



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
www.earthsciencemuseum.org, scote@earthsciencemuseum.org, 602-973-4291

August 2017
Volume 6, Issue 8

ESM Outreach Update:

By Mardy Zimmermann, Outreach and Education Coordinator

Four ESM husband and wife team's gathered on Saturday, August 12, 2017, to identify and crush buckets of rocks and minerals for the Outreach Program's teacher/student kits at Mardy & Dick Zimmermann's cabin in Forest Lakes, AZ. The guys, Dick, Scott, Terry and Doug manned the rock crusher run by an old Ford tractor while the gals Mardy, Robin, Lynne and Shirley identified the contents of about 75 buckets.

It was a partly cloudy day with temperatures ranging from 67 to 77 as the day progressed. This was a wonderful treat for those of us that spend the long hot summer in Phoenix.

After the mornings work session, Mardy and Dick treated everyone to a wonderful lunch of sandwich meats, potato salad, vegetables, and fruit topped off with several kinds of cookies for dessert.



Robin and Mardy discussing rock and mineral filled jars for teachers



After a scrumptious lunch provided by Dick and Mardy, the group relaxed and discussed the rock and mineral examples that will be provided to teachers



Terry, Doug, Dick and Scott manning the rock crusher

All photos by Lynne Dyer



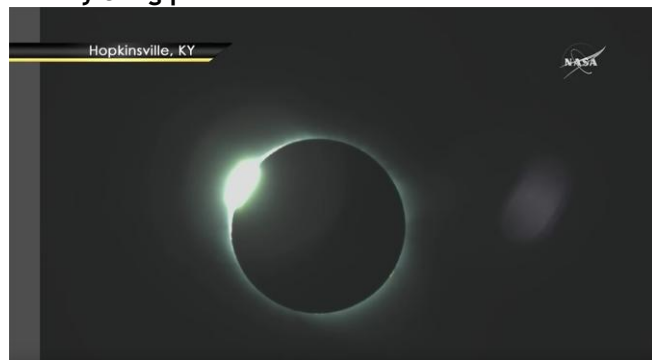
Robin, Mardy, Dick and Doug confer while enjoying the cool air and tall pines of Forest Lakes

Where were you during the Great American eclipse on August 21, 2017?



This image was captured using a Nikon D500 camera with Celestron 1000mm Maksutov telescope with a full aperture solar filter. It was taken a few minutes after the maximum eclipse in Chandler, AZ. The small smudge by the edge of the moon is a sunspot.

Harvey Jong photo



The "diamond ring" effect just before totality over Hopkinsville, KY
NASA photo



iss052e055885 (Aug. 21, 2017) --- Aboard the International Space Station, NASA Flight Engineer Randy Bresnik took still images of the eclipse as seen from the unique vantage of the Expedition 52

crew. Witnessing the eclipse from orbit with Bresnik were NASA's Jack Fischer and Peggy Whitson, ESA (European Space Agency's) Paolo Nespoli, and Roscosmos' Commander Fyodor Yurchikhin and Sergey Ryazanskiy. The space station crossed the path of the eclipse three times as it orbited above the continental United States at an altitude of 250 miles.



iss052e056225 (Aug. 21, 2017) --- As millions of people across the United States experienced a total eclipse as the umbra, or moon's shadow passed over them, only six people witnessed the umbra from space. Viewing the eclipse from orbit were NASA's Randy Bresnik, Jack Fischer and Peggy Whitson, ESA (European Space Agency's) Paolo Nespoli, and Roscosmos' Commander Fyodor Yurchikhin and Sergey Ryazanskiy. The space station crossed the path of the eclipse three times as it orbited above the continental United States at an altitude of 250 miles.



This composite image shows the progression of a partial solar eclipse over Ross Lake, in Northern Cascades National Park, Washington on Monday, Aug. 21, 2017.
NASA photo of the day



Arizona Rocks 51

Text and photos by Ray Grant

Continuing with places of geological interest in the Verde Valley, about 8 million years ago a lake filled the Verde Valley and as the lake water evaporated, different rocks were deposited in the valley (See last month's Arizona Rocks about the salt and evaporite deposits.). Limestone was one of the common rocks formed. A good place to see the limestone is at Montezuma Castle National Monument. Beaver Creek has eroded a cliff in the limestone and ground water has dissolved some of the limestone and alcoves have formed. The Sinagua people built their dwellings in these alcoves from 1100 to 1425 A.D. For more information on history and archeology of Montezuma Castle, go to the National Park website (nps.gov).

At the Monument there is an interesting geological site that unfortunately is not open to the public. It is locally called "Elephant Hill" and there are a series of mammalian track ways there. I was told that they had been buried to prevent vandalism, but I have found some references describing them. Tracks of tapir, camel, mastodon and an antelope-like animal have been found. The area was likely the shoreline of a watering hole. It was a marsh or shallow water and the animals left footprints in the soft sediment. A couple of other track sites are reported in the Verde Valley. Vertebrate fossil remains are not common in the Verde Formation. Rodent and bat teeth and some bones and a few tusk parts from mastodons are all that have been found.



Montezuma Castle and the limestone of the Verde Formation



Mastodon tracks at "Elephant Hill" (This was a slide in the collection at Mesa Community College when I arrived there, no idea of the photographer.)



Montezuma Castle Outdoor Exhibit 1950's
In the mid 1950's an outdoor diorama was constructed near Montezuma Castle. This exhibit is still enjoyed by visitors to the monument today!
NPS photo

AZ Rock & Gem Shows

Mingus Gem & Mineral Club
42nd Annual Show
September 8-10, 2017
Fri. - Sat. 9-5
Sun. 9-4
Adult's \$3
Children free with paid adult
Clemenceau Heritage Museum
1 N. Willard Rd.
Cottonwood, AZ

West Valley Rock & Mineral Club
Helzarockin' Gem & Mineral Show
October 6-8, 2017
Fri-Sat 9-4
Sun 9-2
Adult's \$3 kids under 13 free
Helzapoppin' Arena
802 N. 1st St (Miller Road)
Buckeye, AZ



Huachuca Mineral and Gem Club
43rd Annual Huachuca Gem,
Mineral & Jewelry Show
October 14-15, 2017
Sat. 9-5
Sun. 10-4
Free Admission and parking
Cochise College
901 N. Colombo Ave.
Sierra Vista, AZ



Sedona Gem and Mineral Club
18th Annual Show and Sale
October 21-22, 2017
Sat. 9-5
Sun. 10-4
Admission \$3, Under 12 free
Sedona Red Rock H.S.
Hwy 89A and Upper Red Rock Loop Rd
Sedona, AZ

41st Annual Rock-a-Rama Gem
& Mineral Show
November 3-5, 2017
Fri. 9-4
Sat. 9-5
Sun. 10-4
Free Admission
High Desert Park
19001 E. Jacie Lane
Black Canyon City, AZ

Payson Rimstones Rock Club
Annual Gem & Mineral Show
November 18-19, 2017
Payson High School
Longhorn Gymnasium
301 S. McLane Rd.,
Payson, AZ

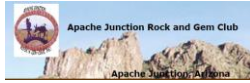


Wickenburg Gem & Mineral Society
Wickenburg Gem & Mineral Show
November 25-26, 2017
Sat 9-5
Sun 10-4
Free Admission
Wrangler Event Center
251 S. Tegner St.
Wickenburg, AZ



Flagg Mineral Foundation
46th Annual Flagg Gem & Mineral Show
January 5-7, 2018
Fri., Sat., Sun. 9-5
Free Parking and Admission
Mesa Community College
West parking lot off Dobson Rd., N. of US 60
Mesa, AZ

Rock & Gem Clubs



Apache Junction Rock & Gem Club

Meetings are on the 2nd Thursday
 Next Meeting: September 14, 2017, 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 5, 2017, 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 11, 2017, 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 14, 2017, 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 20, 2017, 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 12, 2017, 6:30 pm
www.westvalleyrockandmineralclub.com
 @ American Legion Post #53
 402 E. Narramore Ave., Buckeye



White Mountain Gem & Mineral Club

Meetings are on the 1st Sunday
 (unless a Holiday then 2nd Sunday)
 Next Meeting: September 10, 2017, 1:00 pm
www.whitemountain-azrockclub.org
 @ VFW Hall
 381 N. Central, Show Low



Wickenburg Gem & Mineral Society

Meetings are on the 2nd Friday
 Next Meeting: September 8, 2017, 7:00 pm
www.wickenburggms.org
 @ Coffinger Park Banquet Room
 175 E. Swilling St., Wickenburg



AZ Mining, Mineral & Natural Resources Education Museum Update August 2017

By Catie Carter

Hello everyone,

Good news for the MMNRE Museum! The University of Arizona Facilities Management folks have begun taking a closer look at the building at 1502 W. Washington St. and are preparing for renovations. Over the past few weeks, I have met with contractors and operations managers from the UA College of Medicine, located down the street in downtown Phoenix. They will be working with us to assess the HVAC system, electrical wiring, and other elements of the building. This fall, we may begin clearing different rooms and assisting the Arizona Geological Survey with surplusing their stored material.

Earlier this month, I attended a meeting at UA with Brooks Jeffery, Associate Vice President for Research, Dr. Kimberly Espy, Senior Vice President for Research, who heads the Office for Research, Discovery and Innovation, AZGS Director and State Geologist Phil Pearthree, and other UA department heads. Dr. Espy is working on moving forward with the governor-appointed advisory board, which has not yet been declared. Per Senate Bill 1415, this board will include appointees from the House and Senate, representatives from the different natural resource industries, a museum expert, the State Geologist, and representatives from the public. We will keep you updated on the status of the advisory council.

Meanwhile, we are continuing with our Museum without Walls exhibits around the Phoenix area. We recently installed a small

mineral display at the visitor center at McDowell Mountain Regional Park, a Maricopa County Park, and I look forward to expanding our reach to other county parks as well. Next up is a new display at the House of Representatives and “State Symbols” at the Arizona Capitol Museum, in partnership with the Flagg Foundation. Thank you to the Earth Science Museum for generously loaning us a beautiful tabletop case to be used in that exhibit. We are also in discussion with the UA College of Medicine about a joint UA COM-MMNRE Museum exhibit that would connect minerals, mining, and medicine, to be housed at their campus downtown.

Thank you to all our friends, volunteers, and stakeholders for your continued support of the MMNRE Museum. UA is taking an active role in improving the building and I’m optimistic that we will see changes in the coming months. I’ll send out a call for volunteer help when it is time to move things around in the building, and keep everyone updated on new progress.

Regards,

Catie Carter
Curator, MMNRE Museum
UA Research, Discovery & Innovation
cscarter@email.arizona.edu



Minerals on display at McDowell Mountain Regional Park





Pinal Museum and Club News

Next Pinal Gem and Mineral Club meeting
Wednesday, September 20, 2017

www.pinalgemandmineralsociety.org

We have added more cases to the Arizona Minerals exhibit. The Mineralogical Society of Arizona donated six more of the cases similar to the six we already had with Arizona minerals. The new cases have some new minerals on exhibit and should be full soon, so stop by on a Saturday morning and take a look (Open 9 to 12 on Saturdays in August).

The Chamber of Commerce will be open Monday to Friday and when possible will take people around the village. Also, you can email me at raycyn1@mac.com to set up special tours.

A big thank you to the Officers, Board and members of the Mineralogical Society (msaaz.org) for their donation.

On July 23, Nathan Scholten, Chris Whitney-Smith, Cody Schwenk, and Joseph Philpott Jr., set up the new cases.



Unpacking the sheets of glass



Assembling the new cases



Nathan Scholten, Chris Whitney-Smith, Cody Schwenk, and Joseph Philpott Jr., with the newly assembled cases.



Richard Sichling, Nate Sichling, and Robin Moyle hanging the T-Rex skull outside the Museum



Artisan Village of Coolidge presents

INTRODUCTION TO GEOLOGY – MINERAL IDENTIFICATION



DATE: SEPTEMBER 16, 2017

TIME: 9:00AM-NOON

COST: \$20.00 (STUDENTS FREE WITH PAYING ADULT)

LOCATION: PINAL GEOLOGY AND MINERAL MUSEUM, ROOM 2
ARTISAN VILLAGE OF COOLIDGE,
351 N. ARIZONA BLVD., COOLIDGE, AZ

INSTRUCTOR: RAY GRANT

CONTACT: RAYCYN1@MAC.COM

The class will include lecture material and hands on work with specimens. It will cover properties of the most common minerals and how to identify them.

****Next meeting of Gem and Mineral Society Sept. 20 @ 7pm****

PLEASE, PRE-REGISTER NOW AT: WWW.ARTISANVILLAGEOFCOOLIDGE.ORG

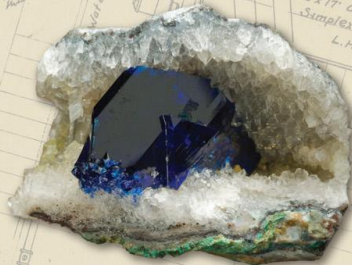


SPONSORED BY THE ARTISAN VILLAGE OF COOLIDGE
351 N. ARIZONA BLVD. – COOLIDGE, AZ 85128
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46TH ANNUAL FLAGG GEM & MINERAL SHOW

JANUARY 5-7, 2018



LINARITE Quartz, Grand Reef Mine, Klondyke, Graham County, Arizona
Dave Bunk Collection - PHOTO: Jeff Scovill



CUPRITE var. Chalkosidichite, Grand Reef Mine, Klondyke, Graham County, Arizona
Dick Morris Collection - PHOTO: Jeff Scovill



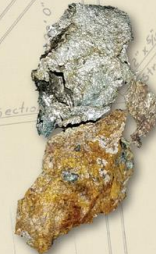
GRAND REEF MINE, 1941
Courtesy of the Arizona Geological Survey



CERUSSITE, Grand Reef Mine, Klondyke, Graham County, Arizona
Michael Shannon Collection - PHOTO: Dawn Boushelle



CALEDONITE, Grand Reef Mine, Klondyke, Graham County, Arizona
Michael Shannon Collection
PHOTO: Dawn Boushelle



SILVER, Grand Reef Mine, Klondyke, Graham County, Arizona
Michael Shannon Collection - PHOTO: Dawn Boushelle

THE GRAND REEF MINE

MESA COMMUNITY COLLEGE
NE CORNER OF US 60 & DOBSON ROAD 9AM - 5PM
THE TAILGATE SHOW TRADITION CONTINUES!

FREE ADMISSION
FREE PARKING
FREE SAMPLES FOR KIDS

FOR MORE INFORMATION
WWW.FLAGGSHOW.INFO
FLAGG MINERAL FOUNDATION P.O. BOX 41834 | MESA, AZ 85274



GRAND REEF HEADFRAME
Calistoga Mining & Dev. Co. Klondyke,
Scale 1/2"=12"
Feb. 28, 1942 J.R. Clarkson

ESM's Meeting Notice

Due to storm damage at Burton Barr Library
ESM's meetings at the library are suspended
until further notice.

BECOME A MEMBER!
Join the Earth Science Museum's



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

----- cut here -----
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.msaz.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
- Anita Aiston
- Stan & Susan Celestian
- Russ Hart
- Will & Carol McDonald
- Debbie Michalowski
- Dennis & Georgia Zeutenhorst

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Earth Science Museum
 3215 W. Bethany Home Rd.
 Phoenix, AZ 85017

Phone:
 602-973-4291

Editor E-Mail:
 scote@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.

We're on the Web!

Visit us on  and at:
www.earthsciencemuseum.org

NOTICE:
 Due to storm damage at Burton Barr Library ESM's meetings at the library are suspended until further notice.

THANK YOU FOR YOUR CONTINUING INTEREST & SUPPORT!!!

**EARTH SCIENCE MUSEUM
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