



EARTHQUAKE

e-Newsletter about what's movin' and shakin' at the Earth Science Museum

Earth Science Museum, 3215 W. Bethany Home Rd., Phoenix, AZ 85017
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August 2018
Volume 7, Issue 8

ESM Outreach Update:

By Mardy Zimmermann, Outreach and Education Coordinator

ESM's Outreach Program was involved in several projects in August. We finished preparing sets of the Teacher/Educational Kits along with organizing and assembling 300+ sample bags of rocks, minerals, and fossils for our outreach endeavor with Earth Science teachers at the Flagg Show in January. In addition, we began active support of several projects involved with our effort to get material to AZ students. The Payson Rimstones are sponsoring a Geology Club at a local elementary school and we supplied that project with lots of hands-on rocks, minerals, and fossils for use with kids, as well as some larger specimens for displays.

While the in-classroom presentations at schools are no longer offered by ESM Outreach, we will support schools whenever we can. This month Lynne Wheeler and I spent 6 hours helping the science teachers at Cooley Middle School sort, organize, and label their materials so they could use them in their classrooms. We are working on gathering the specimens that were missing and will give them the rocks, minerals and fossils that will provide a complete sample.

August also saw us begin to organize and prepare to give away a large amount of rock and mineral material currently stored at Tom Parish's property in Queen Creek. Thus far we have taken out materials we will use for the Payson Geology Club and the Geology Program in Lake Havasu that ESM is

supporting. September will see us becoming very active in dispersing the large amount of available material.



On Saturday, August 4th, Lynne & Terry Dyer participated in an event at the Phoenix Zoo. 173 children and adults dropped by to view and ask questions about their display.

ESM Board Member Escapades, Part 2

Cynthia Buckner - Our tour visited Romania, Bulgaria, Macedonia and Albania. By the way Macedonia just got renamed Northern Macedonia.



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I tried to visit Natural History Museums in each country's capitals (Bucharest, Sofia, Skopje and Tirana) but was only able to visit two museums. The Museum in Bucharest was not recommended due to poor lighting and the Museum in Tirana, Albania was closed down due to non-support.

The Museum at Sofia, Bulgaria had two rooms of rocks and minerals in their collection. And it was in the center of the city and close to our hotel so I was able to walk to it. There were a lot of calcite and lead "galena" minerals in the collection. I saw one sample of Wulfenite from Brazil. The presentation of the collection was very basic. The samples were all in glass cases except for some very large samples of calcite. The lighting could have been better. The only rock shop I saw on the trip was just outside of the museum's main entrance. It was very small shop which could only accommodate one or two people at a time.

The Museum at Skopje, Macedonia was the best museum that I visited. Unfortunately it is located next to the Zoo which is not close to the center of the city. I was impressed with their displays of plants and animals in natural settings. Their presentations were modern and up-to-date. Unfortunately there were very few rocks and minerals in their collection.

Marble table at the Bachhovo Monastery in Bulgaria Our tour group had a nice regional luncheon at this table.



But in one area they had large photo prints on canvas of beautiful geodes, agates, and petrified wood. At least this added a lot of beauty and color to the little they did have. I realize now how lucky we are to live in Arizona where we have access to so many colorful rocks and minerals.

But these countries have one dominate rock product which they excel in using and that is marble. Everywhere in Macedonia and Albania I saw beautiful floors and walls of marble. No wonder the ancient Greeks and Romans loved this area. At a Monastery, we dined on a 30 foot marble table which had been donated to the monastery by a wealthy patron. At the Panorama Hotel in Kruje, Albania I took pictures of the ladies restroom which had floors and walls covered in beautiful light blue streaked marble.



One other thing that surprised me about this area of the world was the mountains. I did not know these countries had that many mountain ranges. In fact, the Southern Alps end in Northern Albania. Someday I want to go back to Albania and visit those Alps in the north.



World Atlas Map of the Alps region

Doug Duffy has been teaching lapidary and silversmithing classes at North Mountain Visitor Center (NMVC) for several years. 54 members of the Maricopa Lapidary Society, Mineralogical Society of Arizona and Daisy Mountain Rock and Mineral clubs along with volunteers from NMVC and the general public have availed themselves of Doug’s expertise.



Once students complete either class, they are welcome to avail themselves of open studio time every Thursday and designated Saturdays from 9-12 for a small, per hour, fee.

Both Lapidary and Silversmith classes are once a week for four weeks from 9-12 with new classes starting at the beginning of most months. Lapidary classes are on Wednesdays and silversmith classes on Saturdays.

Please call Doug at 602-973-4291 to leave a detailed message of your interest in either lapidary, silversmithing or both. ◇

Don’t forget Shirley has scheduled a mineral identification class for Saturday, October 6th at noon at the North Mountain Visitor Center (NMVC), 12950 N. 7th St., Phoenix, as part of the center’s Brown Bag Workshop series. Plan to bring your lunch and participate in her popular presentation. Please email the NMVC volunteer coordinator Cheryl Toloskiewich at cheryltolo@gmail.com to sign up as space is limited. Participants will receive a handout and a special mineral sample. Accompanied children eight and older are welcome. ◇



August Birthstone Peridot
Ray Grant photo

Recently, Daisy Mountain Rock and Mineral Club members Jim Reed, Zack Reed, Clauda Marek, Ed Winbourne, Joe Gecho and Howard Rouse, placed their 18” lapidary slab saw on loan for Doug’s students use.

Morris Jackson
1930-2018



By Charlie Connell

Morris Jackson and I worked at Palo Verde Nuclear Station starting back in 1982. We car pooled and became friends. Morris joined the Arizona Prospectors (APA) in 1986 and I followed him. When we joined the prospecting club, it met at the AZ Mining and Mineral Museum at the state fairgrounds, but in 1991 we moved to 1502 W. Washington along with the museum. The Museum allowed us to meet there for free. We gave the museum a small amount of cash, but felt the need to give back more to the museum. That is when we formed the Monday Crew. This consisted of about 6 to 10 volunteers, mostly APA members.

Morris started building models of mining equipment. It started with building a model of the Boras Headframe that was erected in November 1994 at the Museum and then he built a scale model of the Swallow Mine 5-stamp mill that helped us build the actual stamp mill structure on site. With that Morris decided to build additional stamp mill models of mills that we were working on. He built specifically designed stamp mill models for the Mojave Desert Heritage and Cultural Association located in Goffs, CA, the Cave Creek Museum, the Superstition Mountain Museum, the Douglas Mansion Museum, and Castle Dome all in AZ and South Pass City in WY. He built (4) scale model mill buildings complete with all running equipment that are presently being displayed at Boulder, Colorado, Sterling Hill Museum in New

Jersey, Telluride Mining Museum in Colorado, and Philmont Boy Scout Camp in New Mexico. He assisted in building a hand-cranked 5-stamp mill about 6' tall that was displayed at the AZ Mining and Mineral Museum until the museum was closed in 2011, but is now on display at the Desert Caballeros Western Museum in Wickenburg. The picture below shows the Boras Headframe model, mill building model and



an overshot waterwheel display.

Morris made countless numbers of model stamp mills for private individuals. The stamp mill below was presented to a volunteer at Goffs, CA.

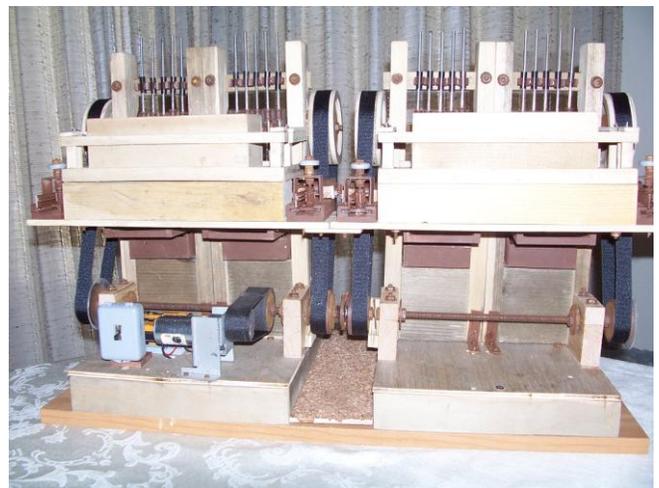


He was an active member of the Monday crew from about 1991 until the museum closed in 2011. He had over 5,000 volunteer hours. He brought with him an expertise that was invaluable and was very helpful in many of the projects including the outside equipment, restoring (12) display cases and constructing dozens of storage shelves and doing anything that needed to be completed. Morris passed away at the age of 88 on August 18, 2018.

**Morris Jackson - Mine Modeler
Extraordinaire**
By Roger Camplin

Morris Jackson was an original member of Charlie Connell's Monday Crew at the former Arizona Mining and Mineral Museum. Charlie and Morris worked together at Palo Verde and became good friends. I met Morris through the Arizona Prospectors Association and became a Monday Crew member too. Morris was easy to get along with, was a good and skilled worker, and had a sly sense of humor that kept you on your toes.

Morris worked with "Charlie's Phoenix Crew" on many Arizona and California stamp mills and other mining equipment but what most people will remember Morris for, is his model stamp mills. He has three of his large versions in buildings, at museums in California, Colorado and New Jersey. He built replicas of the *Superstition Mountain Museum's Cossak 20 stamp* and of the *Mojave Historical and Cultural Association Museum's American Boy 10 stamp* located at those museums. There are dozens of other of his model stamp mills throughout the USA and some foreign countries. I was fortunate to have traveled and bunked with Morris on trips to restore stamp mills and for him to sell his models at various mining related events. Morris was 88 years old when he passed and had had health problems the last few years. He will be missed by the Monday Crew and the Arizona Prospectors Association family along with the many friends and others he met over the years.



Superstition Mountain Museum's Cossak 20-stamp mill model (front and back)



Cossak 20-stamp mill at Superstition Mountain Museum, Apache Junction, AZ
Superstition Mountain Museum photo



AZ Mining, Mineral & Natural Resources Educational Museum Update August 2018

<http://tinyurl.com/SupportMM-NREMuseum>

By Catie Carter

Hi AZ MM&NREM Friends and Supporters,

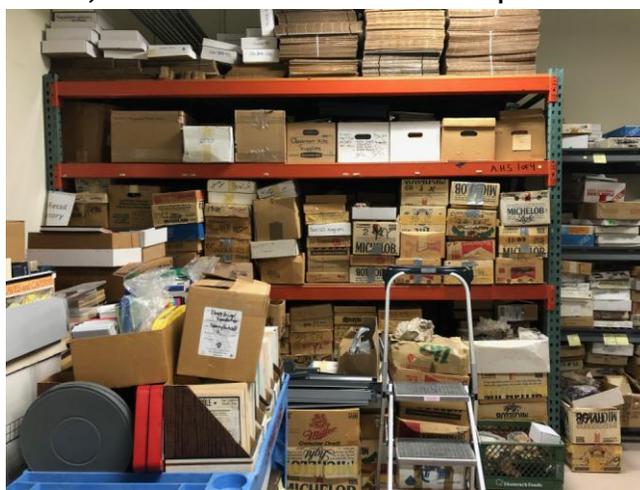
The daunting task of moving has begun! Four intrepid volunteers, Les Presmyk, Claudia Marek, Will Wilkinson, Bill Yedowitz, and I met on Monday, August 27, at the AZ Historical Society building in Tempe to remove several dozen buckets of rocks, some faceting machines and dozens of boxes of printed material and return them to the museum building in Phoenix (3 trucks and 1 SUV worth). This enabled us to consolidate the remaining material and completely empty one room of the two that were being utilized to store gift shop material, library books, journals, magazines, videos, and exhibit supplies. Neither of the other two storage rooms housing the museum's collection was disturbed.

We will need another work day in the coming month or two because we put most of the contents from the trucks on the main gallery floor. The buckets will need to be moved to the pit or one of the storage areas- but that will require a larger amount of volunteers. The plan is still to move everything out of AHS by the end of the year.

Thank you all for your continued support!



Before, with all the buckets of rocks in place!



After consolidation!



If you wish to help at the next museum workday, please contact Charlie Connell at minercon@aol.com or Catie Carter at cscarter@email.arizona.edu.

Support the Museum

Senator Gail Griffin led the way in establishing an account for the museum at the University of Arizona Foundation which can be accessed at the following link:

<http://tinyurl.com/SupportMM-NREMuseum>



Who knew! There were two windows in this room!

Before, the windows were completely blocked!



One room empty, three to go!



Arizona Rocks 63

Text and photos by Ray Grant

Going north from the dinosaur tracks (last month's AZ Rocks) past Tuba City you come to the conveyor belt that carries coal from the coal mine to the railroad and then by train it goes to the Navajo Power Plant. The plant and mine are in the news these days because of possible closure. Black Mesa, where the coal occurs is about 3,200 square miles in area and is underlain by multiple layers of coal. It is estimated that there are billions of tons of coal under Black Mesa.

The coal and surrounding sedimentary rocks are Cretaceous in age. The rocks in Black Mesa were deposited between 80 and 100 million years ago, and during that time the ocean transgressed across the area two times. So these Cretaceous rocks are both marine and near shore deltas and swamps where the coal formed. The main formation that is being mined for coal is the Wepo Formation. It consists of shale, sandstone and coal and was deposited near the shore of the interior ocean. The climate in the area at that time from the fossils found was warm temperate to tropical with hot wet conditions. Sea level was very high at this time and you can see on the map that much of North America was covered by ocean.



Layer of coal that was burning underground, probably started by lightning.

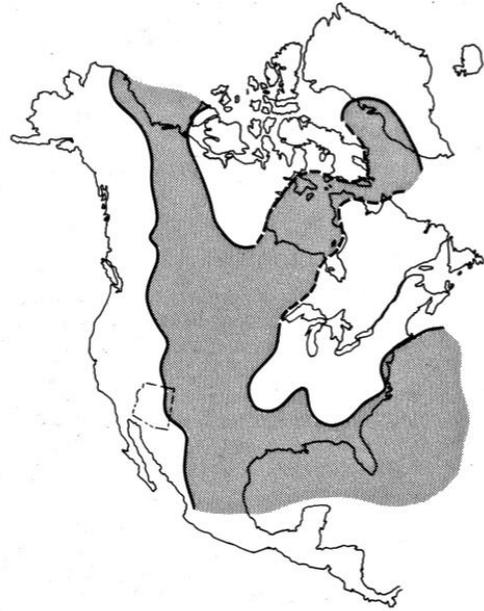


Figure 3. Western Interior Seaway during maximum transgression in Turonian time (modified from Kauffman, 1984).

Map showing the area of North America covered by ocean in the Cretaceous Period



Coal Layer in the Wepo Formation being mined for the Navajo Power Plant



Coal Mine on Black Mesa

AZ Rock & Gem Shows



Mingus Gem & Mineral Club Annual Show

September 7-9, 2018

Fri. 10-5, Sat. 9-5, Sun. 9-4

Admission \$3 adults, seniors and students
Children free

Clemenceau Museum
1 North Willard Street
Cottonwood, AZ



West Valley Rock & Mineral Club Annual Show

October 12-14, 2018

Fri., Sat. 9-5, Sun. 9-2

Admission \$3, Children Free

Buckeye Arena
802 N. 1st St., Miller Road
Buckeye, AZ

<http://www.westvalleyrockandmineralclub.com/>



Huachuca Mineral and Gem Club Annual Show

October 13-14, 2018

Sat. 9-5, Sun. 10-4

Free Admission

Cochise College
901 N Colombo Ave.
Sierra Vista, AZ



Sedona Gem and Mineral Club Annual Show

October 20-21, 2018

Sat. 10-5, Sun. 10-4

Admission: Adults \$3

Children Free

Sedona Red Rock High School
995 Upper Red Rock Loop Rd.
Sedona, AZ

High Desert Helpers Annual Show

November 2-4, 2018

Fri., Sat., Sun. 9-4

Free Admission

High Desert Park
19001 E. Jacie Lane
Black Canyon City, AZ

Payson Rimstones Rock Club Annual Show

November 17-18, 2018

Sat. 9-5, Sun. 10-4

Adults, seniors and students \$2

Children 12 and under free

Longhorn Gym, W. Longhorn Rd. and
N. McLane Rd.



Flagg Mineral Foundation

47th Annual Flagg Gem & Mineral Show

January 4-6, 2019

Fri., Sat., Sun. 9-5

Free Admission

Mesa Community College
Dobson Rd. & Superstition Mtn. Freeway
(Rt. 60)

www.flagshow.info

Rock & Gem Clubs



Apache Junction Rock & Gem Club

Meetings are on the 2nd Thursday
 Next Meeting: September 13, 2018, 6:30 pm
www.ajrockclub.com
 @ Club Lapidary Shop
 2151 W. Superstition Blvd., Apache Jct.



Daisy Mountain Rock & Mineral Club

Meetings are on the 1st Tuesday
 Next Meeting: September 4, 2018, 6:30 p.m.
www.dmrmc.com
 @ Anthem Civic Building
 3701 W. Anthem Way, Anthem



Maricopa Lapidary Society, Inc

Meetings are on the 1st Monday
 (unless a Holiday then 2nd Monday)
 Next Meeting: September 10, 2018, 7:00 pm
www.maricopalapidarysociety.com
 @ North Mountain Visitor Center
 12950 N. 7th St., Phoenix



Mineralogical Society of Arizona

Meetings are on the 2nd Thursday
 Next Meeting: September 13, 2018, 7:00 pm
www.msaz.org
 @ Franciscan Renewal Center,
 5802 E. Lincoln Dr., Scottsdale

Next Meeting



Pinal Gem & Mineral Society

Meetings are on the 3rd Wednesday
 Next Meeting: September 19, 2018, 7:00 pm
www.pinalgemandmineralsociety.org
 @ Artisan Village
 351 N. Arizona Blvd., Coolidge



West Valley Rock & Mineral Club

Meetings are on the 2nd Tuesday
 Next Meeting: September 11, 2018, 6:30 pm
www.westvalleyrockandmineralclub.com
 @ Painted Desert Academy
 2400 S. 247th Ave., Buckeye, AZ



White Mountain Gem & Mineral Club

Meetings are on the 1st Sunday
 (unless a Holiday then 2nd Sunday)
 Next Meeting: September 2, 2018, 1:00 pm
www.whitemountain-azrockclub.org
 @ VFW Hall
 381 N. Central, Show Low



Wickenburg Gem & Mineral Society

Meetings are on the 2nd Friday
 (February & December on the 1st Friday)
 Next Meeting: September 14, 2018, 7:00 pm
www.wickenburggms.org
 @ Coffinger Park Banquet Room
 175 E. Swilling St., Wickenburg



Pinal Museum and Club News

Next Pinal Gem and Mineral Club meeting
Wednesday, September 19, 2018
www.pinalgemandmineralsociety.org

The Museum will be closed for the summer and reopen in September, but tours are possible by calling (520)723-3009 (Coolidge Chamber of Commerce) to schedule a time.

Visit our John Weber Collection!





44TH ANNUAL HUACHUCA GEM, MINERAL & JEWELRY SHOW

OCTOBER 13th & 14th, 2018

SAT., 9:00 AM - 5:00 PM

SUN., 10:00 AM - 4:00 PM

COCHISE COLLEGE

901 N. COLOMBO AVE.

SIERRA VISTA, AZ



FREE ADMISSION - FREE PARKING - HANDICAPPED ACCESSIBLE

Vendors Inside and Outside Educational Displays*Jewelry*Jewelry Making Supplies*Raffles*
Kid's Games*Fluorescent Displays*Geode Sales/Cutting*Free Gem Stone Identification by Certified
Gemologist



Vendor Info - Contact Ingrid Baillie - 520 459-3718, iballie@cox.net

General Info - Contact Maudie Bailey 520 378-6291/520 249-1541,

gmbailey@msn.com



ROCK-A-RAMA

42nd ANNUAL GEM & MINERAL SHOW

NOVEMBER 2 - 4, 2018
FRI 9 - 4, SAT 9 - 5, & SUN 9 - 4



HIGH DESERT PARK
19001 E. JACIE LANE
BLACK CANYON CITY, ARIZONA
EXIT 242 OR 244, WATCH FOR SIGNS

Free Admission, Free Parking
Food & Beverages Available for Purchase
Door Prizes & Raffle



Email: meanerjeaner@aol.com
Or call, text Jean at 623-326-0237

Check out our website at www.highdeserthelpers.org/
or our Facebook site at
www.facebook.com/HighDesertHelpers

ESM's Meeting Notice

ESM's next meeting will be at the Burton Barr library, 1221 N Central Ave, Phoenix, on Tuesday, October 23, 2018, at 6:30 p.m. Room B.

BECOME A MEMBER!
Join the Earth Science Museum's



IS IT TIME TO RENEW YOUR MEMBERSHIP?
Please renew today! 😊😊😊

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**ESM Earth Science Investigation
 Team Membership Form**
 _____ New Member _____ Renewal

Membership levels:

_____ ESI Family \$20

_____ ESI Individual \$10

Membership benefits:

- ◆ Monthly e-newsletter *Earthquake*
- ◆ Official team membership card
- ◆ Knowledge that your contribution is making a difference in earth science education.

MANY THANKS TO OUR MAJOR DONORS!

- AZ Leaverite Rock & Gem Society
- Flagg Mineral Foundation
www.flaggmineralfoundation.org
- Friends of the AZ Mining & Mineral Museum
- Maricopa Lapidary Society
<http://maricopalapidarysociety.com/>
- Mineralogical Society of AZ
www.msaaz.org
- Payson Rimstones Rock Club
- Sossaman Middle School
- White Mountain Gem & Mineral Club
www.whitemountain-azrockclub.org
- Wickenburg Gem & Mineral Society
<http://www.wickenburggms.org>
www.facebook.com/pages/Wickenburg-Gem-and-Mineral-Society/111216602326438
- Staples Foundation
www.staplesfoundation.org
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We're on the Web!

Visit us on  and at:
www.earthsciencemuseum.org

Mission

Our Mission is to excite and inspire all generations about earth sciences through educational outreach.

Vision

We envision a community where students and the general public have curiosity about, passion for, and understanding of the underlying principles of earth sciences.

For more information about the ESM, how to become a member or how to arrange for a school visit or Community function, go to:
www.earthsciencemuseum.org.

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THANK YOU FOR YOUR CONTINUING INTEREST & SUPPORT!!!

**EARTH SCIENCE MUSEUM
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