Huggard's Mining History Odyssey: A Personal Memoir and Historiographic Commentary

By
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My interest in mining history began in the early 1980s. I had the good fortune of coming under the tutelage of a geography professor who invited me to camp in Colorado on the side of Mount Gothic adjacent to the Rocky Mountain Biological Laboratory, fifteen miles from the old coal camp of Crested Butte[1] (figures 1 and 2). Dr. Orland Maxfield taught me geographical concepts on this and subsequent "field trips" from northwest Arkansas, where we lived, to south-central Colorado where we camped (Figure 3). I learned about landscapes of the Great Plains, the orographic effect of the Front Range, and the geology of the southern Rockies.

More importantly, once we encamped on Maxfield Meadow[2] on Mt. Gothic, and I began my exploration of the East River Valley, he indulged my fascination with old mine shafts and the general history of mining in Gunnison County. I quickly learned about coal mining and AMAX's proposed molybdenum mine in Crested Butte,[3] became acquainted with long-time Croatian families like Tony Mehlich's, and explored old Pittsburg after fishing for cutthroat trout on the Slate River near its junction with Oh-Be-Joyful Creek.

My explorations also took me to the old silver mining camp of Schofield. I hiked all over Schofield Park on the upper Crystal River, found the double falls of an old mill site, made my way past the Devil's Punchbowl, and eventually "found" Marble. I marveled at the piles of marble from the quarry and learned that stone for the Lincoln Memorial and the Tomb of the Unknown Soldier came from this remote Colorado town, now relegated to tourism and high-country adventures.

However, what most caught my attention was lode mining—the deep underground variety—whose remnants I inspected in the old silver camp. Dr. Maxfield, who became my mentor and embraced me as a

Figure 1: Chris Huggard posing in Maxfield Meadow on a slope of Mt. Gothic, Gothic, Colorado, c. 1985. (Courtesy of Chris Huggard.)

foster son, decided that we would buy town lots in the abandoned camp and build a primitive cabin. I spent summers exploring the shallow adits and shafts, the tailings piles, and the crumbling miner's cabins, inspecting the remnants of the long-forgotten "rush" to this high-alpine valley of more than ten thousand feet. Even though the miners had found little silver during the camp's short life in the early 1880s, the countless vestiges they left inspired me to want to know more about this endeavor we call mining.

Pursuing Mining History

Not surprisingly, my first foray into mining history centered on a Colorado mining town. In this case, while a master's student in history at the University of Arkansas, I completed a study of crime in Leadville by examining the *Leadville Weekly Herald* and the *Leadville Democrat* over a four-month period from 1 November 1879 to 1 March 1880.[4] To my astonishment, the newspapers reported on seven murders, nine attempted murders, fifty-five assault and batteries, six wife beatings, one rape, fourteen armed robberies, sixty-seven petty thefts, five arsons, sixteen concealed weapons fines, and hundreds of charges for fights, public intoxication, and vagrancies. Yet, the local rags reported on ONLY eighty-one lot jumpers, who "bully and swagger, and push the weak [unarmed claimants] aside without regard for their rights."[5] Despite a law prohibiting concealed carry, one attorney recommended that every local man on State Street brandish at least "one carefully loaded seven-shooter in his pocket, and if molested by any one [*sic*] to shoot lively."[6]

In the end, however, I decided not to pursue the history of mining camps. Duane Smith's

Figure 2: Kay Pritchett and Chris Huggard at a campfire on Maxfield Meadow, c. 1988.
(Courtesy of Chris Huggard.)

Rocky Mountain Mining Camps, Elliott West's *The Saloon on the Rocky Mountain Mining Frontier*, Ron Brown's *Hard-Rock Miners*, and other scholarship—even Howard Shinn's hundred-year-old study—had covered the late-nineteenth-century mining booms and the accompanying features in the context of frontier myths about democracy and individualism.[7] So, I chose to explore new avenues in mining history, especially concerning its environmental consequences.

Fittingly, however, I attended my first Mining History Association (MHA) conference in Leadville in 1991. And it was memorable. On an extended two-week camping trip with my closest friend in the history academy, Liping Zhu, we spent time at the Schofield cabin before heading to the Two-Mile-High City. The first night of the MHA conference, Liping and I headed to the legendary Silver Dollar Saloon, and began drinking drafts and playing pool with graduate students from the University of Colorado, Denver.

We had finished our course work for our PhDs in the history of the American West at the University of New Mexico, and had both chosen mining history topics for our dissertations. And, despite one of our compatriots, Kevin Fernlund, claiming that "mining history is dead," we ventured to Leadville with high hopes and a mission to learn more about this soon-to-be-exploding subfield of the history of the American West. Many members are aware of Zhu's book, *A Chinaman's Chance: The Chinese on the Rocky Mountain Mining Frontier,* a classic study of the Chinese in Boise Basin, Idaho, from 1863 to 1910.[8]

That first night in Leadville, we immediately encountered Tom Noel, the flamboyant and unorthodox professor of history from U.C. Denver, who we would later learn was in a competition with renowned Fort Lewis College professor Duane Smith for the title of "Dr. Colorado." Each historian has published more than fifty books, most of which cover the history of the Centennial State.[9]

After introductions, Tom not only offered me some of his "holy water," vodka he drank from a small plastic squirt bottle, but asked me to go into the men's room to do some "research." He said something like, "Next time you go to do your business, tell me what you see written on the wall above the urinal because I'm doing a history based on graffiti in bathrooms in old Colorado saloons." Not convinced of Noel's sincerity, the first time I came out of the aromatic, cramped men's room, I had not carried out his request. And when the "nutty" professor asked for the goods, I laughed out loud.

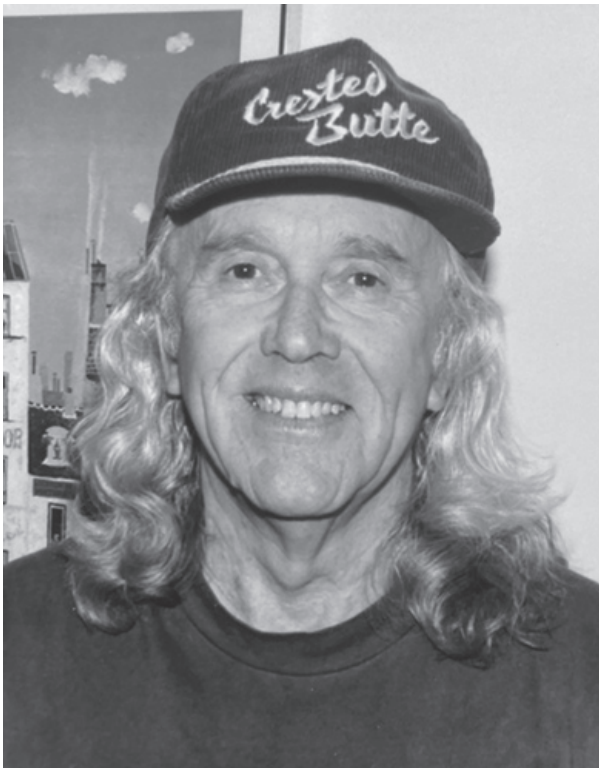


Figure 3: Dr. O. Orland Maxfield, University of Arkansas geography professor and foster father of Chris Huggard, c 1999. (Courtesy of Chris Huggard.)

He responded with a chagrined facial expression and said something along these lines: "No, I'm very serious. I'm doing a book on this topic." On a subsequent visit after a couple of more drafts and pool games, I reported my findings to him to his beaming delight. This was a memorable experience antithetical to the normal behavior of academic historians. To my later astonishment,

Noel did publish a book called *Colorado: A Liquid History* that has a section on inscriptions from the walls and stalls of the state's historic saloon heads.[10]

On a more salient note, I also presented a paper at that first Leadville MHA conference. By 1991, I had made the transition to examining the environmental impact of mining in the nineteenth *and* twentieth centuries. After suggesting to my major professor Gerald D. Nash, a renowned historian of the twentieth-century American West, that I complete a history of the Kelly-Magdalena mining district of central New Mexico, he gently guided me toward the famed Chino Mine at Santa Rita in Grant County. "Well, Chris, have you heard of Santa Rita?" So, I chose to study the history of mining in Grant County. A year into my dissertation, titled "The Economic and Environmental Impact of Mining in New Mexico," I had completed the chapters on the nineteenth-century history of lode mining in New Mexico's most prolific mining district.

My talk in Leadville, scheduled as the first presentation of the conference at 8 a.m., was titled "The Impact of Mining on the Environment of Grant County, New Mexico, to 1910."[11] I walked into the amphitheater where all of the papers would be given that year and realized immediately the magnitude of what I was about to do. My ears were buzzing and my breathing heavy. Those Colorado drafts from the Silver Dollar were singing to me, and the elevation, combined with an audience of more than a hundred who seemed to be sitting next to me face-to-face, sent me into a sudden anxiety attack, especially when I saw Betsy Jameson, Duane Smith, Clark Spence, Sally Zanjani, and other renowned scholars looking at the twenty-something kid who was new to the association and whose tie felt like a noose ready to be tightened.

As I have told my comrades in the history profession over the years, I felt like I was running at a full sprint for twenty minutes while reading that paper. I thought I gave a horrible performance after gutting out the high-alpine, hungover experience. To my relief, Betsy Jameson, one of my dissertation advisers, soon informed me that it was a sterling presentation. Whew.

More importantly, however, I was introduced to the royalty of the mining history coterie at that conference. I remember sitting in the cozy auditorium mesmerized when Clark Spence spoke on mining engineers, navigating with his clever and unmatched prose through the shenanigans, failures, and successes of the West's mining engineering giants.[12] Jameson's talk on mining labor and unionization further enlightened me and made me aware that there was still much good work to be done on the nineteenth century (and early twentieth).[13] Sally Zanjani delineated the important role of women in mining's history.[14] Richard Francaviglia taught us about the "hard places" central to understanding the geography of mining.[15] Lee Swent, who was MHA president in 2007-2008, kept members abreast of her interviews of mining engineers for an oral history project on western mining at the University of California, Berkeley. The late Bob Sorgenfrei, who served as membership chair from 2000 to 2007, updated us on the archival collections and rare books at the Colorado School of Mines.[16] And Tom Noel added to his legacy as a character with a presentation on a Colorado topic.[17] He held a cane with a bicycle bell attached to it that he would ring every time he wanted state senator Dennis Gallagher to click to the next slide—a reminder of an era when we used older technology and of the many subsequent times at MHA conferences when we would have to patiently wait for presenters to figure out what was wrong with the slide projector.

The 1991 Leadville MHA conference impressed me, too, because of the friendly nature of the attendees as well as the diversity of the membership, not so much by race, but by profession. There were public and academic historians, engineers, miners, geologists, industry executives, state and federal employees, and antiquarians, all enamored of mining history and interested in un-

derstanding and, for some, celebrating our mining past. This make-up of mining-history advocates has inspired me to attend MHA conferences more than twenty subsequent times and counting.

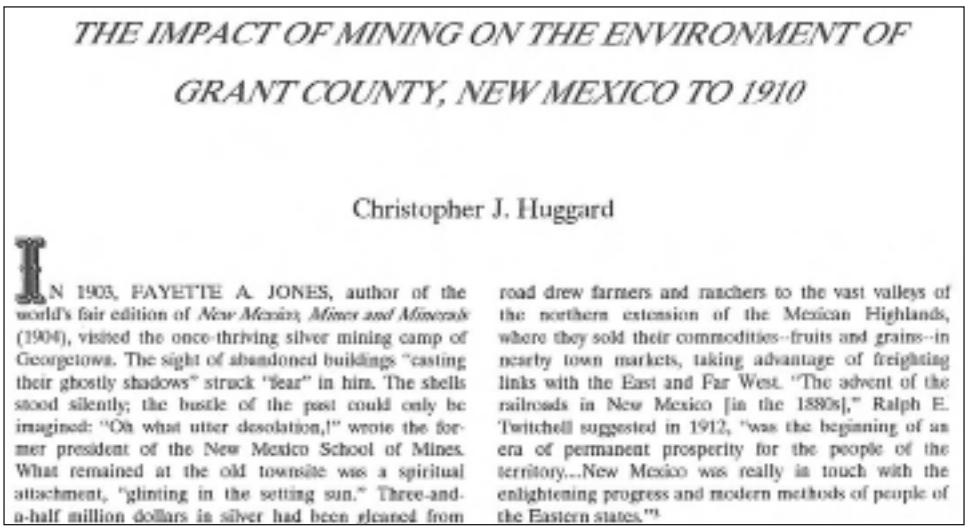
And as I have exclaimed to many historians, it is my favorite history conference. Getting to know the likes of members Ron Brown, Roger Burt, Barbara and Eric Clements, Stan Dempsey, Jay Fell, Richard Francaviglia, Cherry and Ed Hunter, Ron James, Noel Kirshenbaum, Ron Limbaugh, Jeremy Mouat, Sylvia Pettem and Ed Raines, Kathy and Bob Spude, Lee Swent, Linda and Bob Trennert, Karen and Mark Vendl, Lysa Wegman-French, Bob Weldin, and many others, has enriched my understanding of mining history and made for me many like-minded friends.[18]

Mining and the "New History"

The year 1994 proved to be one of the most important in my mining history odyssey. I completed my PhD at the University of New Mexico. I also got one of the most pleasant surprises of my career one day that year when I received in the mail the *Mining History Association Annual*, the first edition of our organization's journal, known since 1995 as the *Mining History Journal*. I opened to the first page and there was my Leadville paper (Figure 4). I beamed.

I had examined the environmental impact of mining and other auxiliary industrial activities related to extracting underground minerals in Grant County, New Mexico. Mining companies clearcut vast swaths of the Black Range forests, their mules and other beasts of burdens overgrazed the hilly landscape and trampled erosive paths, tailings and ore piles replaced vegetative ground cover, and toxic emissions killed more plant life. As a result, massive flooding from the 1880s to the 1910s had materialized, resulting in the formation of the Big Ditch in Silver City. Annual seasonal rains transformed arroyos into funnels for out-of-control floods that washed away ore piles, mine timbers, milling equipment, rail lines, and workers' homes.

To counter these substantial profit losses, the private and public sectors worked separately to ameliorate these conditions: the Chino Copper Company transitioned to coal for its main fuel, implemented far more mechanical over animal power, and formulated a water conservation program. The federal government—through the policies and practices of the U.S. Forest Service—set aside vast wooded reserves like the Gila National Forest and then curbed clearcutting and overgrazing. This private sector-public sector effort



THE IMPACT OF MINING ON THE ENVIRONMENT OF GRANT COUNTY, NEW MEXICO TO 1910

Christopher J. Huggard

IN 1903, FAYETTE A. JONES, author of the world's fair edition of *New Mexico Mines and Minerals* (1904), visited the once-thriving silver mining camp of Georgetown. The sight of abandoned buildings "casting their ghostly shadows" struck "fear" in him. The shells stood silently; the bustle of the past could only be imagined: "Oh what utter desolation,!" wrote the former president of the New Mexico School of Mines. What remained at the old townsite was a spiritual attachment, "glinting in the setting sun." Three-and-a-half million dollars in silver had been gleaned from road drew farmers and ranchers to the vast valleys of the northern extension of the Mexican Highlands, where they sold their commodities--fruits and grains--in nearby town markets, taking advantage of freighting links with the East and Far West. "The advent of the railroads in New Mexico [in the 1880s]," Ralph E. Twitchell suggested in 1912, "was the beginning of an era of permanent prosperity for the people of the territory...New Mexico was really in touch with the enlightening progress and modern methods of people of the Eastern states."[1]

Figure 4: The first page of the first Mining History Journal.

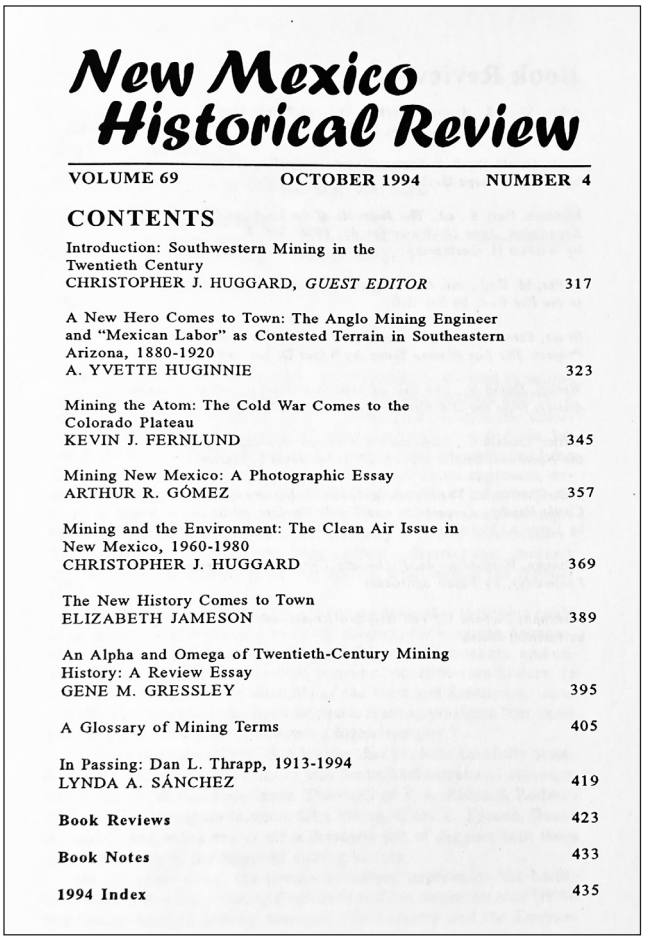


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Figure 5: The Table of Contents for the special issue on southwestern mining of the New Mexico Historical Review*, 1994. (Courtesy of the* New Mexico Historical Review.*)*

did initiate a period of ecological mending, as I suggested in the essay, which curbed the destructive flooding and raised the issue of the need for environmental remediation by industry and government.[19]

Corporate and public efforts to spare the landscape from deep cutting washes worked. However, when the mining industry implemented newer technologies that allowed for greater control of one ecological disaster, it also introduced other technologies that caused a different environmental crisis: toxic air pollution. In the three years from the time when I gave the paper at the MHA conference in 1991 on mining-induced flooding in Grant County to the time when the essay was published in 1994, I had done additional research and writing on later developments in New Mexico's prolific Central Mining District.

The culmination of that work was the completion of my dissertation, as well as an invitation from Bob Himmerich y Valencia, editor of the *New Mexico Historical Review*, to serve as guest editor for a special issue on mining in the Southwest.[20] My goal was to bring together a group of historians to share their research on mining and labor, environmental, technological, and policy issues in the twentieth century to address more recent developments in the industry (Figure 5).

Yvette Huginnie argued that Mexican American miners in southeastern Arizona made contributions as significant as the mining engineers. Kevin Fernlund, whose perspective on mining history had changed by this time, examined uranium mining and its essential role in the nation's atomic bomb program in the context of western individualism. He pitted carnotite prospectors against the Atomic Energy Commission and examined how that contest was reflected in American popular culture. Art Gómez contributed a compelling photographic essay on southwestern miners, their technologies and communities, and the landscapes of the region's mining (Figure 6). Gene Gressley reviewed Sally Zanjani's *Goldfield* and John Fahey's *Hecla*, addressing Clark Spence's call to move beyond the romantic lore of Old West mining to an understanding of the massive corporate endeavors of the twentieth century.[21]

In her epilogue, Betsy Jameson similarly suggested that mining history should move beyond the myths of Turnerian individualism to come to terms with more accurate, and less quixotic, themes of interdependence. She also noted that the first MHA breakfast at the Western History Association conference was accidentally scheduled in the same room with the American Society for Environmental History's group, making for "uneasy mutterings among 'strange bedfellows.'" She concluded that "maybe we had it right," and

The discovery of rich zinc-carbonate ores at the Kelly Mine just west of Socorro, New Mexico, early in the twentieth century led to a period of unprecedented prosperity. Few towns in the Magdalena mining district, however, could boast the support of a twenty-five-piece band such as the one seen here. The gentleman seated in the first row on the far right is band leader Leandro Lucero. Courtesy Leandro Lucero, NMBM&MR Photo Collection, number 161.

Figure 6: Leandro Lucero and his big band in the Magdalena Mining District in Art Gomez's photographic essay in the New Mexico Historical Review*, 1994. (Courtesy of the N*ew Mexico Historical Review.*)*

the two groups should annually break bread together because there was a "New History" in town.[22]

Mining and the Environment

My own essay, "Mining and the Environment: The Clean Air Issue in New Mexico, 1960-1980," was an example of this novel undertaking, the so-called New Western History.[23] Yet, contrary to activists who were suggesting that mining be prohibited altogether—despite themselves being beneficiaries of resource extraction—I had no interest in demonizing mining or calling for an end to it. In fact, in my own research on the "air war" in the Southwest that pitted copper smelting companies against environmentalists, I concluded something quite different. And it stemmed from a statement made by John Bartlit, a chemical engineer at Los Alamos National Laboratory, who, with his wife Nancy, founded New Mexico Citizens for Clean Air and Water in the 1970s.

Nancy simply wanted to be able to see clear vistas across the southwestern landscape. John desired clean air, too, but he also understood that the industry was here to stay and was making major contributions to modern life. Without mining, we would have no cell phones, televisions, automobiles, airplanes, skyscrapers, silverware, and so on. So, in his reformist advocacy, he decided he would appeal to the industry's faith in technology. "Citizens needed to bring technology to the forefront," he argued, "to change the debate."[24]

My initial thought was that he was offering a techno-fix, as environmental critics called the industry's historic obstructions to cleaning up its messes. Throughout the twentieth century, mining and smelting corporations paid off the offended through the polluter-pays doctrine or they simply bought up enough land to have the "right" to pollute. But things had changed by the 1960s, both with a shifting paradigm reflected in works like Rachel Carson's *Silent Spring*, and with the skies above the Grand Canyon, the Gila Wilderness Area, and other natural wonders daily smogged over.

After careful thought, I could see Bartlit's point about focusing on cleaner technologies. And the evidence suggested that fighting for implementation of newer environmental technologies might move the industry from its king-of-the-mountain approach to one of compromise. The Canadians, Finns, and Japanese, the chemical engineer discovered, had already implemented cleaner converters, scrubbers, and furnaces in their smelting operations. Given their massive benefit to the economy of New Mexico, Bartlit knew that ending mining and smelting was not viable, nor for him logical. The federal air pollution standards set in 1970, if met, would work to improve air quality while allowing the industry to continue to pump hundreds of millions of dollars into the regional economy, an economic behemoth that provided multi-generational employment.[25]

Despite more than a decade of industry opposition to the 90 percent sulfur dioxide and 97 percent particulate restrictions, the copper corporations eventually complied.[26] In the end, like Big Labor earlier in the twentieth century—which had successfully fought to change unfair wage, promotional, and safety practices of the industry to formulate a more favorable work place for miners and other laborers—the environmental movement, through grassroots advocacy and emergent public policy, forced the industry to change its practices. The delay in implementing cleaner technology, however, cost the industry more than $3.5 billion.[27] New technologies—especially solvent-extraction electrowinning, a sophisticated form of leaching—would eventually preclude the need for the far-more-expensive and toxic smelters, despite the new system's threat to clean water after torrential rainfalls caused dam breaches and poisonous spills.[28]

My own expression of the emergent need for the mining industry to embrace cleaner technologies and substantive reclamation projects did not always sit well with select MHA members. My participation on a panel discussion at the thirteenth annual MHA conference in 2002 at Wallace, Idaho, brought this home to me. Katherine Morrissey, a history professor at the University of Arizona, organized "A Roundtable on the History of Mining and the Environment."[29] I was not initially part of the panel (and do not appear on the docket), but Morrissey decided to invite me to speak even though the program had already circulated. The session was packed with perennial association members as well as a large group of locals.

By this time, I had completed an essay for a festschrift in honor of Gerald Nash and my chapter was titled, "'Squeezing Out the Profits': Mining and the Environment in the U.S. West, 1945-2000."[30] I had discussed the historic support of the mining industry by the American public through the 1960s as part of what I coined the "nationalist imperative." Americans historically had lauded the industry for producing the materiel necessary for the rise of our modern, technology-based society, which included the formulation of the cold war's military-industrial complex. The rise of the environmental movement, which I refered to as "nature's imperative," collided with this customary support for mining.

Duane Smith, in his classic book, *Mining America: The Industry and the Environment, 1800-1980*, which I consider his best study, had laid the groundwork for understanding this new dynamic in the history of mining. "Americans ... discovered the threat to the environment," the renowned historian wrote, "and they moved with a vengeance to remove it." Smith hoped to understand this shift because he clearly recognized the essential role of mining in building the modern U.S. empire. With *Mining America*, he set out to offer a fair assessment of the industry, knowing full well of "its past sins" against nature.[31] I agreed with Smith's conclusion—that the industry was necessary for modern life, but that it could do a much better job of reducing damage to the environment and reclaiming wastelands.[32]

With this background as context, I decided to make this point in my statement before the question-and-answer portion of the panel in Wallace. After having already toured reclaimed lands in Butte, Montana, Tacoma, Washington, and Lead, South Dakota, I suggested that the mining industry should consider embracing a more environmentally friendly approach to extraction, production, and reclamation. As Eric Clements, the long-time editor of the *Mining History Journal* taught us in his well-received study, *After the Boom in Tombstone and Jerome, Arizona: Decline in Western Resource Towns*,[33] booms in mining eventually end in busts. After the busts, I suggested, the mining communities should welcome reclamation to make the transition to a new, post-mining economy.

Through a private-public alliance, I argued, the industry, with government support, could reclaim damaged landscapes—with their gashed

hillsides, contaminated ponds, despoiled ecosystems, and the like. In other words, I expressed, the industry should welcome the Superfund, the popular name for the Comprehensive Environmental Response, Compensation, and Liability program of the federal government.[34] After all, I opined, cleaning up the wastelands not only would reduce the toxic threats to humans and other life forms, but it would help declining local mining economies to transition to recreation or some other viable alternative. Fishing, hiking, kayaking, and even golf would be better than doing nothing about the now-unproductive, abandoned minescapes.

Some MHA members, however, were not ready to surrender to this *fait accompli*. I understood that there were mining executives, geologists, and miners who disagreed, largely because they had faith that technological advances would allow the continuation of mining. They could point to the efforts of copper and gold mining corporations Freeport-McMoRan and Fremont Gold, for example, in porphyry copper and micro-gold ventures, respectively, beginning in the late twentieth century.

Perhaps no one was more upset with me than one of the MHA's friendliest members, the late Ed Hunter (Figure 7). Ed would not look me in the eye, much less speak to me, for the rest of that conference. I knew there were members who would object, who were not at all keen on the Superfund, even if it translated into hundreds of millions of federal dollars invested—and into good-paying jobs—in a post-mining economy. From my perspective, they were like some of Clark Spence's engineering characters of lore: they held out hope for mining to continue; or, in some cases, believed that they had made such substantial contributions to the rise of modern America that the unsavory leftovers from mining were simply a price that had to be paid.

For Ed Hunter to shun me, however, was a personal blow. It concerned me because I knew that Ed and his wife Cherry were hosting the MHA conference the following year in Cripple Creek, Colorado. To my relief, however, when I arrived there, one of the first members that I encountered was Ed. He greeted me as if Wallace had never occurred. I was relieved. Yet, I became keenly aware that kin—and the MHA is part of my professional family—can be at odds sometimes. It was as if we had had a management-versus-miners spat, and disagreements, well, they are part of kinship experiences.

Women in Mining History

Unfortunately, our family did have a schism the year the conference took place in Cripple Creek. Renowned historian Betsy Jameson had recently completed her acclaimed book, *All That*

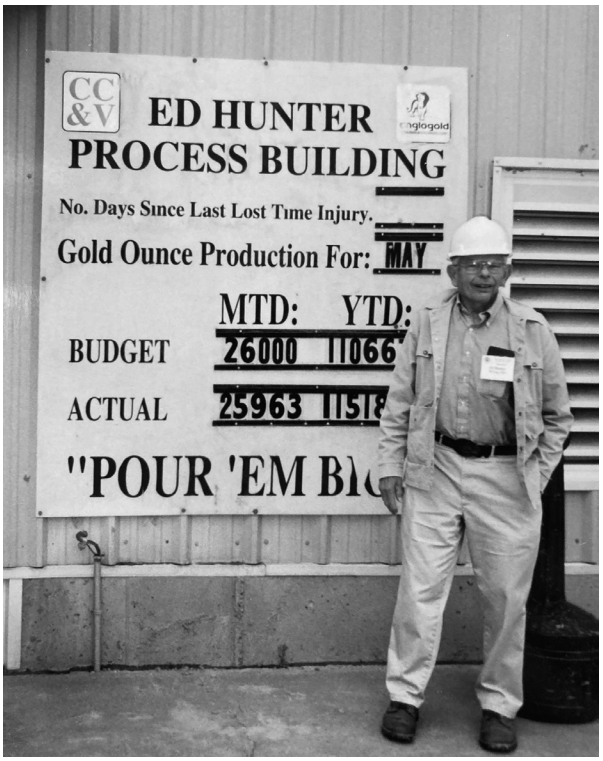


Figure 7: The late Ed Hunter during an MHA field trip on 5 June 2003 posing in front of the Cripple Creek and Victor Mining Company gold processing facility name for him. (Courtesy of Chris Huggard.)

Glitters: Class, Conflict, and Community in Cripple Creek, which garnered for her the Rodman Paul Award.[35] A study of the struggles of miners in the Colorado mining industry, the book countered faulty myths about union actions and the causes for the Independence Depot explosion of 6 June 1904. Furthermore, she examined other social, industrial, and familial topics, giving everyday workers and women their just due. Her book enriched the historiography and built upon Paula Petrik's pathbreaking 1987 study, *No Step Backward: Women and Family on the Rocky Mountain Mining Frontier, Helena, Montana, 1865-1900,* and Mary Murphy's now-classic 1997 book, *Mining Cultures: Men, Women, and Leisure in Butte, 1914-41*, among other studies.[36]

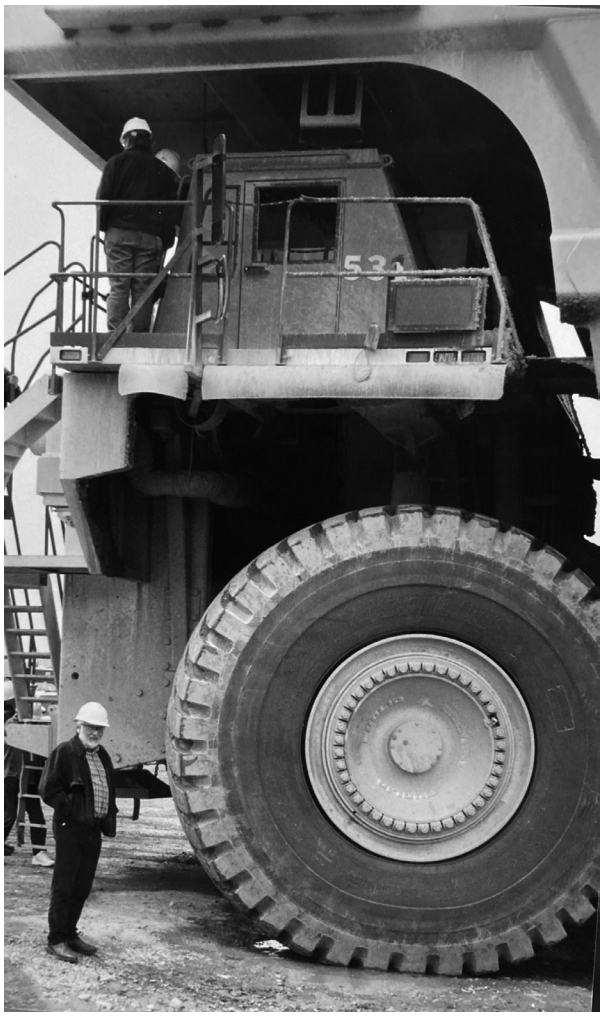
However, the program committee decided to invite another speaker for the keynote. For Professor Jameson and others, including me, this decision was disappointing. She was a founding member who had contributed to the formation of the MHA in 1989 and had attended conferences regularly before Cripple Creek in 2003. "I loved the MHA," she recently shared. "It represented what I was doing with my research. I have extraordinarily warm memories. My favorite was the Leadville conference where I met Jeremy [Mouat]. And Liping [Zhu] and you played with my son Daniel, twirling him upside down to his delight." Interestingly, Ed and Cherry Hunter organized an event a year later to celebrate Cripple Creek's labor history. They mapped out a walking tour with Jameson's expertise guiding the visitors along the way in the mining town. The Hunters also thoughtfully hosted a vigil at the Independence Depot for 2:15 a.m. on 6 June 2004, marking the exact moment of the tragedy a hundred years before. Professor Jameson gave the keynote address at the commemorative event. Still, the sting of being passed over for the same honor at the preceding MHA meeting discouraged her from returning to our gatherings.[37]

Although the MHA has evolved into a more inclusive organization since this episode, in our history we have at times not been as welcoming of female scholars as we could have been. I believe that has changed markedly with the selection of female presidents—Sylvia Pettem, Stephanie Saager-Bourret (Figure 8), Lee Swent, Karen Vendl, and Sally Zanjani. Our current top officer is Dana Bennett.

Women have indisputably played vital roles in the MHA throughout its history. We have had stalwarts like Diane Dudley, Barbara Clements, Lynn Langenfeld, Cathy Spude,[38] Lysa Wegman-French,[39] and others offer their service and scholarship. Female presenters, whether perennial devotees or one-time expert speakers, have spoken on a wide variety of topics in mining history. Like our counterpart male members, women—such as Jennifer Hildebrand, Cathleen Norman, Dawn Bunyak, Jane Bardal, and Ginny Kilander—have made keen intellectual as well as valued service contributions.

Figure 8: Outgoing MHA president Erik Nordberg passes the presidential pick plaque to incoming president Stephanie Saager-Bourret, with past-president Peter Maciulaitis holding the predecessor pick-axe presidential plaque at the 2019 MHA conference in Marquette, Michigan. (Courtesy of Mike Kaas.)

A perusal of the past conference programs reveals that women have made presentations at each meeting and have served on our council every year of the association. One session at the Rossland, British Columbia, conference in 1996 highlighted all-female scholars: Katherine Aiken,[40] Susan Vetter, Laurie Mercier, and Connie Broughton, all of whom taught at universities and colleges. However, none of them continued to attend the MHA regularly in subsequent years. Just as the MHA's council has created taskforces to address the difficulty of enticing and keeping younger members (for the obvious reasons of perpetuating our association), we might consider a similar effort to survey female academics who have attended to find out why they have not returned on a regular basis.[41]



The MHA has been welcoming and accommodating to spouses who perennially attend in significant numbers. Carmen Culver, Pat Kaas, Jane Nordberg, Kay Pritchett—who even published a murder mystery fictitiously located in Silver City, New Mexico (named differently in the story) featuring the last surviving house on the town's Big Ditch[42]—Linda Trennert, and others have enriched our experiences throughout the years. We also have spousal teams that have served as presenters, council members, officers, organizers, and social media experts. Well-known couples who have contributed include Barbara and Eric Clements, Johnny and Dawn Johnsson,[43] Lynn and Mark Langenfeld, Jane and Erik Nordberg, Sylvia Pettem and Ed Raines, Gay and Duane Smith, Bob and Cathy Spude, and Karen and Mark Vendl. This familial quality makes the MHA a unique professional organization despite the regrettable discomfort that some female scholars have experienced.

International Mining History

Now, back to 1994. In that pivotal year in my mining history odyssey, our MHA family grew internationally. That year, the MHA agreed to a joint conference in Golden, Colorado, with the International Mining History Association. As our archives note, the two organizations joined, morphing the MHA meeting into the "Third International Mining History Conference and Symposium on the Preservation of Historic Mining Sites."[44] For me personally, as well as for my wife, Kay Pritchett, I had the pleasure of meeting and befriending Roger Burt, the Exeter University history professor from England (Figure 9). We affectionately called him "Morse" for years after-

Figure 9: Mining historian Roger Burt of Exeter University, U.K., standing next to a 400-ton haul truck of the Cripple Creek and Victor Mining Company during an MHA field trip, 5 June 2003. (Courtesy of Chris Huggard.)

Figure 10: Motoko Maruyama, Ed Hunter, Atsuko Kubo, Chika Murata, and Sunao Murata at the Cripple Creek conference, 5 June 2003. (Courtesy of Chris Huggard.)

wards because of his resemblance to the detective chief inspector of the PBS mystery series played by the late John Thaw.

Roger—who would later become an MHA president—gave two scintillating presentations in Golden.[45] In the first, he offered a humorous talk on British investors duped in various global mining schemes; in the second, he examined the Cornwall mining landscape, an industrial heritage site in the southwest of England. Roger gave Kay and me a tour of the tin mining region on a visit to his homeplace in 2018 (she may have been more interested in Cornwall because the British TV series *Poldark* was filmed there). Professor Burt has made numerous well-received presentations over the years at the MHA.

Reviewing the MHA program from 1994 also reminded me of other long-time friends of our organization. Donald Hardesty, for example, taught us about mining archaeology in his presentations at several conferences that inspired his annual archaeological reports on the subject published in the *Mining History Journal* during the 1990s.[46] Golden also introduced me to Bill Culver, like Hardesty another future president of our group, whose work on Walter Douglas and on mining in Chile has enlightened our membership over the years.[47]

Our Japanese, Australian, and European members also became mainstays who regularly instructed us on contemporary and past global mining ventures (Figure 10). Canadian Jeremy Mouat enlightened us on how dedicated, low-paid miners in Rossland, British Columbia, extracted the gold and copper that made millions for mine owners who showed little inclination to share the profits. Aussie Greg Drew, who taught us about Broken Hill in South Australia,[48] and his wife Lynn, have been pillars of our international extended family. The Drews and others from abroad opened my eyes to the worldwide impact of mining across time. The field of mining history was far from dead, and its resurgence came with a transnational verve.[49]

The final anecdote from 1994 centers on the sudden death of John Townley from a heart attack just three months after the Golden conference. The first editor of the *Mining History Journal* and a man whose name adorns our publication's best article prize, Townley was admired by the presiding officers—President Stan Dempsey, Vice President Duane Smith, Treasurer Ron Brown, and Secretary Bob Spude. His passing, of course, presented a dilemma for the organization, now without its chief editor. The officeholders, however, knew that I had just served as guest editor for a special issue on mining for the *New Mexico Historical Review*. My memory is that Bob Spude contacted me with a proposal that I consider becoming the replacement for John Townley, which I agreed to do.

Editing the Journal

I spent the next six years recruiting authors, editing the submissions, and publishing the final products in the journal. Before the 1995 issue was sent to members, the council discussed renaming the annual. Council members suggested several titles, but we all agreed in the end that we would call it the *Mining History Journal*. Charles Hughes produced our publication throughout my tenure as editor-in-chief, a duty Barbara and Eric Clements have taken on since 2001.

My editorial recruiting efforts centered on MHA conference presenters and scholars I knew through the Western History Association. A perusal of the issues from 1995 through 2000 reminds me of the extraordinary scholars in our membership who submitted their work. Among them were Gordon Bakken,[50] Sally Zanjani, Bob Trennert, Richard Francaviglia, Rick Hendricks, Karen Pickett, Ron Limbaugh, Eric Nordberg, Duane Smith, Lee Swent, Ron James, Jim Bailey, Randall Rohe, Nancy Taniguchi, David Wolff, and Guangqiu Xu.[51] Their drafts, all of which I received via snail mail, arrived with hardly a flaw in them, providing top-notch scholarship that would have been the envy of any history journal editor. They produced scintillating work that placed our publication at the forefront of mining historiography.[52]

A more demanding effort on my part was required to review and edit the work of less experienced researchers and writers. The authors were members like Terry Humble, who had spent a career as a miner and diesel mechanic, but who also had a passion for the history of mining. He had the skills to find the information about mining stories but had dedicated little time to the craft of writing. I did not want the journal to exclude authors simply because it involved more work to get their essays into publishable form. Consequently, in cases like Terry's, I was determined to dedicate long hours, often late into the night after teaching during the day, to publish these salient works.

Once these articles were made available to our membership, I philosophized, we would be introduced to deep insights, often from industry experts, that would not otherwise have been made public. Furthermore, I calculated, it might inspire those members too anxious to consider submitting an article to take the risk, and the organization—because of the new knowledge and the sense of comradery that would be cultivated in valuing such work—would be the better for it. Terry Humble's essay on the Pinder Slip Claim controversy in New Mexico[53] offered deep insight into contested mine claims, and it also gave him confidence to become an active member in the MHA and the future co-author with me of *Santa Rita del Cobre*.[54]

No author's essay met my goal of publishing non-academic members' works more than that of the late Lew Orrell. Starting with a list of paragraphs with disjointed information about calcite crystal mining during World War II, Mr. Orrell and I were able to navigate through five or six drafts before finally publishing his essay. This kind of inclusion, I hope, gave the uninitiated authors a sense of belonging not common to most professional history organizations. Orrell's gener-

ous donation to our organization on his passing also provides evidence of the unique comradery of the MHA.

Another example of the familial nature of our organization is the service given to us by Eric and Barbara Clements (Figure 11). Eric has become a legendary figure in the organization. On our field trips, he would appear in his hoodie and khaki pants with a 35-millimeter camera dangling from a strap around his neck. There were many times on MHA field trips when I would look at a vista of a minescape and see silhouetted on the horizon the lanky hooded photographer who had climbed like a mountain goat to seemingly inaccessible spots next to old shaft frames, ore dumps, smelter stacks, and other industry remnants. His high-alpine hiking ventures, which I sometimes joined, produced an archive of photographs that we have been privy to in his exceptional presentations and in our journal.

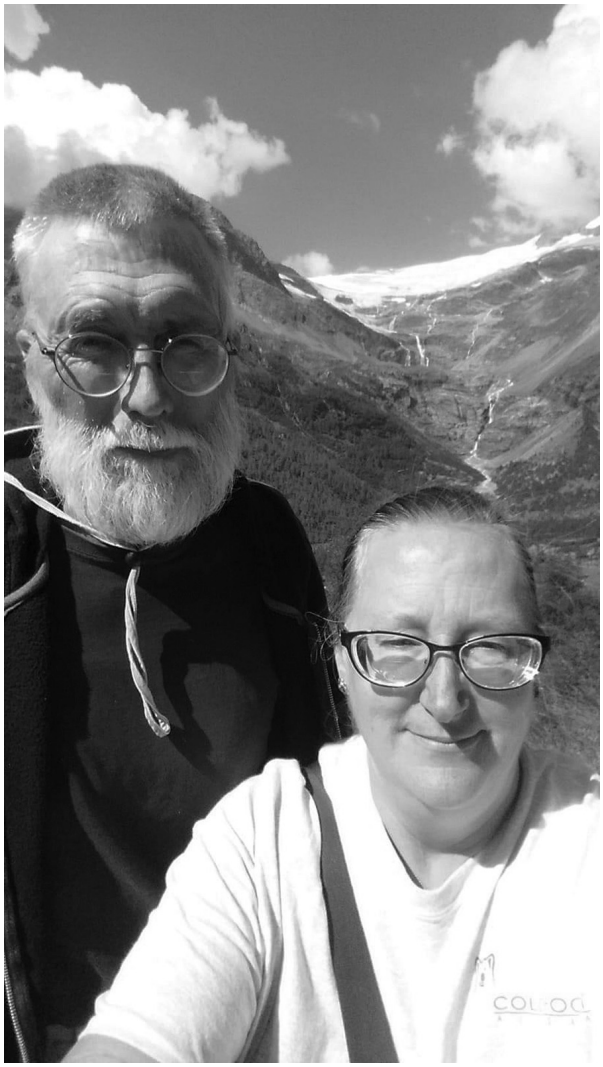


Figure 11: Long-time MHA members Barbara and Eric Clements in Switzerland. (Courtesy of Barbara Clements.)

Barbara Clements, although not known as an intrepid climber like her husband, did the computer technology work that brought Eric's and others' photography, essays, stories, and MHA information into the modern age of the internet. More recently, she has managed our social media presence, planned Zoom presentations, and taken on the duties of designing and producing our recruitment brochure and collecting membership dues. I laud these two intrepid MHA members for their extraordinary service. Since I stepped down in 2000 as the journal editor, Eric as editor and Barbara as our skilled journal compositor, social media expert, and membership chair, have dedicated more than twenty years of service to our organization. I will always cherish their role in making my mining history odyssey a topnotch experience on a professional and personal level.

Their dedicated service also reminds me of our current, and now decades-long treasurer, Jay Fell. An MHA devotee who has volunteered his personal time to invest our funds with excellent results, he has also made dynamic presentations at our meetings. His wink-wink-I'm-going-to-Mexico-with-the-MHA-loot jests have been a source of perennial laughter at our council meetings.

Before moving on from the story of my own experience as the *Mining History Journal*'s editor, I would like to mention another exceptional member. Bob Spude mentored me throughout my tenure as the editor (Figure 12). He assured me I had the officers' and council's support and offered advice on how to manage personalities that sometimes became factors in the editing and publishing process. Furthermore, Bob singlehandedly recruited, edited, and contributed to the pro-

Figure 12: Chris Huggard beams after receiving the MHA's Rodman Paul Award at the Tonopah, Nevada, conference in June 2000. (Courtesy of Chris Huggard.)

duction of the 1999 issue of the *Mining History Journal*, a special volume featuring the American Southwest.

This edition of the journal highlighted the work of some of the MHA's stalwarts. Jim McBride wrote on the Bisbee Deportation; Erik Nordberg on the Arizona and Michigan Mining Company's operations in Globe, Arizona; Mason Coggin on John C. Greenway and Ajo, Arizona; and Lee Swent on geologists Vincent Perry and William Humphrey in Cananea, Mexico.[55] Rick Hendricks, an occasional MHA attendee and our keynote speaker recently in Socorro, reported on Spanish colonial mining from original documents related to El Paso, the Organ Mountains, and Santa Rita del Cobre. Spude's own essay, "The Santa Rita del Cobre New Mexico: The Early American Period, 1846-1886," is a seminal study on lode mining in Grant County in the generation before the Chino Copper Company initiated mass-mining strategies in porphyry copper. This study would later be essential in the composition of chapter two of my own book on Santa Rita.

Finally, Bob, Jay Fell, Ron Brown, and others supported my suggestion that the journal also highlight photographic essays, as well as statistical charts on mining production by state that appeared in the first two issues that I edited.

Working for the Park Service

Bob Spude also played a significant role in another aspect of my mining history odyssey (Figure 13). From 1994 to 2004, he hired me to work for the National Park Service. I worked several summers under Bob's and Art Gómez's supervision to complete myriad studies of mining in national parks in the Southwest. Among the most memorable field trips to remnant sites included my examination of abandoned mines in Organ Pipe Cactus National Monument on the border of Arizona and Mexico and at Lake Mead National Recreation Area in Nevada.

One mid-1990s summer morning, I hiked into Organ Pipe alone to visit the site of La Americana Mine (later known as the Victoria Mine), which had produced modest amounts of silver and gold from the 1890s to the 1910s. I went with a tinge of trepidation because park rangers had warned me that one of the arroyos that I would traverse was a conduit for smuggling illicit drugs and undocumented immigrants into the United States. After three hours, however, I realized that the biggest danger would not be criminals or refugees. It was the excessive heat and dryness that threatened me. I did, of course, follow the advice of the park officials and took ample water and completed the hike by 11 a.m. Still, I felt dehydrated and worn out and spent the rest of the day recovering.[56]

Other dangers were lurking at Lake Mead. On a tour of the Homestake Mine with Art Gómez

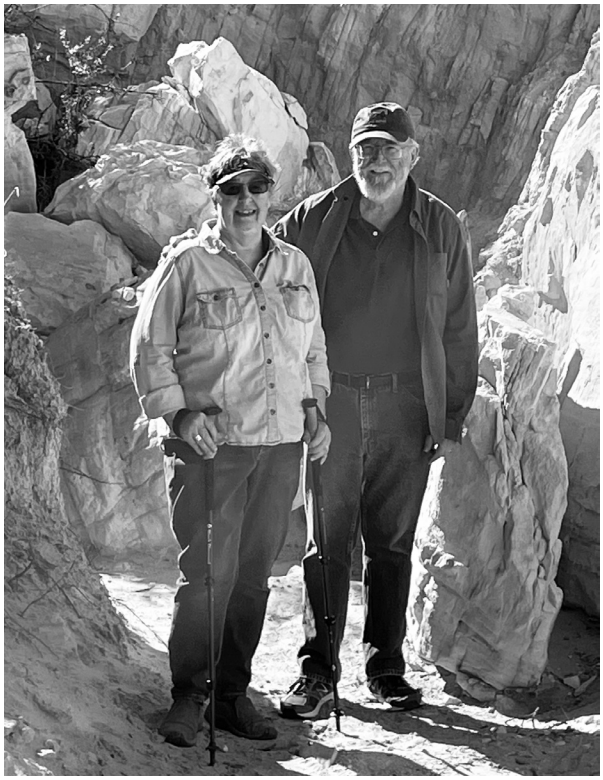


Figure 13: Stalwart MHA members Cathy and Bob Spude in a recent pose in Santa Fe, New Mexico. (Courtesy of Kinsey Spude.)

and an official from the park, I visited the remote location near Laughlin.[57] When we got to the mine, we walked about twenty feet into the vertical shaft and came to a bat gate, one of the principal tools for keeping out humans and allowing the endangered flying mammals to nest in abandoned mines. As Art and our guide waited outside the main entrance after an initial look-see, I decided to stay near the bat gate and peer down the shaft hoping to see something of mining interest.

As I squinted to see through the darkness, I saw miner's picks, helmets, candles, and other artifacts, when suddenly I heard a rattling sound at my feet. I looked down and waking from its coiled position was a rattlesnake. I bolted as fast as I could out of the darkness, and when I got to the opening of the mine, with the sun blinding me, I ran into our guide. The only way to keep my momentum from toppling this exceptionally large man over an even bigger boulder was to wrap my arms around him to hold him up. This giant "hug," which Roger Burt has informed me is an inappropriate behavior between males in Britain, embarrassed me until I realized that if I had not grabbed him, he would have tumbled over that boulder and perhaps incurred substantial injuries.

My thanks to Bob Spude for introducing me to the vagaries of abandoned mine reclamation and historic preservation projects because they also gave me an acute sense of the real dangers that miners encountered in the desert climes of the American Southwest.

While I was working in the Santa Fe office of the Park Service in July 2000, I got a surprising call from Jerry Vervack, the dean of social and behavioral sciences at Northwest Arkansas Community College (NWACC). A position in history had opened and he wanted me to know. I applied and got the job. With a requirement to teach ten classes a year, it became a challenge to research and write. I decided that I could no longer edit the *Mining History Journal* and still have time to publish. It was still a challenge, but I decided to dedicate my summers and winter vacations to devoting my energies to mining history.

Fortunately, my college started a sabbatical program. Awarded a semester of leave in 2008, I completed with Terry Humble most of the first draft of our book, *Santa Rita del Cobre*. Working at a small school has made my mining history odyssey challenging. But support from the college administration and my colleagues on the faculty has made the endeavor that much more rewarding. Not teaching in a publish-or-perish atmosphere has also freed me to pursue topics outside of the canon. I have been able to focus on crafting studies for broader audiences without the pressures to address the historiographic trends of the traditional history academy.

I was able to complete a contract history for the National Park Service early in my tenure at NWACC. It was a history of zinc mining in

Rush, Arkansas.[58] My study, titled "Report on the History of the Rush Mining District," was part of a larger investigation designed to provide the historical, archaeological, architectural, and biological justification for national recognition of the ghost town and its abandoned mines. Located along the Buffalo National River—the first national river, established in 1972—the formerly prolific Rush Mining District just happened to be part of a national park. The four studies in the publication provided the information necessary to install interpretative waysides in the former mining town.

An outlier just south of the Tri-State zinc-lead belt of Missouri, Oklahoma, and Kansas, Rush contained the highest-grade zinc in North America, called "turkey fat" because of its deep yellow color. As early as 1893, the district garnered national recognition at the Chicago World's Fair, when "Jumbo," a 12,750-pound smithsonite "nugget" (the largest single zinc rock ever discovered), was displayed in one of the mining exhibits.[59]

Like the ephemeral Jumbo, which disappeared soon after the exposition, Rush's rich but scarce high-grade deposits—the Morning Star Mine's being the most famous—waned relatively quickly after World War I. By the early 1930s, little zinc ore remained in the ground at a time when the Tri-State Mining District was still producing the largest amount of zinc in the nation.[60] Until the 1970s a handful of locals lived in the defunct mining camp, which for the past fifty years or so has been a ghost town.

Rush's significance parallels that of a multitude of mining centers. Like all mines, its deposits played out, reflective of the boom-and-bust cycles of the industry. Still, it represents the role mining has played in producing the materials needed for modern society. Zinc has had a multitude of applications from use for metal roofs, water tanks, and various conduits to serving as a galvanizing agent to protect iron products from rusting. Manufacturers also use zinc oxides in white pigment paints and rubber manufacturing, and for galvanic batteries, desilverizing lead bullion, precipitating gold in the cyanide process, and for organic chemistry applications, with other uses too numerous to list.

Just as Duane Smith argued about the industry generally—zinc mining provided the materiel for peacetime purposes as well as for a variety of military applications. Zinc was a component of the rise of imperial America by serving as an alloy for bronze and brass shell casings, especially during the world wars. Mining, in other words, has been central to daily contemporary life and to modern national power.

The Rush project underscores the essential place of the National Park Service in preserving our industrial heritage. Although most abandoned mines, including those inside the boundary of Buffalo National River, have been sealed (or gated) to protect humans and a habitat of endangered species, their significance has been recorded for posterity. Furthermore, park officials have preserved remnants of mills, smelters, and housing to offer the public tangible reminders of their significance to modern society and national preeminence. Prior to the Historic Preservation Act of 1966, however, Park Service officials did destroy many historic artifacts of mining and other activities. Other public agencies—federal and state—also have a mixed record on historic preservation.

Santa Rita del Cobre

No work that I have completed transcends *Santa Rita del Cobre*: *A Copper Mining Community in New Mexico* (Figure 14). Completed in 2012 with Terry Humble, the book examines multiple themes endemic to mining history: modern imperialism and indigenous displacement; application of evolving mining, concentrating, leaching, and smelting technologies; welfare capitalism versus syndical unionism; public and private land policies and practices; community building; and environmental consequences. This integrated ap-

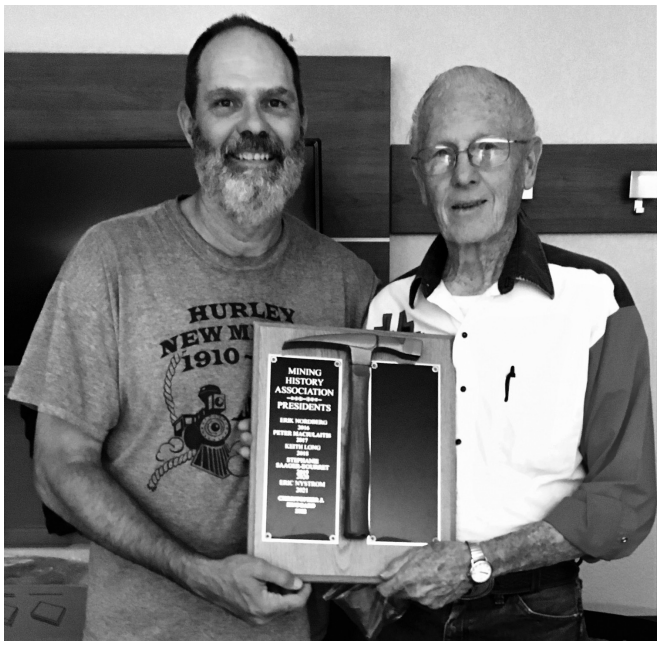


Figure 14: Chris Huggard and Terry Humble, co-authors of Santa Rita del Cobre*, pose with the MHA's presidential plaque at Socorro, New Mexico, on 8 June 2023. (Courtesy of Kay Pritchett.)*

proach required the perspective of the *longue durée* of the Annales School.[61] In other words, we examined the evolution of mining techniques and community building over a two-hundred-year period, uncovering their impact on ordinary workers, their families, and the environment in the context of corporatization.

As one example of this approach, we showed the progression of mining equipment from the Apache's use of stone tools to dig the raw, native copper to the Spaniard's use of *muescas*, *barretas*, *tenatas*, and *seronis* in shallow lode mines. Later, the Americans used 15-cubic-yard shovels and 250-ton haul trucks to remove millions of tons of ore blasted from bedrock, forming a gargantuan, stair-cased open pit. The effective result of this evolution of new technologies was to allow more than two centuries of almost-continuous copper production.

Simultaneously, miners fought to improve wages, safety, and lines of promotion. They endured as prisoners during the Spanish and Mexican periods and as potential victims of deadly accidents and low wages in the late-nineteenth and early-twentieth centuries. The company town phase from 1910 to 1940 did afford employees hospital privileges and initiate new safety measures. Yet, prejudice against Mexican Americans still limited their access to fair housing, job promotions, and retirement benefits until the rise of Big Labor, principally after World War II.

After the war, the International Union of Mine, Mill, and Smelter Workers (Mine-Mill) focused on workers' and civil rights, valiantly fighting for better wages, safer working conditions, substantial retirement and health benefits, and less discrimination. In fact, Local 890, whose officers worked at the Chino Mine in Santa Rita, led the radical Salt of the Earth Strike in the early 1950s against the neighboring Empire Zinc Company. Kennecott employees like Juan Chacón and Ernesto Velásquez and women's auxiliary members Virginia Chacón and Virginia Jencks made national news on the picket lines during the redbaiting frenzy encouraged by the U.S. Congress.

Despite the 1947 Taft-Hartley law that forced labor leaders to sign anti-communist affidavits, Kennecott Copper Corporation disregarded congressional red-baiting and responded to labor's demands by the early 1950s with the best paying jobs, the most lucrative benefits, and the best chances for job advancements in the copper industry. The effective result was the formation of a working middle class in rural southwest New Mexico that had the highest per capita income in the state.[62] In the end, Santa Rita's story unveils how the labor movement in the middle part of the twentieth century and environmental activism in the latter part of the century threatened corporate hegemony in the United States.

My dedication to the study of mining history and service to our organization over more than thirty years culminated in 2021 with my nomina-

tion and election as vice president-president elect of the MHA. In November 2021 I received a telephone call from Stephen Hart, long-time MHA member and chair of our nominating committee. After the sudden death of John Stewart, our vice president, the committee wanted me to fill the vacancy. I immediately recalled the 1994 passing of John Townley that had led to my tenure as the editor of the *Mining History Journal*.

Completing the duties of MHA president has been rewarding. I gave my presidential address—a shorter version of this paper—to the attending members in Birmingham, Alabama, in late June 2022 to a warm reception, after our past president, Eric Nystrom, presented me with the association's pick-axe plaque. Serving as the MHA's president has been a highlight of my career as a historian.

The Birmingham conference also encouraged me to learn about African American coal miners in the Deep South, reflective of my recent work on Rock Van Winkle, a former slave and freedman of northwest Arkansas. I devoted two of my four newsletter entries to black miners in the coal industry in Alabama and West Virginia as a result,[63] but mainly because of a visit to the Birmingham Civil Rights Institute Museum. As I entered its main exhibit, I promptly encountered near-life-size photographs of black miners operating hydraulic drills and other equipment in local coal mines.

This visual experience led to an epiphany. African American miners have received little attention in mining historiography. Consequently, I wrote about their contributions to coal production—in Alabama and West Virginia—from the 1880s to the 1940s for the summer and fall issues of the 2022 MHA newsletter. I hope that these sketches will inspire other scholars to consider more in-depth examinations of African Americans' roles in mining history. As Quintard Taylor has suggested, historians should portray blacks as Americans, not in tropes and stereotypes, but as key players in building our nation.[64]

International Conference of Mining Museums

I chose to write about the Wieliczka Saltworks Museum, an UNESCO World Heritage site in Poland, for my third newsletter entry.[65] After having chaired a session at the Birmingham conference, I was approached by Jan Godłowski, director of the saltworks' underground mining museum, and Monika Dziobek-Motyka, the director's representative for international cooperation. They informed me that they were recruiting "dignitaries" for their May 2023 International Conference of Mining Museums in Poland. Not familiar with their symposium, I approached Roger Burt, who has attended many international mining history conferences, to get the scoop about our Polish attendees and their proposal. He confirmed for me the legitimacy of their invitation and I was able to take advantage of the opportunity. In addition to Burt, MHA members Eric Nystrom and Peter Maciulaitis also attended (Figure 15). We soon learned that the "motto" of the conference was "Mining Heritage = Human Heritage."[66]

The conference attracted scholars from twenty-two nations and five continents who presented on topics related to mining history and mining preservation, museums, and historical organizations. Jan Godlowski welcomed the august gathering on the morning of May 22—after a marching band played two scintillating Polish tunes—with a brief introduction to the saltworks in Wieliczka and the coal mines in Zabrze (Silesia).

Among the most profound details he offered was an informal survey of the number of underground mining museums across the globe. To my astonishment, Europeans have created more than 348 such belowground museums; the U.S. only 81 (approximate); South America 41; Asia 33; Africa and the Near East 17; Australia and the Pacific region 12. From that moment on, presenters shared their knowledge on featured topics dedicated to "the importance of mining for the development of human civilization, [and] the need to protect

and make accessible to tourism this varied heritage worldwide."[67]

Briton Barry Gamble, a World Heritage consultant, gave a state-of-mining-preservation talk in the context of the United Nations Educational, Scientific and Cultural Organization (UNESCO). Massimo Priete, history professor at the University of Padua in Italy, and Laure-Anne Gentges, a curator at the Blegny-Mien Museum in Belgium, discussed the challenges of gaining UNESCO World Heritage status, and how integrating modern gaming and social media into mining museum educational programs works to define mining heritage and break down barriers concerning the negative perceptions of the industry. Nic Haygarth and Peter Maciulaitis, past presidents of international mining history associations, reported on the efforts to preserve mining history and industrial sites through the Australasian Mining History Association and the International Mining History Congress. President Antonio Pizarro Losilla and General Secretary Pilar Orche Amaré of the Spanish Society for the Defense of Geological and Mining Heritage enlightened us about the educational and preservation initiatives at Linares and other renowned mining sites in Spain. Poles Paweł Nowak, president of the board of the Wieliczka Salt Mine, Rafał Zadak, Cracow Saltworks representative, and Marek Cała, professor of Science and Technology at AGH University of Krakow, discussed the challenges of preserving the Wieliczka Salt Mine as a museum that hosts more than a million visitors annually.

Many other presenters familiarized the attendees with a multitude of historical, preservationist, and educational challenges at their specific sites across the globe. Perhaps no presentation reflected the role of mining museums in implementing these three initiatives more than that of Alvaro Pinto, director of the Centro Ciência Viva (Life Sciences Center) of Lousal, Portugal. Pinto's

Figure 15: MHA Members Eric Nystrom, Kay Pritchett, Chris Huggard, Peter Maciulaitis, and Roger Burt before a tour of the Guido Mine Museum in Zabrze, Poland, 24 May 2023. (Courtesy of Chris Huggard.)

museum presents the history of Lousal's industrial heritage in exhibits, like a typical mining museum. However, the institute also offers hands-on mine-related activities, such as panning for gold, to visitors, most of whom are school children. One exhibit displays several Volkswagen beetles, secured to a wall, in different states based on how they would appear without the metal materials provided by mining. By the time the children get to the last car, there is nothing left but the tires because all the other parts and materials originated from minerals extracted in mining.

The children are not misled, however, because the museum also addresses past injustices against workers and the environmental consequences of mining, offering a challenge to the youths dependent on mining for their Fitbit watches and Cloud games. This holistic approach, Pinto suggested, allows for a deeper understanding of mining's legacies as well as inspiring up-and-coming generations.

Mining History Education

After my participation in the week-long event, I concluded that mining history and mining heritage preservation are alive and well. Moreover, I resolved that mining historians, preservationists, and curators must coordinate their efforts to present a comprehensive understanding of mining and its impacts—beneficial as well as detrimental—on people and the environment. When considering the roles of mining museums, whether as traditional exhibits, underground mining museums, or UNESCO World Heritage sites, scholars must be careful to transcend a celebratory approach and offer across-the-board interpretations.

Historians, for example, must provide the full picture of how mining has molded modern society and afforded global citizens the amenities that make life comfortable and security systems viable. But they must also reveal to the public the historic labor, community, and environmental struggles as well. This honest approach of offering a complete picture consequently offers the observing public the tools to consider the place of mining in society.

Building trust through mining history education provides the realization that without mining, modern society cannot exist as it is. Yet, offering historical truths about past injustices against humans and nature gives room for constructive critiques of the industry. This truthful methodology creates greater understanding, but it also challenges the industry to be more vigilant in implementing fair labor practices and the most environmentally friendly technologies in a corporate responsibility model. The Lousal museum provides a template for this approach to educating both the uninformed public and stubborn industry leaders.

My participation in the Poland extravaganza[68] gave me hope for the future of mining history associations, mining site preservation, and mining historiography. Our own MHA, in fact, stood out as one of the healthiest and most active of the international associations, which were highlighted in a session. My optimism stems from the MHA's fruitful conferences and exceptional comradery, in part because of our grants program, which has enticed new scholars to present at our conferences and submit their work to our journal. Equally, the Clark C. Spence Award for best books biennially reflects how prolific mining historiography has been since the inception of the MHA.

No grant recipient reflects the efficacy of this program better than our 2008 awardee, Brian Leech. His grant facilitated the completion of his dissertation, which he turned into the award-winning book, *The City That Ate Itself: Butte, Montana and Its Expanding Berkeley Pit*,[69] an erudite study that examines the impact of mining on mine workers and their families under the auspices of the powerhouse Anaconda Copper Mining Company. Leech had learned about the MHA in the acknowledgements of Eric Clements' book, *After the Boom*. He became a member and soon thereafter learned of our grants program (Figure 16).

Figure 16: Chris Huggard, Brian Leech, and Kay Pritchett at the MHA Awards Banquet at Socorro, New Mexico, 9 June 2023. (Courtesy of Chris Huggard.)

He attended his first MHA conference in 2009 at Creede, Colorado, where I first met him. On the first day of the conference, my wife Kay and I ran into Eric Nystrom—whom we had already met—and Brian at the Tommyknocker Tavern. After a couple drafts, we were joined by stalwart members Erik and Jane Nordberg. At the gathering, I also learned from Brian that he had been inspired by my essay in the Nash festschrift on the environmental impact of mining in the post-World War II American West. To my delight, he informed me that renowned historian Bill Cronin had recommended my essay to him during his PhD studies at the University of Wisconsin.

Since 2010, Leech has served as the MHA's secretary. The grants program served to entice him to attend and then become actively involved in the association. His annual presentations are thoughtful and entertaining, and he's introduced earlier generations to varied perspectives on mining history. His examination of evolving "homosocial" behaviors of Montana miners transitioning from their elevated status as skilled craftsmen to that of lower-paid pit laborers showed how the change challenged their sense of male identity. The talk also offered a new avenue of interpretation to our membership.[70]

His youthful enthusiasm for mining history matched that of Eric Nystrom who himself had recently become a member of the association, having attended his first conference in Farmington, Missouri, in 2004. Soon thereafter, Nystrom took on the duties of MHA newsletter editor. He served on our council and nominating committee before gallantly serving as MHA's president and hosting on Zoom the Elko, Nevada, conference in 2021 during the COVID pandemic.

In the interim, Nystrom published *Seeing Underground: Maps, Models, and Mining Engineering in America*,[71] another prize winner. He also serves as the general editor of the University of Nevada Press' Mining and Society series, which published his and Leech's volumes. (This series complements the Mining the American West series of the University Press of Colorado, of which

I am a general editor). These two academic historians are in the vanguard of the MHA's new crop of volunteers that also include Jennifer Dunn, Ginny Kilander, John Koerth, Rob McQueen, Cathleen Norman, Paul Spyhalski (our current newsletter editor), and others.

Two additional active MHA members to receive research grants are Professor Jane Bardal, author of *Southwestern New Mexico Mining Towns* and *Colorado's Mrs. Captain Ellen Jack: Mining Queen of the Rockies*, and Paul White, University of Nevada, Reno, geography professor, who published the prize-winning *The Archaeology of American Mining*.[72] Angela Vergara, history professor at California State University, Los Angeles, won grant monies that facilitated publication of *Fighting Unemployment in Twentieth-Century Chile*, an examination of how "mine workers [and other laborers] ... earned a living through periods of economic, political, and social instability in twentieth-century Chile."[73] Members also anticipate the publication of Montana State University PhD student Jennifer Dunn's work, subsidized by a 2019 MHA grant, on vermiculite mining at Libby, Montana. In 2023, the MHA awarded four promising doctoral students a total of more than four thousand dollars.

Mining's Modern Historiography

A perusal of the Clark C. Spence Award winners also reveals the viability and health of mining historiography over the last three decades.[74] Laurie Mercier's *Anaconda: Labor, Community, and Culture in Montana's Smelter City*,[75] the 2001-2002 awardee, for example, tells how working-class consciousness in the mid-to-late twentieth century fostered community strategies for dealing with labor and environmental challenges in the smelter town of Anaconda. Nystrom, and Leech and White won the award in 2013-2014 and 2017-2018, respectively. Nystrom's *Seeing Underground* is a pathbreaking study that examines how mining engineers' training influenced how they mapped the underground in the late nineteenth and early twentieth centuries. He also suggests that the mine models they made to teach engineering students at elite technical universities reflect their main interests in maximizing extraction and profit, often over concern for the miners. Leech's *The City That Ate Itself* narrates the dramatic impact of the expanding Berkeley Pit in Butte, Montana, on mining families in the third quarter of the twentieth century. Industrial hazards and community dislocation affected the town's ethnic neighborhoods and created the dynamics for a modern-day showdown between company and public officials and the townspeople. Paul White's *The Archaeology of American Mining* is an innovative analysis of decades of archived archaeological work that provided sources for recreating the dynamics of mining life concerning ethnic, social, and gender identities, labor unions, and health. He also shows how monuments, preservation, art, and film have influenced the public's perceptions of mining.

Perhaps no Spence Award winner represents the prominence and viability of mining history more than Thomas G. Andrews' *Killing for Coal: America's Deadliest Labor War*,[76] which also won Columbia University's 2009 Bancroft Prize. Andrews offers a convincing critique of the generations-long consequences of dependency on the fossil fuel industry for workers and the environment in the Colorado coal fields that culminated in the 1914 Ludlow Massacre. Furthermore, his study bolstered the effort to establish in 2019 the Ludlow Massacre National Historic Landmark.

The library of books and articles on mining history has grown exponentially during my tenure as a member of the MHA since 1990. And this trend shows no signs of slowing. The endnotes in this essay are filled with citations of books and essays produced over the last thirty-three years. In my own subfield, the history of mining and the environment, a landslide of work has been published. David Stiller's *Wounding the West*, Eric W. Mogren's *Warm Sands*, editors Brugge and Benal-

ly's *The Navajo People and Uranium Mining*, Tim LeCain's *Mass Destruction*, Kathryn Morse's *The Nature of Gold*, Kent Curtis' *Gambling on Ore*, Traci Brynne Voyles' *Wastelanding*, and editors John R. McNeill and George Vrtis' *Mining North America* are examples of this scholarly movement that stridently criticizes the industry's often irresponsible treatment of the environment and of workers.[77]

Yet, intriguingly, a quick survey of each of these author's lifestyles would reveal that they, too, have been beneficiaries of the extraction of minerals. Only the most dedicated Luddite could live without being dependent on things made of resources extricated from the earth. Moreover, the case of lithium—mined to produce batteries for electric vehicles—reveals how murky can be the transition to more environmentally responsible technologies. To replace gas-powered automobiles with electric ones requires the mining of lithium. Mining lithium results in troubling pollution of water and air and the unavoidable destruction of wildlife habitat, promising to create a generations-long ecological disaster.

Furthermore, part of the only source of lithium in the U.S. in Humboldt County, Nevada, is located on the site of a sacred Shoshone-Paiute massacre site.[78] General Motors' $650 million investment in extracting the resource, combined with the general push to greatly increase electric vehicle production, seems to have trumped the tribes' efforts to block the massive project.[79] Federal agencies may very well have approved the mines because Chinese companies Zheijiang Huayou Cobalt, Sinomine Resource Group, and Chengxin Lithium Group have acquired lithium properties in Zimbabwe worth more than $678 million.[80] The competition to extract lithium to produce batteries, ostensibly to facilitate reduction in greenhouse emissions, is creating the conditions for another environmental catastrophe. The voices of critics are needed to fully flesh out controversies in mining history like the current one surrounding lithium. Whether the industry's leaders will take heed of its past and current shortcomings and embrace greater corporate responsibility is yet to be seen.

Mining and Civilization

Portraying mining historically as destructive is popular and relatively easy to do. But the intricacies of this conflicted history—whereby the extraction of ores has been central to modern, technology-based society yet with huge environmental costs—requires a complex methodology and well-thought-out conclusions. Kent Curtis, who studied under the renowned environmental historian Donald Worster, comes to an insightful, if not surprising, supposition, in his study *Gambling on Ore*, about hard-rock mining in Montana. He argues for a measured critique of mining because of its importance to modern life and to history. The "nature" of the culture that produces metals in the American West, he postulates, has created a national "mining society." "The lesson I learned while researching this project is that we are all miners in the modern world, that mining made us possible." Although the claim that we are all miners is metaphorical, he is correct to argue that we are all dependent on the extraction of minerals for our way of life.

In his recent study, *Continental Reckoning: The American West in the Age of Expansion*, distinguished historian Elliott West also touts the significance of mining in the nineteenth-century West, claiming that it was in the vanguard forming the rules of modern American life, defined by what he calls "the greater reconstruction."[81] "The enormous wealth taken from the earth fed an expanding economy [from the California gold rush through the copper strikes of the late nineteenth century] as new operations changed one of humanity's oldest enterprises into an industry that rivaled any others in its scope and complexity. [Its] methods of financing, including the most fantastic chicanery, pioneered the mechanics and psychology of marketing mass desire. The stifling,

stinking, disaster-bent tunnels of western deep mines rivaled the worst industrial hells. Mining's gifts of national wealth and cohesion also levied a price of atrocities against land, air, and soundscape matched by few if any new industries across the world."[82]

The development of mining in the U.S. West, he concludes, is central to defining American society. But even more significantly, West argues, mining has worked, with other western forces, to define the social, racial, and environmental restructuring of the entire globe since the gold rush. The chore of we mining historians is to unpack this great movement, warts and all, to make sense out of it as well as to critique it.

On reflection, I believe that the field of mining history is thriving and in no small way because of the Mining History Association. The MHA has provided a conference each year for more than thirty years where scholars can present their mining history narratives and make arguments about the place of the industry in our broader history. Because mining intersects with so many aspects of life—from international economics to worker concerns to community building and technological innovation with environmental consequences—a wide range of themes have been introduced to those who attend MHA conferences.

Not surprisingly, these exchanges have fueled ideas that have been transformed into erudite, scholarly, and readable essays published in the *Mining History Journal*, which also contains reviews of the latest books on mining history, as well as an annual bibliography produced by Lysa Wegman-French. Fruitful conference conversations have also helped to transform random ideas into compelling books. Field trips to countless mining towns and their mine works, both defunct and still operating, have enriched our understanding of this history, and have instilled in us a deeper appreciation for preserving industrial sites for posterity. Each succeeding generation of MHA leaders, all of whom have volunteered their services, has built on the momentum of its predecessors. The MHA's ten awards and multiple research grants also advance the cause of mining history and the preservation of our mining heritage.

As I said to the mining conference in Zabrze, Poland, in May of this year—after I gave a twenty-minute talk on three small mining museums of the zinc-lead belt of the Tri-State District—the story of mining must be told in full. We must unveil its role in the formation of human civilization. We must reveal its evolving technological impact. We must understand the contributions of skilled miners as much as those of corporate giants. We must stop denying its environmental consequences. As a seasoned champion of mining history, and as an ardent member of the Mining History Association, I feel compelled to continue to understand the multifaceted nature of mining, the history of mining, and how best to preserve this industrial heritage because it has played a central role in modern life here and all over the world.

Chris Huggard, a professor of history at Northwest Arkansas Community College, has published extensively on the histories of mining, labor, and the environment. His publications include, with Arthur R. Gómez (eds.), Forests under Fire: A Century of Ecosystem Mismanagement in the Southwest *(2001) and, with Terrence M. Humble,* Santa Rita del Cobre: A Copper Mining Community in New Mexico *(2013). He has recently ventured into the history of Civil War Arkansas and the National Park Service and is completing a book manuscript tentatively titled, "On Pea Ridge: Civil War Battle, Community Memory, and the Making of a National Park." He would like to thank Richard W. Etulain and Brian James Leech for their edits and suggestions for revisions to this article, and encourages readers to examine its endnotes, which contain extensive citations of MHA-member publications and other mining historiography.*

Notes:

1. See: Duane A. Smith, *Crested Butte: From Coal Camp to Ski Town* (Lake City, CO: Western Reflections Publishing, 2005).
2. Orland Maxfield had purchased a forty-acre plot on Mt. Gothic and after he passed away in 2003, as executor of his estate, I sold the land to the Rocky Mountain Biological Laboratory and they have named it, "Maxfield Meadow." See: Rocky Mountain Biological Laboratory, *2019 Handbook* (Crested Butte, CO: RMBL, 2019), 12.
3. See Paul Anderson's *The Town that Said 'Hell, No!': Crested Butte Fights a Mine to Save its Soul* (Basalt, CO: Roaring Fork Press, 2022) for insight into the town's success in blocking AMAX's proposed molybdenum mine on Mount Emmons.
4. Christopher J. Huggard, "In Support of Richard Maxwell Brown's Thesis on Violence and Vigilantism in America: Crime in Leadville, Colorado in the Winter of 1879-80," *Ozark Historical Review* 16 (Spr. 1987): 20-7.
5. *Leadville Weekly Herald*, 29 Nov. 1879, 2.
6. *Leadville Democrat*, 17 Feb. 1880, 8.
7. See: Duane A. Smith, *Rocky Mountain Mining Camps: The Urban Frontier* (Bloomington: Indiana University Press, 1967); Elliott West, *The Saloon on the Rocky Mountain Mining Frontier* (Lincoln: University of Nebraska Press, 1979); Ronald C. Brown, *Hard-Rock Miners: The Intermountain West, 1860-1920* (College Station: Texas A&M Press, 1979); Richard E. Lingenfelter, *The Hardrock Miners: A History of the Mining Labor Movement in the American West, 1863-1893* (Berkeley: University of California Press, 1974); Mark Wyman, *Hard Rock Epic: Western Miners and the Industrial Revolution, 1860-1910* (Berkeley: University of California Press, 1979); Charles Howard Shinn, *Mining Camps: A Study in American Frontier Government* (New York: Charles Scribner's Sons, 1885).
8. Liping Zhu, *A Chinaman's Chance: The Chinese on the Rocky Mountain Mining Frontier* (Niwot: University Press of Colorado, 1997).
9. Noel and Smith did collaborate on at least one book: Thomas J. Noel and Duane A. Smith, *Colorado: The Highest State* (Niwot: University Press of Colorado, 1995). I soon learned that, despite their shared interest in Colorado's history, Noel's personality was the diametrical opposite of Smith's. On the other hand, the teetotaling pastor and long-distance runner Smith—a contrast to the hard-drinking and portly Noel—did reveal his interest in the tawdry when he titillated a group of MHA field trippers one year by introducing them to local antiquarians dressed as prostitutes and pimps. Or, I should say, in the parlance of the "respectable," demimondes and their chaperones.
10. Thomas J. Noel, *Colorado: A Liquid History and Tavern Guide to the Highest State* (Wheat Ridge, CO: Fulcrum Pub., 1999).
11. Christopher J. Huggard, "The Impact of Mining on the Environment of Grant County, New Mexico to 1910," *Mining History Association Annual* (1994): 3-9; also, see: Huggard, "The Copper Mining Industry in New Mexico, l900-l945," in: Judy DeMark (ed.), *Essays in Twentieth Century New Mexico History* (Albuquerque: University of New Mexico Press, l994), 43-62; and "Reading the Landscape: Phelps Dodge's Tyrone, New Mexico, in Time and Space," *Journal of the West* 35 (Oct. 1996): 29-39.
12. See: Clark C. Spence, *Mining Engineers and the American West: The Lace-Boot Brigade, 1849-1933* (New Haven: Yale University Press, 1970); also see by Spence: *British Investments and the American Mining Frontier 1860–1901* (Oxfordshire, England: Routledge Press, 2000); *The Conrey Placer Mining Company: A Pioneer Gold Dredging Enterprise in Montana, 1897-1922* (Helena: Montana Historical Society, 1989); *A History of Gold Dredging in Idaho* (Niwot: University Press of Colorado, 2016).
13. See: Elizabeth Jameson, *All That Glitters: Class, Conflict, and Community in Cripple Creek* (Champaign-Urbana: University of Illinois Press, 1998); also, see "Women as Workers, Women as Civilizers: The True Womanhood in the American West," in Jameson and Susan Armitage (eds.), *The Women's West* (Norman: University of Oklahoma Press, 1987), 145-56.
14. See: Sally Zanjani, *A Mine of Her Own: Women Prospectors in the American West, 1850-1950* (Lincoln, NE: Bison Books, 2000); also, see: Zanjani, *Goldfield: The Last Gold Rush on the Western Frontier* (Athens, OH: Swallow Press, 1992).
15. See: Richard V. Francaviglia, *Hard Places: Reading the Landscape of America's Historic Mining Districts* (Iowa City: University of Iowa Press, 1991); also, see: Francaviglia, "In Her Image: Some Reflections on Gender and Power in Mining History," *Mining History Journal* 5 (1998): 118-28; "Maps and Mining: Some Historical Examples from the Great Basin," *Mining History Journal* 8 (2001): 66-82; *Imagining the Atacama Desert: A Five-Hundred-Year Journey of Discovery* (Salt Lake City: University of Utah Press, 2018).
16. See: Robert Sorgenfrei, "The Colorado School of Mines: Its Founding and Early Years, 1874-1902" (a historical narrative focusing on the founding of the engineering college in Golden, Colorado), Arthur Lakes Library, Colorado School of Mines, 1999; also, see: Sorgenfrei, "'A Fortune Awaits Enterprise Here': The Best Mining Expedition to the Grand Canyon in 1891," *Journal of the Southwest* 40, n. 4 (Win. 1998): 437-62.

17. See: Stephen J. Leonard and Thomas J. Noel, *Denver: Mining Camp to Metropolis* (Niwot: University Press of Colorado, 1990).
18. For some of the scholarship of these members, see: J. H. Trounson and Roger Burt, *Cornish Mineral Industry: Past Performance and Future Prospect* (Exeter: Exeter University Press, 1989), and *Cornwall's Future Mines: Areas in Cornwall of Mineral Potential* (Exeter: Exeter University Press, 1993); Stan Dempsey and James E. Fell, *Mining the Summit: Colorado's Ten Mile District, 1860-1960* (Norman: University of Oklahoma Press, 1986); James E. Fell, *Ores to Metals: The Rocky Mountain Smelting Industry* (Lincoln: University of Nebraska Press, 1979); Ronald M. James, *The Roar and the Silence: A History of Virginia City and the Comstock Lode* (Reno: University of Nevada Press, 1998); Ronald H. Limbaugh, *Tungsten in Peace and War, 1918–1946* (Reno: University of Nevada Press, 2010); Ronald H. Limbaugh and William P. Fuller, *Calaveras Gold: The Impact Of Mining On A Mother Lode County* (Reno: University of Nevada Press, 2003); Jeremy Mouat, *Roaring Days: Rossland's Mines and the History of British Columbia* (Vancouver: University of British Columbia Press, 1995), and *Metal Mining in Canada, 1840-1950* (Ottawa: National Museum of Science and Technology, 2000); Robert L. Spude, *Skagway, District of Alaska, 1884-1912: Building the Gateway to the Klondike* (Fairbanks: Cooperative Park Studies Unit, University of Alaska, 1983), *Kennecott, Alaska: Historic American Engineering Record recording project* (Alaska Region: National Park Service, 1987), and, with Xi Wang, and David N. Wetzel, *Essays and Monographs in Colorado History, Number 12, 1991; Cyanide and the Flood of Gold: Cyanide Process of Gold Extraction: The Chinese in Colorado: A Demographic Perspective* (Denver: Colorado Historical Society, 1991); Eleanor Herz Swent, *Managing Copper Mines in Chile: Braden, Codelco, Minerc, Pudahuel: Developing Controlled Bacterial Leaching of Copper From Sulfide Ores, 1941-1993: Oral History* (Andesite Press, 2015), *One Shot for Gold: Developing a Modern Mine in Northern California* (Reno: University of Nevada Press, 2021), and, with Evan Just and Noel W. Kirshenbaum, *Geologist: Engineering and Mining Journal, Marshall Plan, Cyprus Mines Corporation, and Stanford University, 1922-1980 : Oral History Transcript* (New York: Sagwan Press, 1989); Robert Trennert, *Riding the High Wire: Aerial Mine Tramways in the West* (Niwot: University Press of Colorado, 2001); Karen A. Vendl, *Mines Around Silverton* (Mount Pleasant, SC: Arcadia Pub., 2015); Mark A. Vendl, Duane A. Smith, and Karen A. Vendl, *My Home At Present: Life in the Mine Boarding Houses in the San Juan Mountains, Colorado* (Lake City, CO: Western Reflections Pub., 2013); Lysa Wegman-French, *The History of The Holden-Marolt Site in Aspen, Colorado: The Holden Lixiviation Works, Farming and Ranching, and the Marolt Ranch 1879-1986* (Aspen: Aspen Historical Society, 1990). Also, a perusal of the *Mining History Journal* will reveal articles by many of these members.
19. Huggard, "Impact of Mining," 5-8.
20. *New Mexico Historical Review* 69, n. 4 (Oct. 1994).
21. Zanjani, *Goldfield*; John Fahey, *Hecla: A Century of Western Mining* (Seattle: University of Washington Press, 1991).
22. Elizabeth Jameson, "The New History Comes to Town," *New Mexico Historical Review* 69, n. 4 (Oct. 1994), 389-92.
23. Christopher J. Huggard, "Mining and the Environment: The Clean Air Issue in New Mexico, 1960-1980," *New Mexico Historical Review* 69, n. 4 (Oct. 1994): 369-88; also, see: Gordon Morris Bakken and Brenda Farrington, *Environmental Problems in America's Garden of Eden* (NY: Garland Publishing, 2000), 233-52.
24. Huggard, "Mining and the Environment," 379.
25. For the economic impact of mining in New Mexico, see: Christopher J. Huggard, "Copper Mining in Grant County, 1900-1945," in: Judith Boyce DeMark (ed.), *Essays in Twentieth-Century New Mexico History* (Albuquerque: University of New Mexico Press, 1994), 43-62.
26. Huggard, "Mining and the Environment," 385.
27. Huggard, "Mining and the Environment," 370, 386.
28. Huggard, "Reading the Landscape," addresses the impact of massive flooding at Phelps Dodge's open pit copper mine at Tyrone New Mexico.
29. See the Mining History Association's newsletter, *Mining History News* 13, n. 1 (Mar. 2002): 3, for the Wallace conference program.
30. Christopher J. Huggard, "'Squeezing Out the Profits': Mining and the Environment in the U.S. West, 1945-2000," in: Richard W. Etulain and Ferenc Szasz (eds.), *The American West in 2000: Essays in Honor of Gerald D. Nash* (Albuquerque: University of New Mexico Press, 2003), 105-26.
31. Duane A. Smith, *Mining America: The Industry and the Environment, 1800-1980* (Lawrence: University Press of Kansas, 1987), 159.
32. See Traci Brynne Voyles' *Wastelanding: Legacies of Uranium Mining in Navajo Country* (Minneapolis: University of Minnesota Press, 2015) for a discussion of defining mine wastes and their effects, especially in uranium mining.
33. Eric L. Clements, *After the Boom in Tombstone and Jerome, Arizona: Decline in Western Resource Towns* (Reno: University of Nevada Press, 2003).
34. After a discussion with Rob McQueen, Eric Nystrom, and Brian Leech at the MHA in Socorro on 8 June 2023, I realize the complexities of the Superfund and that it can be excessively punitive to new landowners who purchase despoiled properties. Despite this

obstacle, I still contend that Superfund cleanup is better for the economy and environment than doing nothing or depending on the polluters to voluntarily reclaim lands and clean up water.

35. Jameson, *All That Glitters*. The Mining History Association offers a range of scholarly prizes and stipends. See "Awards" and "Grants" at the association's website: www.mininghistoryassociation.org
36. Paula Petrik, *No Step Backward: Women and Family on the Rocky Mountain Mining Frontier, Helena, Montana, 1865-1900* (Helena: Montana Historical Society, 1987); Mary Murphy, *Mining Cultures: Men, Women, and Leisure in Butte, 1914-41* (Champaign-Urbana: University of Illinois Press, 1997).
37. Elizabeth Jameson, interviewed by Chris Huggard, 21 June 2023.
38. See: Catherine Holder Spude, *"That Fiend in Hell": Soapy Smith in Legend* (Norman: University of Oklahoma Press, 2012); *Saloons, Prostitutes, and Temperance in Alaska Territory* (Norman: University of Oklahoma Press, 2015); and *All for the Greed of Gold: Will Woodin's Klondike Adventure* (Pullman: Washington State University Press, 2016).
39. Lysa Wegman-French each year provides an invaluable service to the MHA by compiling the latest mining history publications, theses, and dissertations into a bibliography for publication in the *Mining History Journal*.
40. See: Katherine G. Aiken, *Idaho's Bunker Hill: The Rise and Fall of a Great Mining Company, 1885-1981* (Norman: University of Oklahoma Press, 2005).
41. One reason may be as simple as costs. Academic historians often receive little funding for conferences, which forces them to choose a single association's meetings. Since "mining history" covers such a broad range of historical subfields, such as labor, social, gender, ethnic, and corporate, conferences featuring these subfields may be more attractive intellectually and collegially.
42. Kay Pritchett, *Murder in High Cotton* (New York: Wild Rose Press, 2022), story three, "The House with the Corner Door."
43. For a selection of Harald "Johnny" Johnsson's publications, see "The History of the Patapsco Copper Mines, Maryland and the Discovery of Carrollite," *Matrix*, *A Journal of the History of Minerals* 6 (Sum. 1998), 43-55; "Two Historic Metal Mines in Maryland," *Special Publication No. 3* [Studies in Maryland Geology-100th Anniversary Volume of the Maryland Geological Survey] (1996), 71-86; "South Strafford's Elizabeth Copper Mine: The Tyson Years, 1880-1902," *Vermont History* 70 (Sum./fall 2002), 130-52. Johnsson has also published essays in the *Mining History Journal* in volumes 8, 17, 18, and 24.
44. *Mining History News* 5, n. 2 (May 1994): 1, 4.
45. See *Mining History News* 5, n. 2 (May 1994): 4-11 for the Golden program.
46. See: Donald L. Hardesty, *Mining Archaeology in the American West: A View from the Silver State* (Lincoln: University of Nebraska Press, 2010), his annual "Review of Mining Archaeology and Historic Preservation" in the *Mining History Journal*, v. 2, 3, 4, and 6, and via The Digital Archaeological Record (core.tdar.org) of the Center for Digital Antiquity at Arizona State University for his many other mining history publications.
47. William W. Culver, "James Douglas in Chile," *Mining History Journal* 23 (2016): 1-16; William Culver and Cornel Reinhart, "Capitalist Dreams: Chile's Response to Nineteenth-Century Copper Competition," *Comparative Studies in Society and History* 31, n. 4 (Oct. 1989), 722-44.
48. Greg Drew, *Captain Bagot's Mine: History of the Kapunda Mine, 1844-1916* (Belair, SA: G. Drew, 2017); G. J. Drew and John E. Connell, *Cornish Beam Engines in South Australian Mines*, 2nd ed. (Adelaide, SA: South Australian Department for Manufacturing, Innovation, Trade, Resources and Energy, 2012).
49. See the MHA's webpage for links to international mining history organizations and archives.
50. Gordon Morris Bakken, *The Mining Law of 1872: Past, Politics, and Prospects* (Albuquerque: University of New Mexico Press, 2008).
51. Randall Rohe, "Man and the Land: Mining's Impact in the Far West," *Arizona and the West* 28 (Win. 1986): 299-338; Nancy J. Taniguchi, *Necessary Fraud: Progressive Reform and Utah Coal* (Norman: University of Oklahoma Press, 1997); David A. Wolff, *Industrializing the Rockies: Growth, Competition, and Turmoil in the Coalfields of Colorado and Wyoming, 1868-1914* (Niwot: University Press of Colorado, 2003), and Wolff, *The Savior of Deadwood: James K. P. Miller on the Gold Frontier* (Pierre: South Dakota Historical Society, 2021).
52. Back issues of the journal may be accessed electronically under "Journal" at the association's website.
53. Terrence M. Humble, "The Pinder Slip Mining Claim Dispute of Santa Rita, New Mexico, 1881-1912," *Mining History Journal* 3 (1996): 90-100.
54. Since publishing the Pinder Slip essay in the *Mining History Journal*, Humble has co-authored several books, viz.: Helen Lundwall and Terrence M. Humble, *Copper Mining in Santa Rita, New Mexico, 1801-1838* (Las Cruces, NM: Sunstone Press, 2012); Carol O'Bagy Davis and Terrence M. Humble, *Silver City* (Mount Pleasant, SC: Arcadia Pub., 2013); Christopher J. Huggard and Terrence M. Humble, *Santa Rita del Cobre: A Copper Mining Community in New Mexico* (Niwot: University Press of Colorado, 2013); and: Christopher Saxman and Terrence M. Humble, *Relics of the Underground Metal Miners: A Pictorial History of the Central Mining District, Grant County, New Mexico* (Hanover, NM: Arch Publishing, 2023), which offers a substantial historical narrative

of the lode mines of the district.

55. See the association's website for the entire content of the 1999 issue.
56. For information on hiking to La Americana Mine (or Victoria Mine), search the U.S. National Park Service's website (www.nps.gov) under "Organ Pipe Cactus National Monument" (Arizona) for "Victoria Mine."
57. See, https://callvillebay.com/exploring-the-mines-and-historic-sites-of-lake-mead/ for a picture of the shaft and other information about Lake Mead mines.
58. Christopher J. Huggard, "Report on the History of the Rush Mining District," Part II, i-60, in: Suzanne Rogers, Christopher J. Huggard, Christopher Stratton, Floyd Mansberger, and Burnetta Hinterthuer, *Historic Resource Documentation, Morning Star Mines Interpretative Area, Rush Mining District, Buffalo National River, Arkansas* (Washington, D.C.: USGPO, 2006).
59. Huggard, "Rush Mining District," II, 2.
60. See: Arrell M. Gibson, *Wilderness Bonanza: The Tri-State District of Missouri, Kansas, and Oklahoma* (Norman: University of Oklahoma Press, 1972), and: Regina Daniel, *Abandoned Picher, Oklahoma: The Most Toxic Town in America* (Charleston, SC: America Through Time, 2019) for a discussion of the environmental impact of zinc and lead mining in the Tri-State Mining District.
61. See: Carole K. Fink, "Fernand Braudel: French historian and educator" at Britannica (www.britannica.com) for a description of the French-based historical approach to "total history."
62. Huggard and Humble, *Santa Rita del Cobre*, 189-204.
63. *Mining History News* 33, n. 2 (Sum. 2022): 1; *Mining History News* 33, n. 3 (Fall 2022): 1.
64. Christopher J. Huggard and Jerry Harris Moore, "Rock Van Winkle: Black Builder of Northwest Arkansas," *Arkansas Historical Quarterly* 80 (Spr. 2021), 1-37; Quintard Taylor, *In Search of the Racial Frontier: African Americans in the American West, 1528-1990* (New York: W. W. Norton, 1998), 22-3.
65. *Mining History News* 33, n. 4 (Win. 2022): 1.
66. The Wieliczka Saltworks Museum (www.muzeum.wieliczka.pl/en) posted a list of the Honorary and Scientific committees, the latter of which included three MHA members: Roger Burt, Eric Nystrom, and Chris Huggard.
67. For the range of topics, see: "2nd International Conference of Mining and Underground Museums, Wieliczka-Zabrze 2023": https://www.icmum.pl
68. The five-day conference was filled from 9 a.m. to 5 p.m. each day with scholarly presentations. Afterwards, expert tour guides gave us informed field trips in the Wieliczka salt mines (with more than 200 kilometers of tunnels) and the Zabrze coal mines. Once the field trips were over—around 9 to 9:30 p.m.—we were feted with extravagant banquets with multiple courses and ample libations.
69. Brian James Leech, *The City That Ate Itself: Butte, Montana and Its Expanding Berkeley Pit* (Reno: University of Nevada Press, 2018), winner of the Clark C. Spence Award for 2017-2018.
70. Brian Leech, "Under/Over: How the Shift from Underground to Open-pit Mining Changed Workers' Social Lives, the View from Montana," MHA conference, Galena, IL, 8 June 2013 (*Mining History News* 24, n. 1 (Spr. 2013): 10).
71. Eric C. Nystrom, *Seeing Underground: Maps, Models, and Mining Engineering in America* (Reno: University of Nevada Press, 2014), winner of the Clark C. Spence Award for 2013-2014.
72. Jane Bardal, *Southwestern New Mexico Mining Towns* (Mount Pleasant, SC: Arcadia Press, 2011), and *Colorado's Mrs. Captain Ellen Jack: Mining Queen of the Rockies* (Cheltenham, UK: History Press, 2023); Paul J. White, *The Archaeology of American Mining* (Gainesville: University of Florida Press, 2017), winner of the Clark C. Spence Award for 2017-2018; see also his faculty webpage, Department of Geography, University of Nevada, Reno, for White's other publications in mining archaeology and history.
73. Angela Vergara, *Fighting Unemployment in Twentieth-Century Chile* (Pittsburgh: University of Pittsburgh Press, 2021).
74. For the complete list of Spence Award winners, see "Awards" at the association's website.
75. Laurie Mercier, *Anaconda: Labor, Community, and Culture in Montana's Smelter City* (Champaign-Urbana: University of Illinois Press, 2001).
76. Thomas G. Andrews, *Killing for Coal: America's Deadliest Labor War* (Cambridge: Harvard University Press, 2008).
77. David Stiller, *Wounding the West: Montana, Mining, and the Environment* (Lincoln: University of Nebraska Press, 2000); Eric W. Mogren, *Warm Sands: Uranium Mill Tailings Policy in the Atomic West* (Albuquerque: University of New Mexico Press, 2002); Doug Brugge and Timothy Benally (eds.), *The Navajo People and Uranium Mining* (Albuquerque: University of New Mexico Press, 2007); Tim LeCain, *Mass Destruction: The Men and Giant Mines That Wired America and Scarred the Planet* (New Brunswick, NJ: Rutgers University Press, 2009); Kathryn Morse, *The Nature of Gold: An Environmental History of the Klondike Gold Rush* (Seattle: University of Washington Press, 2010); Kent Curtis, *Gambling on Ore: The Nature of Metal Mining in the United States, 1860–1910* (Niwot: University Press of Colorado, 2013); Voyles, *Wastelanding*; John R. McNeill and George Vtris (eds.), *Mining North America: An Environmental History since 1522* (Berkeley: University of California Press, 2017).
78. Hilary Beaumont, "Nevada Lithium Mine Breaks Ground Despite Indigenous Opposition," Al Jazeera

(www.aljazeera.com), 15 Mar. 2023; Kirk Siegler, "Appeals Court to Hear Challenges to Lithium Mine from Environmentalists, Tribes," NPR (www.npr.org), 27 June 2023.

79. Matt Blois, "GM to Invest $650 Million in Nevada Lithium Mine," *Chemical and Engineering News* 101, n. 5 (6 Feb. 23).
80. Nelson Banya, "Zimbabwe Bans Raw Lithium Exports to Curb Artisanal Mining," *Reuters* (www.reuters.com), 21 Dec. 2022.
81. Elliott West, *Continental Reckoning: The American West in the Age of Expansion* (Lincoln: University of Nebraska Press, 2023), 381-96; for the "greater reconstruction" paradigm, see: Elliott West, "Reconstructing Race," *Western Historical Quarterly* 34 (Spr. 2003): 6-26; Elliott West, "Reconstruction in the West," [forum] *Journal of the Civil War Era* (www.journalofthecivilwarera.org).
82. West, *Continental Reckoning*, 381.