



Winter 2018

Mining History News

Quarterly Newsletter of the Mining History Association

CONVERSATION AND INSIGHT

Dear Mining History News Readers,

This edition of Mining History News will begin a little differently than past publications. As MHA current president, Keith Long, has stepped away for health reasons (and I know we are all cheering for Keith to recover quickly), I thought it would be useful to our membership to interview an MHA founding member and past president regarding the state of mining history and the field of history in general.

For such insight, I turned to CU-Denver Professor James (Jay) Fell, a leading thinker in the related fields of economic and business history. As someone who has been interested in the history of metals and metal markets, I was naturally attracted to Jay's work on origins and economics of the smelting and refining industries of North America. His work, *Ores to Metals*, published in 1979 by Colorado University Press, went a long way toward broadening conversations on the mining of precious and non-ferrous metals by reminding us that success or failure in mining is as much an outcome of logistics, chemistry, and trade as it is about efficiency of production and richness of ore.

Apart from Jay's academic publications, I was equally as excited to learn more about his experience as an academic and long-time member of the MHA. Both themes are discussed in the paragraphs below. The interview was conducted largely by email as both Jay and I were extremely busy around the holidays. Thanks to Jay for his time and insight. I hope you all enjoy.

Nate Delaney

Delaney: Jay, thanks so much for joining me for the interview. I'd like to start off by probing your academic roots. Where did you study for undergrad and graduate school? Which scholars were most influential on your approach to thinking about the past?

Fell: I went to Colby College in Waterville,

Maine, where I earned my B.A. in chemistry. Later I worked for Eastman Kodak Company in Rochester New York, where I was a coatings chemist working largely on paints, inks, and lacquers. But I was a bit klutzy in laboratory – ether fires don't cut it – but I had long had a serious interest in history, and after taking a few courses for personal interest in night school, I continued so as to develop the equivalent of a major, got into the University of Colorado where I had gone to summer school one year previously, and there earned my M.A. and Ph.D. I'm an economic and business historian whose specialty is mining and metallurgy in the American West.

The scholars who have influenced me the most were/are Clark Spence, with whom I took a course in the American West while at the University of Colorado Summer School in 1967. Duane Smith has been an important influence; Dale Morgan and Samuel Eliot Morison, neither of whom I ever met, but whose research and writing styles I admired, were also powerful influences although neither was a mining historian. My major professor at CU, Lee Scamehorn guided my graduate study and suggested the ideal topic for me – the smelting industry. I've also been significantly influenced in business history by Albro Martin and Alfred D. Chandler, Jr., both of whom I got to know well while I was a postdoctoral fellow at the Harvard Business School.

Delaney: How did you come to studying the history of mining? And what drew you to smelting?

Fell: When I arrived in graduate school, the graduate advisor Bob Pois asked me the first thing what I wanted to do for a dissertation. I said I had no idea but wanted to use my background in science and industry in my historical studies. He then assigned me to Lee Scamehorn. Lee and I hit it off pretty well, and given that he was interested in CF&I and had a somewhat similar educational background, he suggested smelting as a field of study. It was perfect for me.

Delaney: What was your experience like as a

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Newcomen Fellow?

Fell: I enjoyed my two years as a postdoctoral fellow at the Harvard Business School, the first as the Harvard-Newcomen Fellow, and second as just a fellow fellow, but also the managing editor of the *Business History Review*. Harvard had unbelievable research resources, plenty of money even for postdoctoral fellows, travel moneys, library funds, and major scholars and business leaders came and went. I got to know a lot. Eating at the Harvard Faculty Club overlooking the Charles River was terrific. My two years there were very productive. I completed *Mining The Summit*, which Stan Dempsey and I co-authored. We're both proud of that book and our successful collaboration.

Delaney: When did you first join MHA? What is your favorite memory from a previous conference?

Fell: I'm one of the founders of the MHA. Bob Spude told me about it and I attended the first formal meeting in Virginia City, NV, where we really got off the ground, although I understand that there had been a couple of organizational meetings or discussions before. I'm one of the original incorporators.

Delaney: I did not know that, very cool!! Our membership is always looking to grow. Lately, there has been a push to expand our recruitment of younger members. How might we do this? Any thoughts on strategy?

Fell: I've been to all but one of the conferences. I think that my most salient memory is the early conference in Idaho where our underpowered bus couldn't make it up the hill after visiting an old mining town, and we had to push it up hill to get out and get home. I've enjoyed all the conferences. Each one has gone well. We've had good organizers and gone to interesting places.

As an organization, we need to market ourselves better to attract more members. But I'm not a marketing guy. I belong to other organizations and everyone has the same view – younger people aren't interested in joining. We may just be in the baby-bust era with fewer people out there to join. Nonetheless, I do think we need to do more on the marketing side, but I'm not a marketing person and can't help much there.

Delaney: What are your thoughts on the Marquette conference next summer?

Fell: The Langenfelds are putting together another great conference – I've already paid a few bills – and I'm confident that this one will be another great success. I'm looking forward to going. I've never been to Marquette.

Delaney: What is your advice to young scholars with a passion for the noble dream? Teachers of young minds?

Fell: The academic job market in history, along with many or most of the humanities and social sciences, is very difficult. It has been so for the past 45 years and will continue to be so indefinitely. I would advise anyone hoping to pursue a doctorate in history with the goal of teaching in higher education of this situation. If you pursue a doctorate in history, you need to have a back-up plan in the likely event that you can't find a teaching position. I don't like to say that, but it's a fact.

Delaney: I am in strong agreement with you there. Have a good Plan B in place - its good to have options! Early on I was inspired by the work of Rodman Paul. Did you ever know Rodman Paul? What was he like?

Fell: I did know Rodman Paul slightly. I read his *Mining Frontiers of the Far West* book as a graduate student and thought it excellent and still do. I met him while doing research at the Huntington Library in the mid-1970s. He was a scholar there, probably having retired by then from Cal Tech. He was tall, thin, kindly, soft-spoken, and well-spoken. We politely disagreed over which mining journal was best for research – he claimed the *Mining and Scientific Press*, while I said the *Engineering and Mining Journal*. We had a number of conversations and a lunch or two while I was there, he encouraged my smelt-ing studies and noted that there was not enough out there on that subject, and he introduced me to Ray Allen Billington, then the grand old man of western history, but Billington seemed more interested in smoking than in talking about my research. Still it was good to meet him. Billington died a short time thereafter. I didn't realize at the time that Paul him-self was sick with leukemia and he unfortunately died somewhat prematurely a year or two after I met him. I've long regretted that I did not have fur-ther opportunities to speak with him. But you can't outmaneuver the Grim Reaper.

Future Candidates for MHA Leadership

Candidate for VP/President Elect:

Eric Nystrom. I'm deeply honored to be nominated for Vice President/President Elect of the MHA. I suppose growing up in northern Nevada, not far from the Comstock Lode, might have meant that mining history would find me somehow, and I'm certainly glad it did. I received a B.A. and M.A. in History at the University of Nevada, Las Vegas, and a Ph.D. in the History of Science and Technology from Johns Hopkins University. I edit the scholarly book series Mining and Society, which I founded in 2010 with the University of Nevada Press.

I started teaching at the Rochester Institute of Technology in 2007, the same year I became MHA Newsletter Editor, and held both jobs until my move to the desert sunshine of Arizona State University in 2015. In addition to editing the newsletter, I've served the MHA as a member of the Nominating Committee, the Council, the Research Grants Committee, and chipped in as part of the local arrangements team for the Comstock meeting and the program committee for the Alaska meeting. My book *Seeing Underground: Maps, Models, and Mining Engineering in America* was awarded the 2015 Clark Spence book prize, and my MHJ article on underground photography received the Townley Award in 2010. Both of these, and much more, has grown out of material I often first presented at MHA conferences.

I learned of the MHA and began attending meetings while still in graduate school. The wide range of interests, the rigorous attention to historical detail, and above all the friendliness of our members made a deep impression on me and has shaped my scholarly work in innumerable ways. As Vice President/President Elect, my hope is to continue to foster the MHA as a place where anyone with an interest in mining history can feel welcome, and where we, in turn, can help public and academic audiences better appreciate the impact of mining through history in all its detailed complexity and importance.

Nominating Committee:

Ginny Kilander is the Reference Services Manager and a faculty member at the American Heritage Center (AHC), University of Wyoming. The AHC cares for and provides public access to 3000 archival collections, including mining and energy related holdings, among other topics. She has served in the Reference Department since 1999, and is also the Anaconda Geological Documents Collection Manager, and the archivist responsible for overseeing the acquisition of mining, petroleum & energy collections. In addition to her attendance and presentations

at MHA meetings, she has served as a board member, and currently serves on the Beselme-Orrell Heritage Award Committee.

Council: (Vote for 3)

(1) Fred Barnard. Fred is a retired hard-rock minerals exploration geologist, educated in geology at the University of California at Berkeley, and the University of Colorado at Boulder. He worked in exploration for two major mining companies (International Nickel and Anaconda Minerals) for a total of 17 years, followed by 28 years as a consulting geologist based in Golden, Colorado. His work included examination of mines and mineral prospects and developments in every Western state and in 45 foreign countries. He was also involved in organizing mining conferences for the AIME/SME in the U.S., and African Mining Conferences for the World Bank, in Morocco and Burkina Faso. Fred presented papers at Globe (2006), Prescott (2012), and Trinidad (2014), and has attended several other MHA Conferences.

(2) Lorena Campuzano Duque studied physics at the University of Antioquia, Colombia and a master in Physics in the National Autonomous University of Mexico. Currently, she is a doctoral candidate in Environmental and Latin American History at Binghamton University. Her dissertation analyzes ecological relationships and environmental change associated with the entrance of foreign gold mining companies during the late nineteenth and early twentieth century in Antioquia, Colombia. Her research dissects five major interrelated problems that possibly define an ecology of gold: patterns of uses of the land, environmental transformation, technological innovation, the emergence of different social structures, and economic regimes. Her project historicizes and complicates the recurrent idea that foreign mining companies have unilaterally wrecked the environmental, social, and economic local structures, and analyze the tensions between small and large-scale mining through the lens of environmental history, which is especially resonant today because of a new mining boom in Latin America.

Descriptions of candidates continues on to page 4...

(3) **John Koerth** is a mining reclamation specialist with 30 years of government employment with previous experience in consulting and industry. His education at Montana State University in Mined Land Rehabilitation was followed by 25 years as the program manager for Montana's abandoned mine reclamation program where he was responsible for the inventory and abatement of environmental and safety hazards associated with inactive and abandoned mines. With Montana's Abandoned Mine program he oversaw development of the history narratives for Montana's historic mining districts: <http://deq.mt.gov/Land/AbandonedMines/linkdocs>. John has been recognized as an expert witness in Federal Court and has testified as to past ownership and operations in CERCLA litigation. His reviews of books on mining topics have been published in the Montana Magazine of Western History, Oregon Historical Quarterly, and SIA Journal. For the past 5 years John has been employed by Montana's active mining regulation program as a permit reviewer and inspector of hard rock mining operations. John's involvement with mining goes back to the early 1970's when he was a young miner trainee at the Kelly Copper Mine in Butte, Montana. He worked underground in lead-zinc, and sapphires, as well as in open pit rock quarry operations. As an undergraduate he studied artisanal gold and silver mining in Nayarit, Mexico. — — — — —

2018 Mining History Association Ballot

Mail ballot by March 15, 2019 to:

Mining History Association
c/o Rebecca Lange
P.O. Box 6356
Boise, ID 83707

Vice President/President Elect (one-year term beginning June 2019). Vote for one:

Eric Nystrom (write in):

Nominating Committee (one position, three-year term beginning June 2019)

Vote for one:

Ginny Kilander (write in):

Council (two positions with three-year terms beginning June 2019)

Vote for two:

Fred Bernard John Koerth

Lorena Campuzano Doque

On the Trail of the Iron Age in North America

by Fred Barnard and James Day

The MHA is set to soon have two Annual Conferences featuring iron-mining districts – Marquette, Michigan, in 2019, and Birmingham, Alabama, in 2021. Sandwiched between them is the golden glitter of Elko, Nevada, in 2020. The only past Conference focused on iron was at Minnesota’s Mesabi Range in 2008. Marquette and Birmingham will provide two contrasting case histories of the exploitation of iron ores.

All historians – mining or otherwise – have heard about the Iron Age, which arose in Eurasia around 1200 BC. It followed the Bronze Age, which utilized alloys of smelted copper and tin to create bronze implements, starting about 3500 B.C. in Eurasia. Iron followed bronze because of iron’s higher melting point (1260 C) than copper (1080), tin (230), or typical bronze (850-1000). Thus, the smelting of iron from its ores required not simply a wood or even a charcoal fire, but a charcoal fire with forced-air draft. This technology took close to 2,000 years to develop, after the mastery of bronze smelting.

Cast iron and its cousin wrought iron allowed technology to advance in the Old World, eventually engendering steel, which was an expensive niche product until development of the Bessemer process in the 1850s. The Bessemer process transformed steel into Everyman’s Metal, allowing the development of steel ships, steel railroads, and a host of steel products in everyday life.

Indigenous peoples in North America did not smelt metals: they hammered pieces of native copper, gold, and silver into shapes without melting or alloying. Europeans began smelting iron ores as early as 1620 in Virginia, and by 1646 the famous Saugus Iron Works in Massachusetts was a world-class facility. Canada entered production with forges at Saint-Maurice, Quebec, in 1730.

Early iron production in North America generally used surficial “bog iron” ores, small deposits of which are locally abundant near the Atlantic coast. Later, other iron-rich bedrock ores were discovered farther inland. These sites included the magnetite ores at Cornwall, in the Piedmont Province of Pennsylvania, which were mined continuously from 1732 to 1972 – 240 years.

Early iron-mining operations in and east of the Appalachians were eventually dwarfed by the exploitation of the Lake Superior ores in Michigan, Wisconsin, Minnesota, and Ontario. By the late 1800s these Precambrian “banded iron formations” formed the backbone of the North American iron-ore industry. During the 1950s, similar deposits were developed in Quebec and Labrador.

Marquette – like the 2008 Conference in Minnesota – will highlight Precambrian banded iron formations which have contributed some 5 billion tons of hard hematitic ore, eminently suitable for making steel, and have been shipped to steel mills in Ohio, Pennsylvania, and elsewhere, with very little being transformed to steel within the Lake Superior area. They were mined primarily from large open-pit mines, with some underground mining.

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Books by MHA Members...

Brian James Leech. *The City That Ate Itself: Butte, Montana and Its Expanding Berkeley Pit. Mining and Society Series. Reno: University of Nevada Press, 2018. 376 pp. \$39.95 (cloth), ISBN 978-1-943859-42-9.*

Using oral history interviews and archival finds, *The City That Ate Itself* explores the lived experience of open-pit copper mining at Butte, Montana's infamous Berkeley Pit, which operated from 1955 to 1982.

Because an open-pit mine has to expand outward in order for workers to extract ore, the Berkeley Pit dramatically changed the lives of workers and residents. As open-pit mining nibbled away at ethnic communities, neighbors faced new industrial hazards and widespread relocation. Workers and their unions struggled with the pit's lower labor requirements when compared to Butte's long history of underground mining. Residents variously responded to the pit with celebration, protest, negotiation, and resignation. Even after its closure, the pit still looms over Butte. Now at the center of a federal environmental cleanup, the Berkeley Pit continues to affect Butte's search for a postindustrial future.

WHAT ARE THE BEST BOOKS IN MINING HISTORY?

Dr. Eric Nystrom, a history professor at Arizona State University, and Dr. Brian Leech, a history professor at Augustana College, are seeking the opinions of mining historians about the best books in mining history. The survey is anonymous. The results of the survey will be publicized at a future conference of the Mining History Association (and perhaps other academic conferences), and a journal article exploring the results in greater detail will be prepared for consideration by an academic journal in the field. Finally, upon submission of the article, the de-identified data will be made publicly available, hosted on servers of the ASU library.

If you read mining history books, please take our survey. Your opinion is important, and helps us better understand the field! It consists of just six short questions and takes 8-12 minutes to complete. Please visit <http://bit.ly/MiningBooksSurvey> to take the survey, which is available until March 31, 2019. Thanks for participating!

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Birmingham, by contrast, produced smaller amounts of locally-mined soft, high-phosphorus “Clinton ores,” which were locally smelted to make cast iron, not steel. The Clinton ores are in a sedimentary layer within the Appalachian sedimentary rocks, and were mined from scores of relatively small underground and open-cut mines. Several historic (pre-1975) furnaces are preserved, bearing witness to the industrial importance of this Mid-South industry. **MHA attendees will have the opportunity to imbibe the histories, geologies, geographies, industrial heritages, and cultures of these two distinct iron-mining centers!**



Cliffs Resources near Marquette (above). Underground mine in Sedimentary formation, Birmingham (below).



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Upcoming Events

**2019 Mining History Association Conference
5-9 June 2019
Marquette, MI**

**AMHA Conference 2019
Cairns, Australia**

**Mining History Association Conference
Elko, NV
June 2020**

**Mining History Association Conference
Sudbury, Ontario
June 2020**

The Mining History News is published quarterly by the Mining History Association. It is sent to MHA members who also receive the annual *Mining History Journal*. MHA is an organization of individuals interested in the history of mining and metallurgy. Submissions for the newsletter are encouraged and should be sent to Nathan Delaney, nathan.delaney@case.edu,

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 Fall issue: August 15th
 Winter issue: December 15th

Change of Address: Please send all address changes to Rebecca Lange, Membership Chair, at:

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