



MINING FOUNDATION OF THE SOUTHWEST
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MARCH 2019
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CONCENTRATES

2019-20 Executive Board, Committee Chairs & Governors Named

Chris Wilson - President



Wilson received his B.S. in Mining Engineering from The University of Arizona and has been a member of the MFSW since 2016. During his college years he spent summers working as an intern at various mines in the southwest and also interned while going to school. He started his career with Freeport-McMoRan at the Miami Mine and subsequently spent time in various positions with FMI at Sierrita and Morenci. In 2017 he became a Technical Sales Engineer for IEC Supply catering to mining & related heavy industry accounts in the Southern Arizona, New Mexico, and Kingman Area. He is a member of SME

Rebecca Martinez—Vice President & Hall of Fame Chairman



Martinez earned her Civil Engineering degree from the University of Arizona and is a member of the American Society of Civil Engineers and serves as an Amphi Middle School Girl Power Mentor since 2015. She has over 23 years of experience in commercial and industrial projects. Martinez has extensive experience in civil engineering design, earthwork, hydrology, road design and permit approval. Her project management experience includes preparing project schedules, presentation and budgets. Prior to joining M3 in 2010, Martinez worked for The WLB Group, WestLand Resources, Inc., Evans, Kuhn and Associates, Inc., and Engineering and Environmental Consultants, Inc. She now is Civil Department Head at M3. Rebecca has been on the Board of Governors since 2017.

John Fenn—Treasurer



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 serving as Division President, Africa, for Freeport-McMoRan. Fenn was an Adjunct Professor at the University of Arizona, College of Engineering, and was also a Director on the Boards of the Arizona and Colorado Mining Associations. He is now a consultant in the mining industry and serving a fifth term as MFSW's Treasurer.

Andrew Soderman – Secretary



Soderman received his Mining Engineering degree from the University of Arizona and, following graduation, was employed by Cyprus Miami Mining as an entry level Mine Engineer. In 2004, he joined Phelps Dodge as a Senior Mine Engineer and since then has been with Freeport-McMoRan entrusted with increasing responsibilities. He is presently the Mine Manager at Freeport-McMoRan's Sierrita Operations. Soderman is serving a fourth term as MFSW's Secretary.

Committee Chairs

Finance Chair - Herb Welhener

Foresight Chair - Don Earnest

Nominating Chair - David Travis

Terms of Board of Governors

Term expires: February, 2020

Amanda Best

John Fenn

Corolla Hoag

Rebecca Martinez

Terry McNulty

Donald R. Taylor

William H. Wilkinson

Steve Holmes

Term expires: February, 2021

Bill Hawes

Martin C. Kuhn

Nyal Niemuth

Brad Ross

Luiz Steinberg

David Travis

Chris Wilson

Rod Woodcock

Term expires: February, 2022

Mark Baker

Robin Barnes

Don Earnest

Andrew Soderman

Jean Austin

Kathy Arnold

Allison Moore

David Rhoades

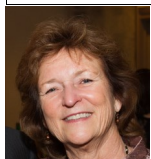
ANNUAL MEETING

It was a great turn-out for the Annual meeting at the Viscount Hotel on March 6 with 41 members and 6 guests in attendance including 15 of the 22 Governors. I checked the records going back to 2013 and this was the largest attendance by the membership over the last 6 meetings and the first time we had over 40 members attend during that time period. Thanks for attending and thanks for caring!





LOWELL INSTITUTE FOR MINERAL RESOURCES



OUTREACH CORNER BY PAM WILKINSON

Hard to believe this is my final report to the MFSW regarding the outreach program that the Foundation has funded since April 2009. The goal of the program has been to take the message of modern mining to students in classrooms throughout the state of Arizona and to create materials that teachers can use in their classrooms. What an amazing ride it has been, and I am so grateful for the opportunity this position has provided to me. The program has reached a total of over 78,000 students and 800 teachers in classroom settings an additional 12,000+ youth and adults have also heard the message about modern mining through a variety of events. The table below shows the numbers as calculated by the school year: July-June.

Dates	Schools	Students	Teachers	Days in schools	Other events
2009-2010	35	5200	60	60	3500
2010-2011	38	7000	70	67	500
2011-2012	35	6300	81	56	1300
2012-2013	45	6200	66	61	2700
2013-2014	53	8900	94	85	1100
2014-2015	64	10000	98	91	660
2015-2016	57	10000	97	85	800
2016-2017	48	8800	82	72	957
2017-2018	57	8400	91	83	730
2018-2019	41	7631	69	62	649
Total	474	78431	811	725	12896

During these past 10 years, I have had the opportunity to create K-12 teaching materials and to explore what is publicly available to teach about mining at the K-12 level. I have also edited materials that the Minerals Education Coalition has produced and have worked with school districts on outreach programs. I have also had the opportunity to create and use materials to teach mining to various groups and to modify my materials to address a variety of learning abilities.

At the beginning of this program, I was using the question so many of us in the mining industry use: "Look around the room, what do you see that comes from mining?" It did not take me long to figure out this question is entirely too easy to answer. A much better question is, "What do you use every day that has nothing to do with mining?" The answer to that is "Two things, sunlight and the air you breathe outside!" It has been very rewarding to see the light come on, as students and adults realize the impact that the rocks and minerals extracted from the crust of the earth by mining have on them every day, all day!

Outreach Corner Cont.

These last three months of part time work have been busy in classrooms and attending meetings. As mentioned in the last report I received the Minerals Education Coalition Leadership award for "knowledgeable and passionate sharing of the vital importance of mining in our society and to mining's importance in shaping our standard of living." The award was presented at the annual SME meeting in Denver. Mining Day at the Capitol was a huge success, but not as many students seem to be attending these events the past two years, as they did earlier. In particular, the first year I participated they interviewed me live for the morning news show on Channel 3! That certainly provided exposure about the program. One of the most enjoyable classes was the third grade class at Desert Trails Elementary in Phoenix, one of the students had written to me as a resource for his 'Passion Project'. I offered to come and speak to his class; at least half of the class has now decided to become geologists and miners!



SME Award Banquet



Mining Day at the Capitol

The table below has the final numbers of school visits that I will do while gainfully employed by the MFSW/IMR. As you may notice there are numbers recorded for April, when I will be officially retired! I had to postpone my trip to Bullhead City because of the snow...so rescheduled them.

School	City	Students	Adults	Date	days	classes
Jack Barnes Elem.	Queen Creek	54	2	1/23/2019	1	2
Mountain Point HS	Ahwatukee	158	2	1/24/2019	1	6
Brophy HS	Phoenix	158	2	1/28/2019	1	6
Perry HS	Chandler	15	1	1/30/2019	1	1
Tanque Verde HS	Tanque Verde	128	1	2/7/2019	1	5
Utterback MS	Tucson	96	1	2/12/2019	1	4
Sunrise Mountain HS	Phoenix	81	1	2/7/2019	1	3
Snowflake HS	Snowflake	180	2	3/4/2019	1	6
Blue Ridge Jr Hi	Pinetop	75	1	3/5/2019	1	3
Perry HS	Chandler	175	1	3/7/2019	1	6
Desert Trails Elem.	Phoenix	20	1	3/8/2019	1	1
Walden Grove HS	Sahuarita	170	1	3/19/2019	1	6
Verrado MS	Verrado	260	2	3/21,25	2	8
Chino Valley HS	Chino Valley	190	2	3/27-28/2019	2	12
Fox Creek MS	Bullhead City	300	2	4/16-17/2019	2	12
Total		2060	22		18	81

Once again, THANK YOU to everyone who has made it possible to pursue the passion I have for the mining industry and sharing that passion by teaching others.



LOWELL INSTITUTE FOR MINERAL RESOURCES



OUTREACH CORNER
BY Molly Radwany

Late January and the entire month of February were quite busy with 10 outreach events, two of which (Science City and Tucson Gem and Mineral Show) were multi-day affairs. Thankfully, between the Lowell Institute interns and some fantastic volunteers we were able to talk to lots of different people who came through. These events are great ways to make sure that people associate mining with STEM (science, technology, engineering and math) and to increase visibility of the industry.

The events we attended over the past two months included seven science-fair style events at which we manned a table as visitors stopped by to see our display. These events were Connect 2 STEM in Phoenix, Chandler Science Spectacular, Tucson Gem and Mineral Show Junior Ed, Family SciFest at the Tucson Children's Museum, Chandler Innovation Fair, STEAM Night in Rio Rico and Science City at the Tucson Festival of Books. We try to mix things up and our activities at these events included a make-your-own paper circuit, leaching and electroplating demonstration, samples of things mined in Arizona with a map of mines, the shovel simulator and drilling in playdough.

Event	Date	Number of interactions
Connect 2 STEM (Phoenix)	January 26, 2019	~450 (all ages)
Science Day at Sunrise Elementary (Tucson)	January 30, 2019	231 (K-4 th grade)
Career Day, Corona Foothills Middle School (Vail)	February 7, 2019	232 (6-8 grade)
Chandler Science Spectacular (Chandler)	February 9, 2019	285 (all ages)
Tucson Gem and Mineral Show Junior Ed	February 15-17, 2019	~800 (all ages)
Family SCIFest (Tucson)	February 16, 2019	~150 (all ages)
Chandler Innovation Fair (Chandler)	February 23, 2019	279
SCV35 STEAM Night (Rio Rico)	February 28, 2019	~150 (middle-high school)
Science City (Tucson)	March 2-3, 2019	~400 (all ages)
Total		2,977

Outreach Corner Cont.

In addition to these tabling events I also had presentations in Vail for a career day and in Tucson for a science day. Our most popular activity seems to be the paper circuit, this is an easy craft that the kids can make when they visit our table. It uses copper tape, an LED light and a battery. The card is printed with information about what minerals are needed to make the paper circuit and about what mining is. My hope is that students will read the card after they take it home and that this will reinforce the things they learned in their brief visit to our table. The next wave of science fairs is in April, which allows us some time to reevaluate what activities worked best and to upgrade our displays.

In other news, The “Young Reporter” we showed around the San Xavier mine published his story, which you can view on the [Bear Essential News webpage](#). We have a couple more tours scheduled out at the San Xavier Mine this spring, including a high school engineering class from Rio Rico and a Pima Community College geology class. Aside from that I am busy developing an on-campus workshop for field trip groups that should be available next fall. I look forward to sharing more information on this soon!



Garrett showing off Arizona's mined materials and myself helping students with the paper circuit at the Connect 2 STEM event in Phoenix.

Outreach Corner Cont.

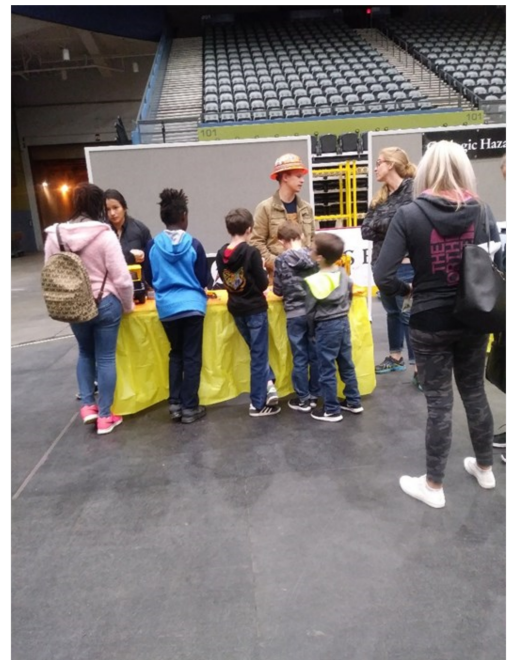
Gail Heath, Mining Engineering Senior Lecturer, helped show off his new electrowinning model at the Family SCIFest in Tucson.



Blase LaSala (not pictured) showed visitors to our Science City table the virtual reality model of a cave that he is developing as part of his graduate studies in the Mining Engineering program.



We were given the opportunity to have a table on mining in the Tucson Gem and Mineral Show's Junior Ed area. This area is run by the UA Geoscience undergraduate club. Alejandro Durazo and Veronica Cordova are the volunteers pictured. Our table was one of the most popular (and definitely the messiest!).



Transfer of Knowledge Session



Pictured from l-r: Tom Aldrich, Executive Director; Will Wilkinson' BOG; Mark Baker, BOG; Jodi Banta, IMR; Mark Barton, IMR; Pam Wilkinson, IMR; Adrian Ramirez, Skyline Laboratories; Dr. Mary Poulton, IMR; Dave Travis, BOG; Moly Radwany, IMR; Jonathan Lang, IMC; Tom Scartaccini, HOF Committee; and Martha Petty, Flowing Wells School District. Photos courtesy of Jim Hurley, Red Diamond Media.



With Pam Wilkinson retiring this spring, several of us had the opportunity to experience some of the activities and presentations that Pam has developed and used around the state in schools over the last 10 years in a session at the Asarco Training Center on February 5. Her list of presentations includes "Arizona mining: What, Where, How and Why?"; "Chemistry and Mining"; "Rocks and Minerals: What do you do with them?"; "Environmental Impacts of Mining"; and "History of Mining in Arizona". Activities include Birdseed Mining, Cookie Mining, Muffin Mining, Golden Egg Mining, Mineral Deposits and the Rock Cycle, Mineral Extraction, Careers in Mining, and Meddling with Mixtures just to name a few.

MEMBERS' CORNER

We welcome 4 new members.

Yvonne Marshall, Land Admin. Manager, South 32

Marshall has over 13 years of experience applying environmental, water resources, land management and sustainability practices. She has accomplished many successful projects as a project manager for mining clients, as a legal specialist supporting attorneys, as a public and private land manager, and in implementing best management practices in the field. She has a BS from the University of Arizona in Renewable Natural Resources, Watershed Hydrology.

Linda Aldrich, retired

Aldrich is a self-described Genealogy enthusiast and internet detective. This past year she assisted the HOF Committee in tracking down a photograph of one of the Mining Past Honorees and she continues to help out when needed. Lastly, she is a sharp editor.

Steve Pender, Owner, Family Legacy Videos

Pender is professional personal historian and video biographer with a passion for helping individuals, families, and organizations preserve, celebrate and share their life stories through custom, personal legacy videos. He have 39+ years of experience editing, writing, directing & producing video for families, as well as corporate, business and not-for-profit clients. Steve has been the Videographer for the MFSW since 2012.

LennieBoteilho Senior Project Manager & Manager Environmental Affairs, Ames Construction

Lenny has had an 18 year career with Ames Construction. He is a member of the Utah Chapter of the Associated General Contractors of America (AGC).



Annual membership renewal is now past due. If you have not yet renewed, please renew online or send your payment to the Foundation Office.

Thank you all for your support of the MFSW. Help us get bigger and stronger and

Mining Day at the State Capital

The Arizona Mining Association (AMA) along the Arizona Rock Products Association (ARPA) hosted the 6th Annual Mining Day at the Capitol on March 6. This event was well attended and the MFSW hosted a booth. Tom and Darsi Aldrich and Judy Smith greeted visitors and informed them about the important work that the MFSW is doing. As a bonus, we sold two sets of Arizona History books. Participants at the event learned more about mining's positive impact on our great state! In addition, both of the Outreach Coordinators, Pam Wilkinson and Molly Radwany also had booths at the event. Over 200 school children also attended the event. We saw many MFSW members there including Past President Dave Travis who also helped out at the booth.



Executive Director Tom Aldrich took time to visit the Total Power booth and talked with Josh Formo, Sr. Technician, of Total Power and Monica Franks, EMS Coordinator, from Asarco. Thanks to Brett Morey for the link to the photos.





IN MEMORIAM

William Callier Peters 1920 –2019



Dr. William Callier Peters passed away at 98 1/2 years old on February 5th, 2019 at his Soltarra/ La Cholla home in Tucson. He had a long and distinguished career, and was best known for his authorship of the textbook, *Exploration and Mining Geology* and for his Professorship and teaching work at the University of Arizona. His previous private mineral industry work, specifically as Chief Geologist of Bingham Canyon, Utah and Senior Exploration Geologist for FMC Corp. in Denver, Colorado was also significant. He was known internationally for his academic work on Fluorspar and porphyry copper deposits. He produced many publications on numerous technical subjects and had a major impact on the way the geologic community views the geologist's role in exploration for and mining of ore deposits. Bill was a founder of the Mining Club of the Southwest and long-time member of the Foundation and was awarded the Medal of Merit in 1999.

He was named an Honorary member of the Mining Foundation of the Southwest in 2001. Those who knew him were privileged to have witnessed and to have been associated with parts of the important and productive career of such a great scientist and teacher. Bills' wife, Ruth B. Peters, passed away 4 days after he did, and he is survived by his son, Stephen G. Peters in Reno, and several grandchildren and a granddaughter.

HALL OF FAME COMMITTEE MEETING

Date: Tuesday, April 09, 2018

Time: 3:30 p.m. — 4:30 p.m.

Place: ASARCO Training Center, 1150 N. 7th Ave., Tucson, AZ

RSVP: admin@miningfoundationsw.org or 520-577-7519