



MINING FOUNDATION OF THE SOUTHWEST

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APRIL, 2015

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CONCENTRATES

WELCOME 2015 EXECUTIVE OFFICERS



President John Broderick received his B.S. in Metallurgical Engineering from the University of Arizona and has over 40 years of experience in the mining industry with both Phelps Dodge and Freeport McMoRan Inc. Broderick worked as a metallurgist in smelters at Hidalgo, NM, Ajo and Morenci AZ. At Morenci, he was on the team that constructed and commissioned the first SXEW plants and as hydrometallurgical manager oversaw three additional expansions of the facilities. Broderick has held the site leadership role at Tyrone NM, Bagdad AZ, the Candelaria mine in northern Chile, and the Cerro Verde operation in Peru. He is currently the Vice President and General Manager of the Sierrita mine in Green Valley AZ.

Vice President Eben Robinson received his Mining Engineering degree from the University of Arizona and has worked for Asarco Silverbell, IMC/Mosaic Potash Carlsbad, Phelps Dodge/Freeport-McMoRan Inc. and Marco Crane. Robinson has been with Southwest Energy for five years as the Innovation Manager working on new technologies to insure that every hole drilled gets loaded, and every hole loaded fires properly. He also works on other Continuous Improvement projects for Southwest Energy and provides ongoing support at the mines for electronic detonators, seismographs, and general blast consulting.



Treasurer John Fenn received his B.S. in Mining Engineering from the University of Arizona. He worked for various national and international mining companies both in the U.S. and abroad including Duval Corporation, Cyprus Minerals Company, Cyprus AMAX, ASARCO, Phelps Dodge Mining Company, and Freeport McMoRan Inc. His last assignment prior to retiring was Division President, Africa for Freeport McMoRan. Fenn is a consultant in the mining industry and has served as an Adjunct Professor at the University of Arizona in the College of Engineering. Fenn played a leadership role in several mining related associations including as a Director on the Boards of the Arizona and Colorado Mining Associations.

Secretary Scott Shields, serving this position for a second year, is a fifth generation Arizona Miner and earned his B.S. in Mining Engineering from the University of Arizona. He has been working in the industry for the past 19 Years and has held positions ranging from Senior Mine Surveyor, Senior Research Technician, Plant Supervisor, Site Coordinator, Industry Liaison, Applications Engineering Manager and has also earned notable recognition for safety, quality and championing next generation technologies. Shields is currently the Commercial & Sales Manager of the U.S. South Mesa Operations at Joy Global.



Announcing 2015 American Mining Hall of Fame Honorees

- Main Inductee:** **Conrad E. Huss, P.E.**
Co-Founder, M3 Engineering & Technology Corporation, Tucson, AZ
- Medal of Merit:** **C. Mick Lownds**
Owner, New Consultant, Salt Lake City, UT
- Industry Partnership:** **InfoMine**
A mining intelligence and technology website providing information on news and intelligence, career and education, suppliers and equipment, technology and practice as well as services and events.
- Special Citation:** **Independent Mining Consultants Inc. Tucson, AZ**
IMC has been providing engineering services to the world's mining industry since 1963 with more than 250 different clients on over 500 projects worldwide.
- Inductees from Mining's Past:** **Leonard (1847-1902) & Adolph (1849-1938) Lewisohn**
Mining magnate brothers were pioneer developers and philanthropists. Their firm, Lewisohn Brothers, was among the first to invest in copper mines and later became known as "copper kings." The brothers contributed to almost every philanthropic institution in New York, regardless of creed.
- James Furman Kemp (1859-1926)**
Beloved Geology professor, known to all students as "Uncle Jimmie" at Columbia University. Authored Ore Deposits of the United States and Canada in 1893, Handbook of Rocks in 1895 and was a co-founder of *Economic Geology*.
- Roscoe Channing (1868-1961)**
Selected for the first College All American Football Team while at Princeton; joined Teddy Roosevelt's Rough Riders during the Spanish American War. Established Hudson Bay Mining and Smelting Company with Cornelius Vanderbilt Whitney.
- Alberto Benavides (1920-2014)**
Founding President of Cia de Minas Buenaventura, Peru's largest locally owned precious metals producer. Spearheaded the construction of one of the world's largest gold mines; founded the mining faculty of the Universidad Catolica de Peru and led a drive to list Peruvian companies on the NYSE.

OUTREACH CORNER by Pam Wilkinson

MFSW Outreach Coordinator Activities: January 2015-April 2015

To date this school year (2014-15) I have been in classes for 80 days, teaching 335 classes to over 9000 students and 87 teachers. There is still about a month left in the school year and my schedule is busy, between school visits and Mining in Society merit badge workshops there is not much office time. According to my estimates, I should be over 10,000 students in classroom settings this year. The table below lists the locations and numbers since the last report in early January.

School	City	Students	Teachers	Date
San Luis HS	San Luis	60	1	1/21/2015
Somerton MS	Somerton	114	1	1/22/2015
Woodard Jr Hi	Yuma	196	3	1/23/2015
Payne Jr Hi	Chandler	50	1	1/26/2015
L. Thomas Heck MS	Litchfield Park	250	2	1/27-28/2015
Brophy HS	Phoenix	226	2	1/29/2015
Wigwam Jr Hi	Litchfield Park	290	2	2/2-3/2015
Luz Academy	Tucson	21	1	2/6/2015
Emily Gray MS	Tucson	150	1	2/9/2015
Corona Foothills MS	Corona de Tucson	105	1	2/10/2015
St. Joseph Catholic School	Tucson	63	1	2/11/2015
AAEC HS	Avondale	100	1	2/20/2015
Amphitheater MS	Tucson	68	1	2/25/2015
Western Peaks Elem.	Surprise	112	1	2/27/2015
Liberty Traditional School	Prescott Valley	65	1	3/3-4/2015
Centennial MS	Ahwatukee	296	3	3/18-20/2015
Walden Grove HS	Sahuarita	200	2	3/24/2015
St. Elizabeth Ann Seton	Tucson	70	1	3/25/2015
Sahuarita HS	Sahuarita	117	1	3/26/2015
Flowing Wells Jr Hi	Tucson	352	4	4/7-9/2015
Summit Academy	Chandler	123	1	4/13/2015
Total		3028	32	

My presentation (Educating Arizona about Mining: The Evolution of an Outreach Program) at the Minerals Education Coalition technical session during the annual meeting of the Society for Mining, Metallurgy and Exploration was very well received. I have received requests to present at other locations including a teacher workshop in West Virginia. That location is not really feasible but the two teacher workshops organized by the Nevada Mining Association are perfect. I presented and participated in technical sessions at the Las Vegas event in April with 120 teachers present. I am also scheduled to make another presentation during the workshop in Reno this coming July.

Take a look at the <http://www.engineergirl.org/> website (run by the National Academy of Engineering) and you will notice the absence of mining and metallurgical engineering. I contacted them and they are now working on adding an Earth Resources Engineer to their site. They are looking for assistance in providing information about mining, metallurgy and petroleum engineering for this site: what do these engineers do,

where do they work, what are the education requirements, lifestyles, skills, salaries, etc. I have put in a request to numerous engineers and am hoping to provide the developers with accurate information. If you can assist me on this, it would be wonderful. They also will need some female engineers to post a profile and be willing to answer questions that come through the website: any ideas?

The IMR is partnering with Eastern AZ College on the GEAR UP program which is starting this fall. The program will track 1392 students scheduled to graduate in 2020. It will provide support through intervention services and enhanced educational opportunities. The students are from nine different school districts in eastern Arizona and the program is predominately funded by a grant from the U.S. Dept. of Education. This program should provide me with an avenue into additional schools previously not served by my program.

Discussions with Froydis Cameron of Anglo-American Exploration centering on how they can assist me in my program are encouraging. I have suggested the best way to help me is to join the MFSW and to sponsor events at the banquet. I will have the opportunity to meet with Froydis when she is in the Tucson area in late September. I have also been in contact with Becky Sawyer of Excelsior Mining regarding outreach programs and materials they are developing.

Thirteen scouts from an Orange County, CA. Boy Scout troop were able to complete their Mining in Society merit badge last week in Tucson. They spent the morning with me in the mining engineering department learning about minerals and rocks mined in Arizona. Mary Poulton talked with them about careers in mining. Dave Streeter introduced them to the rock lab and Moe Momayez taught them about mine ventilation and they also learned the use of LIDAR in mining. They then toured the Pima Mine through the Mineral Discovery Center that afternoon. On Saturday morning we met at the SX mine, they learned about safety and were provided with an underground tour. (See the photo below.)

Partnering with Freeport-McMoRan on Mining in Society merit badge workshops continues. I am leading a workshop in Morenci the last week of April and one at the Sierrita mine the first Saturday of May. As of right now there are approximately 53 scouts registered to participate between the two workshops.

In March I attended the Girl Power luncheon at Amphitheater Middle School. I was able to meet with and discuss mining engineering/geology as a career with over 30 young ladies. The program is organized and implemented by the MESA and robotics teacher at Amphi.



Orange County Boy Scout Troop



Scout-a-Rama: Phoenix Stadium

Freeport-McMoRan offered their booth at the Scout-O-Rama to the U of A Students in late February. They did a wonderful job with hands on activities for the scouts.

Mike Conway organized a meeting of people and groups doing Earth Science outreach in Arizona, which I attended in March. The groups represented were Science Foundation AZ, U of A geosciences, UA MESA, ASU Mars exploration, ASU School of Earth and Space Sciences, Earthscope, Flagg Mineral Foundation, Earth Science Museum, Mesa Community College, TGMS, City of Chandler, AZGS, AZ Sci-Tech Festival, and AGS. It was great to hear about what others are doing and how they do it. Unfortunately no one else is doing education about mining. So, thank you to the members of MFSW for supporting outreach regarding the mining industry.

MEMBERS' CORNER

New Members

Corale L. and James A. Brierley—Principals, Brierley Consultancy LLC

The Brierleys were joint 2014 Medal of Merit recipients and share many parallels with both earning Ph.Ds. in science and both were honored by their universities with the “Distinguished Achievement Award” as well as receiving awards from SME and being inducted members of the U.S. National Academy of Engineering. Brierley Consultancy was founded in 1991 by Corale providing technical and business consultation to the mining and chemical industries and government agencies. Jim joined Brierley Consultancy later after a long career at Newmont Mining.

William Oppenheimer—Project Manager, M3 Engineering & Technology Corp.

Oppenheimer is a professional registered geologist with background in mineral exploration, production, mineral consulting and engineering services for the mining industry since 1979 with experience in open pit, underground and in situ mining projects. Oppenheimer earned his B.S. from Tufts University and M.S. from Colorado School of Mines and is a member of SME and has also served as President of the Tucson chapter.

Those who have not renewed their 2015 membership, please renew now. <http://miningfoundationofthesouthwest.wildapricot.org/join> .

Those who still prefer to renew membership by checks should continue to forward payments to P.O. Box 42317, Tucson, AZ 85733.

RECOGNITIONS



MFSW wishes to congratulate member Ta Li and Governor William Wilkinson for being granted AIME Honorary Memberships.

Li was recognized for “exceptional advocacy of the global minerals industry and for sustained leadership and education to the SME.” Li is an international authority on mineral industry marketing and business development and has authored more than 40 technical articles on open pit and underground mining. Li has served as the president of four major mining professional organizations: SME, the Denver Gold Group, the Northwest Mining Association and the Colorado Mining Association. He recently was elected a U.S. representative to the International Organizing Committee of the World Mining Congress and is a member of the SME Foundation Board of Trustees. Li is the Vice President of Business Development for Tetra Tech, a global engineering and environmental consulting firm.

Wilkinson was recognized for “exceptional service to SME as its president and to the Mining & Exploration Division.” Wilkinson is a leader in the international exploration and development of copper, gold, silver and molybdenum deposits in deep sea mining technologies. As Vice-President, Africa for Freeport-McMoRan Exploration, Wilkinson is responsible for project direction, reconnaissance and acquisitions throughout the continent with over 35 years of experience in mineral exploration and has worked on 25 countries on five continents. He is a Distinguished Member of SME and also a charter registered member. Wilkinson served in the military after earning his M.S. degree and returned after service in the U.S. Army to pursue his Ph.D. in GeoSciences.

MFSW also wants to recognize the SME Student Chapter at the University of Arizona for being named the winner of the SME Outstanding Student Chapter Contest. Chapters were asked to submit annual reports and were evaluated based on the quality of their performance. The University of Arizona Chapter was honored for offering incoming students with a sense of community and organizing activities aimed at building team cohesion. The members participated in clean-ups at a local national park, volunteered at animal shelters, funded holiday food drive for needy children and raised money for prostate cancer research. Copper Cats and High Grade Miners, two outreach teams, tutored students at more than 20 schools, science fairs and summer engineering camps, always with unsurpassed enthusiasm.

In Memoriam

Charles P. Miller 8/19/1929 –2/10/2015

Charles Parker Miller was a revered MFSW Board Member and played a leadership role guiding the Hall of Fame committee for many years. He earned his undergraduate degree from Lehigh University and his M.S. and Ph.D. degrees from Stanford University. Miller started his professional career with Phelps Dodge, worked for American Metal Climax before founding Miller Resources, Inc. Even in retirement, Miller was active in the mining community and remained a strong advocate to the end. Miller was recently designated as a lifetime member of the Arizona Geological Society for his 50 years of membership and service. His funeral mass was held at St. Odilia's Catholic Church in Tucson, AZ.



Announcements

SRK US Announces 2015/2016 Scholarship

SRK Consulting (U.S.) Inc. is offering a scholarship program for the 2015/2016 school year to assist student studies in mining industry related fields. Applicants can complete application online and email to slorenger@srk.com or forward hard copy to Sarah Lorenger, Human Resource Department, SRK Consulting (U.S.) Inc., Suite 3000, 7175 W. Jefferson Avenue, Lakewood, CO 80235.

HALL OF FAME 2015

The Hall of Fame Committee would like to invite all of you to submit nominees for **Medal of Merit under 40**. This nascent category to honor young professionals was inaugurated in 2012 in our continuing effort not only to harvest young talents but also to enlist their participation in perpetuating awareness on the impact of mining in daily life.

In addition, MFSW is also seeking sponsors for the 2015 event. We hope, with your help, we will be able to reach new fundraising goals and expand our Outreach Program. Anyone wishing to receive more detailed information regarding nominating candidates for Medal of Merit under 40 or sponsorships should contact MFSW.

33rd American Mining Hall of Fame Awards Banquet & Fundraiser

DECEMBER 5, 2015

6:00 p.m. to 9:00p.m.

JW MARRIOTT, TUCSON STARR PASS