



MINING FOUNDATION OF THE SOUTHWEST  
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September, 2022  
[www.miningfoundationsw.org](http://www.miningfoundationsw.org)  
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# CONCENTRATES



## 40TH ANNUAL AMERICAN MINING HALL OF FAME

Excitement is all around as the 40th Annual American Mining Hall of Fame Banquet and Awards Ceremony will be back live and in-person at the JW Marriott Star Pass Resort & Spa on December 3, 2022 and promises to be bigger and better than ever as we celebrate this year's nominees and honor mining's past. Be sure to get your tickets and be part of this great event where you will be able to greet new and old friends while networking with your peers and enjoying a great celebration.

[Payment Form \(miningfoundationsw.org\)](http://miningfoundationsw.org)

## SPONSORSHIPS [2022 Sponsors \(miningfoundationsw.org\)](http://miningfoundationsw.org)

Sponsorship for the American Mining Hall of Fame are what will fund our Outreach program and coordinator for the coming year. The MFSW greatly appreciates the generosity of those who have already donated and are listed on our website and below. For those who have contributed in the past, we appreciate your consideration for this year and hope that you will become a sponsor so that the Outreach Program will continue to evolve and stimulate interest and understanding of mineral resources and the mining industry in today's youth.

**DIAMOND:** Komatsu

**PLATINUM:** Epiroc, Freeport-McMoRan, Hexagon, M3 Engineering, and Titan Mining;

**GOLD:** Ames Construction, Asarco LLC, Capstone-Pinto Valley, Doosan Bobcat, Empire Southwest, Independent Mining Consultants, MMSA; Newmont, Ruen Drilling, Rummel Construction, Southwest Energy, SRK Consulting; Westland Resources;

**SILVER :** BGC Engineering, CAID, CalPortland, CEC, CTI, DeConcini McDonald Yetwin & Lacy, P.C.; E3 Strategies, John Fenn, Fennemore, First Majestic Silver, Florence Copper, Golder WSP, Hanlon Engineering, Hudbay (Rosemont Copper), Modular, Next Plan LLC, Pam & Will Wilkinson, Professional Minerals Development, Recon Engineering & Construction, Resolution Copper, Ryerson, Skyline Assayers, South32, TP McNulty & Associates, Tetra Tech, George Tsiolis Law, Tucson Electric Power, Valley Forge and Bolt Company and Wood

**OTHERS:** National Mining Hall of Fame & Museum

## President's Corner

### MESSAGE FROM PRESIDENT, AMANDA BEST, WESTLAND RESOURCES

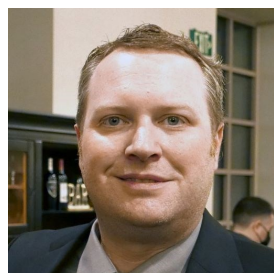


#### Greetings Everyone! Happy Fall!

It has been a rewarding year to date working with the Foundation's Board of Governors and Hall of Fame Committee, and I am pleased with the evolution of the Foundation as we change from the Mining Foundation of the Southwest to the **Mining and Minerals Education Foundation (MMEF)**.

I'm looking forward to seeing everyone at the 40th American Mining Hall of Fame Awards Banquet and Fundraiser on December 3, 2022. The Banquet is part of a weekend-long event at the JW Marriott Tucson Starr Pass Resort & Spa, co-hosted by the Foundation, SME Arizona Conference, University of Arizona SME Student Chapter and AMIGOS. At the Banquet, we will celebrate mining history and honor outstanding accomplishments in the mining industry. As always, we have a fantastic, well-deserved slate of honorees this year. I'm excited to share that evening with our honorees in celebration of them.

Thank you to our sponsors! We now have 49 sponsors and have sold over 312 tickets for the banquet, but we have not yet met our goals, so if you have not done so already, please commit to being a sponsor and purchase your tickets for this event. All proceeds go to Foundation's Educational and Public Outreach Program. Also, thank you to our members! The strength of any organization is in its members. If you are not a member yet, please join the Foundation and support our vital programs. The most popular membership is a Voting membership which has an annual cost of only \$100. [Become a Member \(miningfoundationsw.org\)](https://miningfoundationsw.org)



#### Hall of Fame Chairman

**Robert Tracy, Thyssen Mining**

#### Happy fall everyone!

It seems like 2022 is flying by. Fall is officially here with monsoons winding down and students back in school. This makes it a good time to remember why we come together every year, besides celebrating achievements in our industry with colleagues and friends, it is to support the great work of the Education Outreach Program which Chris Earnest covers in the Outreach Corner below. Thank you for your support so far but if you have not committed yet, there are still opportunities for sponsorships, table reservations, and tickets purchases. Your contributions help fund the Outreach Program. We hope to see you all at the 40th annual American Mining Hall of Fame Banquet on December 3rd at the JW Marriott Tucson Starr Pass Resort & Spa."





# LOWELL INSTITUTE FOR MINERAL RESOURCES



## OUTREACH CORNER BY CHRIS EARNEST



### A Semester full of fun, mining, and minerals.



*Chris, Sofia, John, Juanita, and Mario, join Wilbur the Wildcat for a group photo.*

As the evening cool slowly slinks earlier and earlier, fall creeps up on Southern Arizona. Many school districts prepare for the end of their first term with a well-deserved break and the outreach program is in full swing. The university semester kicked off with the College of Science welcome event in late August. The outreach team had the opportunity to welcome freshmen into the College of Science and to show them the importance of mining and mineral resources to their future. The team also introduced the budding scientists to the many opportunities available to them in the mineral resources industry. The students asked so many questions that the team barely had time for a photo-op with a rather famous wildcat. As August gave way to September the outreach team was busy traveling to schools in Phoenix, Tucson, and Wilcox to present to students who were also starting their school year. With the proliferation of AVID (Advancement Via Individual Determination) classes

at the 6th through 8th grade level, our presentation on careers in mining is in high demand at both middle and high schools. Administrators and teachers are especially interested in showing their students the great opportunities available right here in Arizona that a career in mineral resources provides.

On September 10th the outreach team joined the University of Arizona's MESA (Mathematics Engineering Science Achievement) outreach program at their Advisor Training Institute (MATI) teacher training camp. Hosted at the Biosphere 2 campus, the event brought 45 teachers from all over Arizona together to share and improve essential STEM teaching skills. The outreach program made many great new connections after showing the teachers how mining engineering activities can help break the monotony of endless robots in their engineering classrooms. The outreach program was also happy to join the "We Are Wilcox" community festival on September 14th. Hosted at Wilcox High School and Wilcox Middle School, this event had students and their parents exploring educational and career opportunities while building a sense of community. Chris and John spent the evening helping students refine their own copper while showing parents how mineral resources create their world. Once again, our LED map of Active mines in Arizona was a big hit. A special thanks go out to John and Sofia for drilling the holes for and soldering together the over 150 LED's that went into the map.





## Outreach Cont.



### Upcoming Outreach Events:

**October 8th:** Tucson Meet yourself – Stop by our booth in the courtyard of the Alfie Norville Gem and Mineral Museum as we help Tucson meet mining and minerals!

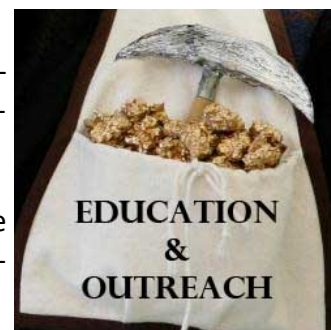
**October 29th:** National Mining Hall of Fame Banquet – Chris will be promoting the outreach program to the wider mining community while accepting the Prazen Living Legend award on behalf of the Lowell Institute for Mineral Resources.

**November 4th:** Arizona Science Teachers Association (ASTA) annual conference – Chris, Sofia, and John will be promoting the outreach program to science teachers gathered from throughout Arizona.

**November 15th:** A very special event on the UArizona Mall – Details to come.

**November 18th:** AZ STEM Adventure at PCC Northwest Campus – The outreach team will be helping 4th through 8th grade students refine their own copper and discover how mining and mineral resources make their everyday possible.

If you have any questions , please don't hesitate to email [Chris@earnest@arizona.edu](mailto:Chris@earnest@arizona.edu)



*In Wilcox, John answers a curious father's questions about mining while a young student uses the interactive LED map of Active mines in Arizona to discover the many mineral resources we mine here.*

## December 3<sup>th</sup> Awards Ceremony to Induct the 2022 Mining's Past Honorees



### Zeno Lightfoot Dili (1893 – 1927)

#### Hoistman and Hero



Zeno Lightfoot Dili was an Apache underground miner from Rice (absorbed by the Town of San Carlos), Arizona. Like many other San Carlos and White Mountain Apache men in the Copper Triangle of Arizona, Dili worked in the copper mining industry. The Apache have a long and proud history in Arizona, and by the early 1900s there were Apache mining camps at Superior, Ray, and Miami, Arizona. Dili, who is still remembered in San Carlos as a selfless man who could always be counted on, worked underground as a cage operator at the Magma Copper Company mine in Superior during the late 1920s. In the early hours of the morning on Thanksgiving Day in 1927, a devastating fire broke out in the Magma No. 2 shaft, entrapping forty-nine men underground at the 500-ft level. Following frantic attempts to contact the trapped miners, Dili heroically offered to go down the mine to establish contact. While taking the cage back down to the 500-foot level to rescue other trapped miners, the cable snapped, and Dili was lost. Dili's ultimate sacrifice was noted from Arizona to Washington D.C. where it was stated that "his name is written on the roles of those who gave their all." Dili was posthumously honored with a gold medal for his bravery and heroism by the Joseph A. Holmes Safety Association in 1935. Dili and other Apache miners' contributions to the mining industry should be remembered as an important part of Arizona's mining history.



### J. C. "Buck" O'Donnell (1901 – 1969)

#### Illustrator and Miner



Buck O'Donnell was a talented illustrator and cartoonist of late-nineteenth-to-mid-twentieth century mining practices. His drawings were based on his experience, which ranged from mucker to mine superintendent. His experience over an extensive career, involving places such as Butte, Montana, Grass Valley, California, and Utah provided a wealth of subjects. He had an eye for detail, and just happened to have a good sense of humor to go along with it. Subjects that he illustrated included haulage and transport, poetry and cartoons, miners' customs and leisure, mucking and loading, hoisting, prospecting, milling, timbering, shaft sinking, safety, underground lighting, blasting, high-grading, and the Cornish pump. He lived through a technological revolution in mining and was part of it, as manager of Shaft & Development Machines Co. of Salt Lake City, a manufacturer of mining equipment. Here, he made improvements in the Cryderman mucker, and shared a patent for these improvements. He would also travel to mines that had purchased a Cryderman and instructed the mine's crews on how to operate it. Aside from his work with Shaft & Development Machines, he worked for the Anaconda Copper Mining Company at Butte, Montana and the Idaho Maryland Mining Co. in Grass Valley, California.

## December 3<sup>th</sup> Awards Ceremony to Induct the 2022 Mining's Past Honorees

### John Haskell Davis, Jr. (1915 – 1996) Engineer and Designer



John Haskell Davis, Jr. spent his entire professional career in the world of copper mine-concentrator-smelter operations. To this world, he contributed four innovations and much infrastructure. Born in Bisbee, Arizona, Davis grew up in Tombstone and Douglas. He earned a Degree in Mechanical Engineering from Cornell University in 1938. His first job with Phelps Dodge Corp. was assisting the powerhouse foreman in PD's Clarkdale, Arizona smelter. Following combat in Europe during WWII as an Army officer, Davis joined PD's Western Engineering Department and worked on the Ajo smelter and Bisbee's concentrator. In 1957, he began leading Western Engineering as its chief mechanical engineer. He either personally designed or approved staff-drawn plans for PD projects around the world the next 21 years. Davis invented processes creating reformed gas, using it to reduce oxygen-containing copper ores, and producing sponge iron from copper-iron ores. Among his designs were various expansions, especially at Morenci (1969-70), including improvements to the water supply, power plant, aerial tramway, crusher, reverberator and concentrator. In the 1970s, Davis designed electrostatic precipitators and other PD plant modifications to meet changing pollution control laws. He designed and oversaw construction of PD's reactivated plant and residential town at Tyrone, New Mexico and subsequent expansion. He selected the site and decided upon flash furnace technology used for the Hidalgo, New Mexico smelter. It opened in 1976 as the first U.S. copper smelter designed from inception to meet state and national air quality emission standards. Davis retired in 1978 and remained in Douglas. He had served as Douglas Water Commission head from 1954-1965, and continued volunteer work in civic, social and church organizations until his death.



### Donald J. Lunt (1929 – 2019) Mining Historian



Donald J. Lunt was a lifelong Greenlee County, Arizona resident and devoted avocational historian of the old Copper Mountain or Clifton-Morenci mining district. Mr. Lunt was born in 1929 in a small house on D Hill in Old Morenci and lived most of his life in the Clifton-Morenci area. For most of his adult working life, he was employed by the Phelps Dodge Corporation, the former operator of the Morenci mine from 1921 until 2007. In his free time, Mr. Lunt was an avid photographer. Following his retirement from Phelps Dodge in the early 1990s, he spent much of his time working as a local historian with the Greenlee County Historical Society. In this setting, he amassed a large collection of historical photographs, including diverse images of the Copper Mountain district and surrounding area. His expertise in local history was often called upon, and he worked closely with Freeport-McMoRan to identify, organize, and digitize a large collection of glass negative photographs of Clifton-Morenci. In 2018, historians worked with Mr. Lunt and his wife, Josephine, to catalogue his many photographs and, more importantly, to record his knowledge about each one and the scenes and subjects they depict. Mr. Lunt's devotion and love of mining history will live on through his invaluable contributions to the study of one of the most famous copper districts in the West.

# **HALL OF FAME COMMITTEE MEETING**

**Date: Wednesday, October 12, 2022**

**Time: 3:30 p.m. — 4:30 p.m.**

**ZOOM**

**RSVP: [admin@miningfoundationsw.org](mailto:admin@miningfoundationsw.org) or 520-577-7519**





## **MFSW 2022 DONATIONS (\$175,229.00)**

**Mining Foundation of the Southwest (MFSW) President, Amanda pleased to announce the following donations that have been approved by the Board of Governors of the MFSW**

- **College of Science at the University of Arizona**
  - \* Funding support for the Science Lecture Series - \$15,000.00
- **Community Foundation of Southern Arizona**
  - \* Establishment of Legacy Fund - \$25,000.00
- **Arizona Geological Survey**
  - \* Funding for Arizona Mining Review Monthly Live stream Podcasts.—\$2,000
- **Children's Museum of Tucson**
  - \* Donation for Annual Family SciFest Day—1,000.00
- **Donations to the SME student chapters**
  - \* Colorado School of Mines—\$1,500.00
  - \* Montana Technological University—\$1,500
  - \* New Mexico Institute of Mining & Technology—\$1,500
  - \* South Dakota School of Mines—\$1,500.00
  - \* University of Arizona—\$1,000.00
  - \* University of Nevada, Reno—\$1,500.00
  - \* University of Texas at El Paso— \$1,500.00
  - \* University of Utah.—\$1,500.00
- **Donations to the SEG Student Chapter**
  - \* University of Arizona—\$1,000
- **Alfie Norville Gem & Mineral Museum**
  - \* Donation to cover expenses associated with tours for Title I Schools —\$5,000.00
- **The University of Arizona**
  - \* School of Mining & Mineral Resources Outreach program—\$107,629
  - \* Dept. of Mining and Geological Engineering—\$1,000.00
  - \* Donation to sponsor UA MGE mixer at SME —\$2,000.00
- **PIMA JTED Foundation**
  - \* Donation to fund a student scholarship—\$1,000.00
- **SARSEF**
  - \* Sponsorship —\$1,000.00
- **Bullion Plaza Cultural Center & Museum , Miami , AZ**
  - \* Installation of Diorama display —\$2,000.00
- **San Miguel High School**
  - \* Donation in memory of Molly Assenmacher —\$100.00

### **Mission of the MFSW**

**Working to educate the public about mineral resources and the mineral extraction and processing industries while honoring outstanding accomplishments in the mining industry both past and present.**





Focused on the unique professional development needs of mining and mineral professionals in the Southwest, the SME Arizona Conference brings the industry together for educational and networking opportunities. This regional event explores the challenges and opportunities unique to the mining business in the desert southwest. Learn about the latest developments on mining projects and technical innovations in the areas of mining, geology, metallurgy, environmental, new projects, and blasting in the Southwest U.S. and Northern Mexico.

December 4 & 5 2022

JW Marriott Star Pass Resort & Spa

REGISTER AT: [SME Arizona Conference | 2022](#)

**HOTEL RESERVATIONS:** [Society for Mining Metallurgy & Exploration, Incorporated 2022 Arizona Conferenc - Learn about the event and search for hotels \(passkey.com\)](#)

- THE FINAL EVENT OF A "MINING WEEKEND"
- UNIVERSITY OF ARIZONA SME STUDENT CHAPTER GOLF TOURNAMENT –DECEMBER 3
- AMERICAN MINING HALL OF FAME BANQUET PRESENTED BY THE MFSW –DECEMBER 3
- ITS TIME TO RECONNECT





The Annual Diggers & Duffers Golf Tournament is an ongoing tradition for the University of Arizona's SME Student Chapter and acts as our primary fundraiser. Throughout the past few years, we have had a dramatic increase in membership and participation, and were even able to send over 40 students to MINEXCHANGE in Salt Lake City, Utah. The proceeds from this tournament are used to directly help student members experience meaningful professional and educational opportunities. These include sending students to MINEXCHANGE in Denver, the Intercollegiate Mining Games in Australia, and on field trips to mine sites and other educational locations. We wouldn't be able to grow our members into the industrial professionals and leaders of tomorrow if not for your generous contributions. On behalf of the University of Arizona's SME Student Chapter, thank you for registering for the 27th Annual Diggers and Duffers Golf Tournament through Eventbrite!

Registration includes: 18 holes of golf, exclusive goodie bags, T-shirts, unlimited driving range access, golf cart, lunch and more! The link to the Eventbrite is [27th Annual Diggers and Duffers Golf Tournament Tickets, Sat, Dec 3, 2022 at 6:00 AM | Eventbrite](#)

Listed below are our sponsorship levels:

Platinum Sponsorship (+\$8,000), Gold Sponsorship (\$5,000), Silver Sponsorships (\$2,500), Copper Sponsorship (\$1,000), Individual Hole Sponsor (\$250), Donations (\$\$\$?)

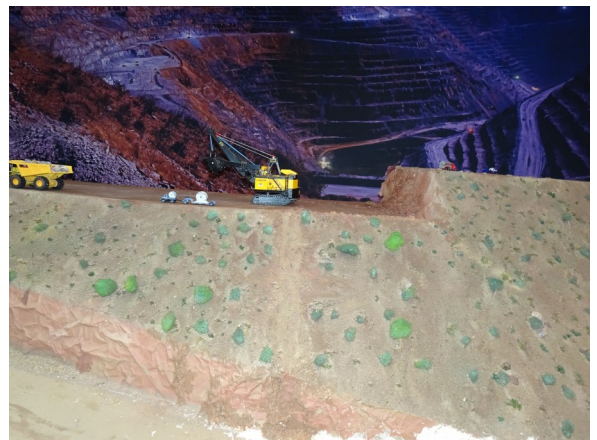
Companies can choose to remain anonymous and receive a tax deduction. If you or your company would like to become a sponsor of the tournament, please email [uofasme@gmail.com](mailto:uofasme@gmail.com)



## WORK CONTINUES ON DIORAMA



Great progress is being made on the Diorama which has been re-located to the Bullion Plaza Cultural Center & Museum in Miami, AZ. Larry Dykers, Jan Rasmussen and other team members have been working diligently retrofitting the diorama to the available space. More info to follow in the coming months.





A poster for a golf tournament. The background is a scenic view of a golf course at sunset or sunrise, with mountains in the distance and saguaro cacti in the foreground. A white silhouette of a golfer is on the right side. The text is overlaid on the image.

women in mining arizona

# GOLF

## TOURNAMENT

and raffle!

in collaboration with

**SLOPE**  
**STABILITY 2022**  
TUCSON, AZ

**OCTOBER 16, 2022**  
**8:00 AM – 3:00 PM MST**

18-hole scramble with course exclusivity on award-winning course at  
**LA PALOMA COUNTRY CLUB**

**\$275** /person. Cost includes lunch and & t-shirt.  
Prizes for top team, Longest Drive & Closest to the Pin.

Proceeds support  **WOMEN IN MINING Arizona** scholarships.

For more info / sponsorship:  
Taylor Dawn 520-204-3035 or  
[taylor@canarysystems.com](mailto:taylor@canarysystems.com)

Contact Taylor Dawn at [taylor@canarysystems.com](mailto:taylor@canarysystems.com) if you are interested in sponsoring





COLLEGE OF ENGINEERING

**Mining & Geological  
Engineering**



## Lacy Lecture Series

Friday, October 28, 2022, 4:00 pm to 5:00 pm , Holsclaw Hall, Fred Fox School of Music

The annual W.C. Lacy Distinguished Lecture is a tribute to Willard C. "Bill" Lacy, the first head of the combined Department of Mining and Geological Engineering at the University of Arizona.

The 2022 speaker will be Mark Chalmers, chief executive officer of Energy Fuels Resources Corporation.

Speakers are chosen for their prominence in, and outstanding contributions to, the mining industry. In their talks, they share personal experiences, examine case studies and offer best practices for the modern mining engineer.



**Addressing Challenges to Mineral Resource Development**

@THE UNIVERSITY OF ARIZONA | NOVEMBER 10, 2022

Sponsored by The University of Arizona Global Mining Law Program, a collaboration of the James E. Rogers College of Law and the School of Mining and Mineral Resources

Sponsored and hosted by The University of Arizona James E. Rogers College of Law Global Mining Law Program and the School of Mining and Mineral Resources.

The 2022 Mining Law Summit continues to examine the challenges to mineral resource development. This year we will look at:

- ◆ innovations in education
- ◆ the use of technology for NEPA compliance
- ◆ challenges in Indigenous rights advocacy
- ◆ new sourcing requirements, and
- ◆ the evaluation of community resistance.

This free virtual conference, on Nov. 10, 2022, will combine recorded presentations from internationally recognized authorities with live participation in answering questions and providing commentary.

Registration is free and open through Nov. 9. [MINING LAW SUMMIT 2022: Addressing Challenges to Mineral Resource Development \(constantcontact.com\)](https://constantcontact.com/mining-law-summit-2022)



In the very near future, we will begin transitioning to our new name.

# **MINING AND MINERALS EDUCATION FOUNDATION**

You will see these changes on our website as we upgrade and re-brand. Our focus on educating the public about the importance of mining and mineral resources will remain our highest priority as we expand our outreach globally.

**We are changing  
our name  
– not our focus**