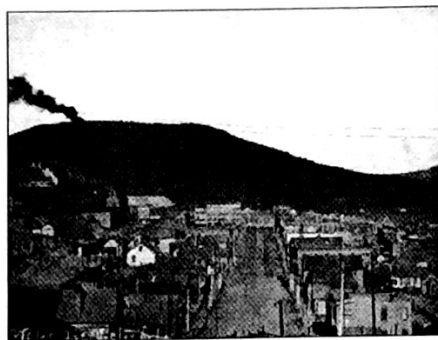


he blew up a railroad station in the town of Independence, as the night shift crew from the nearby Findlay Mine was waiting to go home, killing 13 miners. Orchard fled the district, returning to Idaho where he killed Ex-Governor Steunenberg. Orchard was apprehended for this tragic act, and put on trial, along with the officers of the Western Federation of Mines. Big Bill Haywood, Moyer and Pettibone had been kidnapped at gunpoint in Denver and moved by rail to Idaho to stand trial. Clarence Darrow, of the Scopes monkey trial, was instrumental as a defense lawyer in exonerating the WFM hierarchy. Orchard was convicted and spent the rest of his life in prison. Following the bitter strikes in the district, anyone applying for a job at a mine was required to show a card issued by the Mine Operators Association, attesting that he was not connected to the union.

The Cripple Creek Mining District was known as a "split-check lease camp" after about 1912. Most mine owners leased a portion of their mine to be worked by two or more miners who were, in effect, independent contractors. The mill returns were split 50/50, except that the company took a percentage off the top for sampling, etc.

The Cripple Creek District lay dormant from 1962 until the 1970's. Then United States citizens were once more allowed to possess gold, and the price was permitted to seek its own level in the world market. Extensive exploration in the district disclosed large quantities of low grade gold-bearing material, previously uneconomical for mining and processing.

Today, the same chemistry used for nearly 100 years in this district to recover gold is still utilized. However, the old-time miner had only a scoop shovel and a one-ton ore car to move his rock, and moving 16 tons in his 8-10 hour shift was a fair day's work. Today, large rubber-tired equipment is used in surface mines to move hundreds of tons of rock each shift. This



Victor, Colorado, City of Mines

permits mining very low-grade gold-bearing rock at 0.02 to 0.03 troy ounces per ton in a far safer manner. In order to process the gold ore efficiently, large leach pads are built outside on impermeable membranes, to replace the small tanks previously used to leach the gold in the cyanide solution. In the Cripple Creek District, in 1905, Philip Argall urged his client, the Stratton Estate, to put 50,000 tons of low-grade gold ore on a concrete pad, percolate a weak solution of cyanide through the heap, and extract the gold solution from the bottom along the pad. The gold was recovered by precipitating it on zinc shavings, and then heating the shavings in a crucible. The Stratton Estate and the rest of the mining world failed to use this far sighted recovery system for over 50 years.

Today, district recovery follows Argall's 90-year old recommendation (on a slightly larger basis), excepting that the gold solution from the leach pad is collected by adsorption onto coconut-shell carbon rather than onto zinc dust or shavings. The gold is stripped from the carbon, and electroplated onto stainless steel mesh. The plated gold (like so much mud) is washed from the mesh and vacuum filtered. The resultant filter cake is fluxed, melted in a furnace at 2100 degrees F. and poured into a cone-shaped mold. The resulting cone, or dore, is a mixture of gold and silver, which is sent to a refinery for separation into gold and silver bullion for the market.

Today, mining does not commence after a claim has been staked as it once

did. Instead, a thorough geologic investigation followed by feasibility studies, an extensive permitting process with local, State and federal agencies, and the posting of a reclamation bond must be accomplished before any rock is moved. Reclamation must be completed as permitted and approved before the bond can be released. Large-scale surface mining today does temporarily disturb the landscape, but the land will be returned for future beneficial use. Meanwhile, the raw materials needed for our existence are provided through the mining of ever lower grades of material in an environmentally responsible manner, under far safer working conditions than those of years ago. The capability to treat lower grades of ore than previously possible helps conserve our finite resources.

The Cripple Creek and Victor Gold Mining Company will make it possible for the 2003 conference attendees to see a modern operation from mine through preliminary processing. Another tour at the underground Mollie Kathleen gold mine will provide a comparison of that mining today vs. the way it was in years gone by.

Please join us in June, 2003 to see and feel this dynamic gold camp as it was and as it is today.

Some suggested readings:

*Money Mountain* by Marshall Sprague

*Cripple Creek Mining District* by Robert Guilford Taylor

*Midas of the Rockies* by Frank Waters

*The Flood of Gold* by Robert Spude

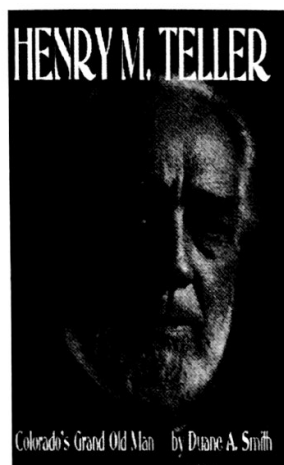
*The Rocky Mountain Revolution* by Stewart Holbrook

*Colorado's War on Militant Unionism* by George Suggs

*All that Glitters* by Elizabeth Jamison



## Book Notes



*Henry M. Teller, Colorado's Grand Old Man*, by Duane A. Smith, 2002, 262 pages, 6 x 9, 35 b&w photographs, 1 map, \$29.95 hardcover, University Press of Colorado, send orders c/o 4100 28th Avenue N.W., Norman, OK 73069-8218, or call (800) 627-7377 or (405) 325-2000. Payment must accompany orders from individuals. Please add \$4.50 for shipping & handling for the first book, \$1.50 for each additional book. Residents of Oklahoma should include 7.5% sales tax. Canadian orders add 7% GST. Serving longer in the U.S. Senate than any other Coloradoan, Henry M. Teller was one of the Centennial State's greatest statesmen and political leaders.

Teller was a prime example of what a politician should be in an era when elected officials left a great deal to be desired. As Colorado's representative, Teller stated his beliefs and stuck by them. Not all agreed with him, but all admired him for his honesty and integrity. His legal career in Colorado encompassed much of the early legislation in the territory, such as developing mining law and the organization of the Colorado Central Railroad, while his Washington career touched on nearly every important western economic development issue that occurred in Colorado between 1876 and 1909. Teller declared to the U.S. Congress that

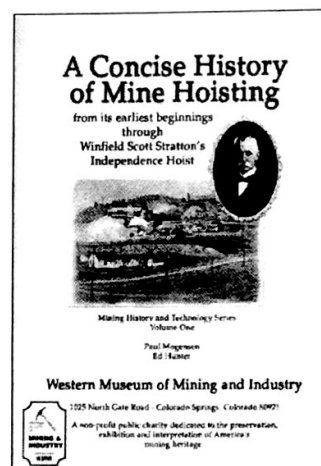
Colorado was a part of the nation, and that the West deserved a say in its decisions.

Incorporating extensive primary and secondary sources, federal documents, the Teller papers, a wealth of newspaper articles, and a superb array of photographs, Smith's biography will be a wonderful source for anyone interested in Colorado history.



*Mining Among the Clouds, The Mosquito Range and the Origins of Colorado's Silver Boom*, by Harvey N. Gardiner, 2002, 136 pages, 6 x 9, 40 b&w illustrations, \$12.95 paperback, Colorado Historical Society, send orders c/o 4100 28th Avenue N.W., Norman, OK 73069-8218, or call (800) 627-7377 or (405) 325-2000. Payment must accompany orders from individuals. Please add \$4.50 for shipping & handling for the first book, \$1.50 for each additional book. Residents of Oklahoma should include 7.5% sales tax. Canadian orders add 7% GST. In *Mining Among the Clouds*, Harvey N. Gardiner examines what one reporter dubbed "aerial" mining—silver mining at such high altitudes that the miners were literally working among the clouds. In the summer of 1871, two prospectors ventured high up Mount Bross in Colorado's Mosquito Range. They discovered an outcropping of silver ore in blue limestone. An unprecedented find, it set off strike after strike in Park County. They began the silver

boom that gave rise to Leadville, laying the foundation for Colorado's Silver Decade.



*A Concise History of Mine Hoisting from its earliest beginnings through Winfield Scott Stratton's Independence Hoist*, Mining History and Technology Series, Volume 1, by Paul Mogensen, and Ed Hunter, 2002, 40 pages, 8 1/2 x 11, 32 b&w illustrations, soft bound, \$12.95 plus \$3.00 S&H, Colorado Residents add 4% tax, Western Museum of Mining and Industry, 1025 North Gate Road, Colorado Springs, CO 80921, 719-488-0880, FAX 719-488-9261 email: info@wmmi, or see www.wmmi.org

The evolution of mine hoisting is traced from the chicken ladders of antiquity through the windlass, horse whim, and Cornish Beam engine, to Stratton's steam-driven, double-drum, flat-rope hoist. The volume was published in connection with the opening of the W.S. Stratton Mining Archives to researchers, and the exhibit, "Mr. Stratton's Business: His Life and Mines".

*Into a Land Unknown, A Report on the Rush to the Kern River and Eastern California, Volume 1: 1854-1860*, by Alan Hensher, 2002, 130 pages illustrated, paperback, published by Alan Hensher Books, 593 Collins Dr., Apt. 3, Merced, CA 95348, 209-722-1915, \$24.00, includes shipping.

## Mining History Association Election, 2002 Candidate Biographies

### **Vice-President/President-Elect (vote for one)**

**Ron Brown** is a professor of history and dean of the University College at Southwest Texas State University. He became interested in mining history while a graduate student at the University of Illinois, where Clark Spence was his advisor. His dissertation examined laboring miners, and was revised and published as *Hard-Rock Miners: The Intermountain West* in 1979 by Texas A&M Press. In 2001, he and Duane Smith published a history of medical practices in the mines and mining communities entitled *No One Ailing Except a Physician: Medicine in the Mining West, 1848-1919*, which won the Colorado Endowment for the Humanities Award. He is currently collecting essays for a special issue of the MHA Journal which will honor Clark Spence, and is conducting research for a book on Daniel C. Jackling of Kennecott. Ron is one of the six founding fathers of the Mining History Association, served on the Council, and was co-chair of the program committee.

**Eleanor Swent**, was born in Lead, South Dakota, where her father was chief metallurgist at the Homestake Mining Company. She received her LL.D. from the South Dakota School of Mines and Technology. With her late husband Langan Swent, a mining engineer, she moved around the mining West and Mexico. Since 1985, she has been a research interviewer and editor, Regional Oral History Office, the Bancroft Library, University of California, Berkeley, and project director for the Western Mining in the Twentieth Century series. She is currently a member of the MHA board (2001-2003).

### **Council (vote for 2)**

**Johnny Johnson**, currently employed in the crushed stone industry in environmental permitting, earned his B.S. in mining engineering from Virginia Tech (1985), an M.B.A. from the University of Baltimore (1991), and is a Licensed Professional Engineer. 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, primarily in the Eastern U.S. He is also a Volunteer Ranger, has published several articles, conducts interpretive mining history hikes, and presents slide lectures. He resides in Finksburg, Maryland with his wife Dawn and three children.

**Kathy Morrissey**, biography not available

**Robert Neil** was born in Iron River, Michigan, and attended Michigan Tech (geological engineering). He has worked for Climax Molybdenum Co., Hanna Mining Co., White Pine Copper Co., and the Cleveland Cliffs Iron Co. from which he retired in 1988 as Corporate Director of Safety and Health. During his career he worked in Michigan, Minnesota, Missouri, Colorado, and Australia.

**Silvia Pettem** grew up in Lancaster, Pennsylvania, but followed her mother's advice to "go somewhere different for college" and ended up at the University of Colorado in Boulder. She's been a Boulder County resident ever since and specializes in regional historical research and writing. Her first book, *Red Rocks to Riches, Gold Mining in Boulder County Then and Now*, was published in 1980 and solidified her interest in mining history. Silvia now has 10 books in print, writes a weekly history column for the Boulder *Daily Camera*, and continues to do historical research for individuals and local governments. In-between, she raised two daughters and ran a mail-order book business in the field of mining and geology. She lives in the mountains west of Boulder, Colorado with her husband, Ed Raines, and two cats.

**Duane Smith** is well-known to MHA members. He is a professor of history at Fort Lewis College in Durango, Colorado. He is an authority on Western mining history, having written numerous books, including *Song of the Hammer and Drill: The Colorado San Juans 1860-1914*. Duane is one of the six founding fathers of the Mining History Association.

### **Nominating Committee (vote for 3)**

**Jim Besleme** received a BS in mining engineering from the Missouri School of Mines and a MS in Engineering, also from the Missouri School of Mines. His career has spanned 40 years both as a mining engineer in Arizona, Montana, and Greece, and in mining equipment sales with Ingersoll Rand and Joy Manufacturing. This included a two and a half year stint as a shift engineer on a compressed air tunneling subway project in New York City. He is currently retired and residing in Columbia, MO with his wife of 33 years, Rita.

**Keith Long** is a mineral resource analyst for the U.S. Geological Survey in Tucson, Arizona. He earned his doctorate in

Mineral Economics at the University of Arizona, following a Masters in Geosciences at the University of Michigan, and a BS in Geology and a BA in Economics at the University of California Santa Cruz. Aside from a few summers of exploration work for Anaconda, Asarco, and U.S. Borax, he has surveyed the Bolivian Altiplano for the USGS and investigated the history of mining and milling activity in the Coeur d'Alene Mining Region in Idaho. His current research is a historical life-cycle study of the southwestern porphyry copper industry, using the Globe-Miami-Superior area as a case example.

**Ed Raines** is a geologist, mineralogist, and mining historian. He worked as a geologist in the petroleum industry at Houston Oil and Minerals and then at Tenneco. In 1993 he formed FRS Geotech, an environmental and geologic laboratory, with two other geologists. In 2002 Ed founded Geo-Historical Studies, a company specializing in consultation and special studies in Geology and Mining History. Ed has written numerous papers on the mining history, geology, and mineralogy of many Colorado mining districts, and frequently gives slide lecture programs on these topics. In 2000 he received a special State Honor Award from Colorado Preservation, Inc. for his work in historical preservation at Leadville. He serves as the chairman of the Boulder County Commissioner's Historical Preservation Advisory Board.

## **MHA Election Ballot—2003 Candidates**

### **Vice-President/President Elect (vote for one)**

- ☐ **Ron Brown**
- ☐ **Eleanor Swent**

### **Council (vote for 2)**

- ☐ **Johnny Johnson**
- ☐ **Kathy Morrissey**
- ☐ **Robert Neil**
- ☐ **Silvia Pettem**
- ☐ **Duane Smith**

### **Nominating Committee (vote for 3)**

- ☐ **Jin Beselme**
- ☐ **Keith Long**
- ☐ **Ed Raines**

**Please mail completed ballot to:**

**Mining History Association, P.O. Box 150300, Denver, CO 80215**



**Mining History Association**

Post Office Box 150300  
Denver, Colorado 80215

[www.mininghistoryassociation.org](http://www.mininghistoryassociation.org)

Membership in the Mining History Association is open to all interested in the history of mining. Dues are \$25 (\$35 international). Membership includes the *Mining History News* quarterly newsletter and the *Mining History Journal*. As in the past, MHA will host an annual conference, which includes tours, symposiums, and social events.

**Officers 2001**

Jeremy Mouat, President  
Ed Hunter, Vice-President  
Mark Vendl, Secretary  
James Fell, Treasurer

**Council**

Richard Francaviglia, Past President  
Glen Cook, 2000-2002  
Homer Milford, 2000-2002  
Eleanor Swent, 2001-2003  
Chris Huggard, 2001-2003  
Ruth Ann Gardner 2002-2004  
James McBride 2002-2004  
James Sell 2002-2004

**Membership Chair**

Robert Sorgenfrei

**Denver Office Coordinator**

Lysa Wegman-French

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