



Arizona Geological Society Newsletter

AUGUST 2018

AUGUST 7, 2018 DINNER MEETING

Who: This dinner meeting will feature a special film, **Rhodochrosite: Red Treasure of the Rockies - the Story of the Sweet Home Mine**, instead of a speaker. See film synopsis below.

Where: PLEASE NOTE THAT THIS DINNER MEETING WILL NOT BE HELD AT THE SHERATON. Please go to **Borderlands Brewing**, 119 East Toole Avenue, Tucson AZ 85701. There is limited parking at the brewery. There is a parking on the SE side of the building. Please consider using one of downtown Tucson's parking garages at 101 N. Stone, 110 E. Pennington, and 45 N. 5th Ave. Limited metered parking is also available on Toole Ave., Stone Ave., and a metered lot on the NW corner of Stone & Toole.

When: Meeting begins at 6 p.m. with drinks and food. Movie presentation begins at 7 p.m. Event lasts until 9 p.m.

Cost: Free with RSVP on Arizona Geological Society website.

RESERVATIONS ARE REQUIRED: Reserve a spot on the AGS website (<http://www.arizonageologicalsoc.org/events>) by **Monday, August 6th**. Please cancel by **Monday, August 6th** if you are unable to attend.

The August dinner meeting is sponsored by:



If you are interested in sponsoring the dinner meeting, please email:
vpmarketing@arizonageologicalsoc.org

Feature Film

Rhodochrosite: Red Treasure of the Rockies - the Story of the Sweet Home Mine

Narrated by Karl Mecklenberg

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Our regular August dinner meeting has been canceled in lieu of a special event, which will be held at Borderlands Brewing (119 East Toole Avenue, Tucson AZ 85701) on Tuesday, August 7, 2018 between 6 and 9 p.m.

Members of the Arizona Geological Society as well as members of the public are invited to come out and view a video on the Sweet Home Mine and have a good time, drink some beer, eat some snacks, and "talk rocks".



ABOUT THE FILM

This video tells the story of the Sweet Home Mine from its beginning as a modest, 1870s silver mine to its rebirth as a world-renowned source of crystal specimens. Experience hard rock mining up close. Watch miners within Colorado's 14-thousand foot Mount Bross as they drill and blast trying to find elusive pockets of natural riches. Learn how science guides the underground treasure hunt. Follow geologists as they try to unravel the mysteries of the ancient mountain. See some of the most spectacular natural wonders ever brought to light. Several of these mineral specimens will sell for over a million dollars each in today's market.

The cumulative value of the rhodochrosite specimens recovered from the Sweet Home mine over the years probably exceeds \$100 million, and the mine is clearly the world's premier source of fine rhodochrosite. All in all, that's not a bad record for a "failed" silver mine.

Arizona Geological Society Executive Committee: Slate of Officers for 2019

Good Day All:

The Arizona Geological Society (AGS) is searching for volunteers to serve on the 2019 AGS Executive Committee. All officers, with the exception of councilors, serve for one (1) calendar year. Councilors serve for three (3) years. Don't be shy, self-nominations are common and acceptable. The following offices require candidates:

President

Vice President of Programs

Vice President of Field Trips

Vice President of Marketing

Treasurer

Vice Treasurer

Vice Secretary

Two (2) Councilors

In addition to the executive committee, the Arizona Geological Society is seeking someone to take charge of the AGS website.

During the coming year, the AGS will be involved in two new exciting projects, the University of Arizona's Gem and Mineral Museum in downtown Tucson and the Geological Society of America's Annual Meeting in Phoenix, Arizona. The Society's success in carrying out its mission depends on its members' willingness to contribute to these and other endeavors. In addition to the satisfaction of knowing your efforts make a difference in our local world, you will gain a wider group of friends and colleagues and the appreciation of all AGS members. Take a moment to consider what you can do to help the Society accomplish its mission. You can self-nominate and you can nominate others, but you should contact that person prior to nominating them to gauge their interest in serving.

AGS Background: Founded in 1948, the Arizona Geological Society has been a leader in Arizona geology for seventy years. During this period it has published 22 Digests and more than 90 field trip guides. This success is solely attributed to the work of its members, who have volunteered their time to conduct its business. Over the years, older members have been succeeded by younger professionals, whose active participation in Society activities has benefited both the AGS and their professional careers. The final proposed slate of officers for 2019 will be announced in the September 2018 newsletter.

Should you have questions, please contact any officer. You can reach me at davidfbriggs@aol.com or (520) 784-3954.

Thank you,

David F. Briggs

Past President, Arizona Geological Society

Visiting Fissure 8 on the Big Island, Hawaii

By Leandra Marshall, AGS Secretary

Greetings, AGS Members! As many of you know, my vacations are generally dedicated to visiting volcanoes and volcanic areas. This July I decided to visit the Hawaiian Lower Eastern Rift Zone (LERZ) to see Fissure 8's activity firsthand, where I booked a doors-off helicopter flight over the current eruption and snapped a bunch of amazing photos. I absolutely recommend doors-off helicopter rides whenever possible. Not only I was able to feel the immense

heat radiating off of the fissure vent and lava channels, I even got a concentrated whiff of the sulfur plume that left me coughing! (I personally considered it the best part of my volcano experience!) It was astounding to see the scale of the Fissure 8 eruption (tephra cone and lava channels) beside man-made structures such as houses, cars, and roads.

At the time of these photographs, the effusion rate was something like 100 cubic meters of lava per second, or 9 million cubic meters of lava per day! No eruption in



Hawaii has produced this much lava since at least the 1800s.

To read the latest eruption updates from the USGS, please visit

<https://volcanoes.usgs.gov/observatories/hvo/>

More photos of my helicopter overflight can be found on the following pages. Please enjoy, and contact

leaxmars@gmail.com if you have questions!



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Top Left:

The distinctive a'a lava clinker texture was visible from the helicopter overflight. The lava temperature was also hot enough for a molten orange glow even in the daytime.

Right:

Previous flows from the rift eruption threatened the island's geothermal plant, Puna Geothermal Ventures.



Bottom Left:

A'a lava flows travel in channels. This lava channel flows about 7 miles before meeting the ocean.



Left and Bottom:

Fissure 8 erupts lava into the perched channel leading northeastward from the vent towards ocean entry. The cone was about 180 feet tall.



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Left and Bottom:

Lava channels flow toward the ocean, resembling braided streams and rivers.





Top Left:

Lava flows have added over 700 acres of new land to the Big Island.

Right:

Lava enters the sea, creating toxic laze plumes at the points of entry. Laze is composed of hydrochloric and hydrofluoric acids, as well as volcanic glass particles.



Bottom Left:

Erosional features and residues are visible from the top of cooling flows at the point of sea entry. Residues come from lava and water interactions; acidic solutions are eroding and coating the rock.

AZGS Releases Natural Hazards in Arizona Viewer with

Statewide Landslide Theme



The Arizona Geological Survey released an improved interactive Natural Hazards in Arizona Viewer 2.0 that includes a statewide landslide theme. The original Natural Hazard Viewer focused on Pleistocene-Holocene faults and earthquakes, earth fissures, floods, and wildfires. Version 2.0 includes landslides - displaying the distribution and areal extent of more than 8,000 landslide features covering more than 800 square miles.

Each year natural hazards - floods, landslides, and wildfires - threaten Arizona communities and cause millions of dollars in damage to infrastructure and private property. The revised Natural Hazards in Arizona viewer, developed by the Arizona Geological Survey in cooperation with the Arizona Division of Emergency Management, makes identifying and mitigating natural hazards in Arizona easier.

The Natural Hazard in Arizona Viewer serves county planners, county and municipal emergency management offices, water district managers, federal, state, tribal, county and municipal governments, and the public. The “Find Local Hazards” tool allows individuals to identify local hazards from less than one mile to up to a 15-mile radius from a specific address.

The Viewer is complemented by ‘best practices’ mitigation strategies (About) for avoiding loss of life, minimizing personal injuries, and property damage.

The Federal Emergency Management Agency (FEMA) provided funding for initial design, construction, and deployment of the site.

See the Natural Hazards in Arizona Viewer here:

<http://uagis.maps.arcgis.com/apps/webappviewer/index.html?id=98729f76e4644f1093d1c2cd6dabb584>

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New AZGS Publication: Cretaceous Tectonic Setting of Colorado Plateau

New AZGS Contributed Report (CR-18-G) ~ Notes on the Cretaceous and Laramide of the Colorado Plateau by William R. Dickinson.

William R. Dickinson was in the process of preparing a comprehensive publication on the Mesozoic stratigraphy and tectonic setting of the Colorado Plateau when he died abruptly while on a geoarchaeological expedition to Tonga (Spencer, 2016). The book was largely written and the completed chapters were published posthumously by the Geological Society of America (Dickinson, 2018).

Dickinson had drafted figures and written figure captions and some text for three additional chapters that were not included in GSA Special Paper 533. The topics of those three chapters are as follows:

- Lower Cretaceous Cedar Mountain – Burro Canyon deposystem
- Upper Cretaceous Mancos – Mesaverde deposystem
- Laramide Orogeny

Direct link to AZGS repository digital copy of Dickinson 2018: http://repository.azgs.az.gov/uri_gin/azgs/dlio/1892

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Arizona Geological Society is grateful to Freeport-McMoRan, Inc. for their generous support of our student members!

Freeport-McMoRan sponsored student dinners for the 2018 AGS monthly meetings.



AGS MEMBERSHIP APPLICATION OR RENEWAL FORM

YOU CAN RENEW OR SIGN UP as a new member and pay online. Please go to our website, arizonageologicalsoc.org. Or use the form below if you are more comfortable with the old school approach.

Please mail check with membership form to: Arizona Geological Society, PO Box 40952, Tucson, AZ 85717

Dues (check box) 1 year: \$35; full-time student (membership is free)

NEW MEMBER or RENEWAL? (circle one) Date of submittal _____

Name: _____ Position: _____

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All newsletters will be sent by email. If you do not have an email address, we will mail a hard copy to you, but we cannot guarantee timeliness.

If registered geologist/engineer, indicate registration number and State: _____

Enclosed is a _____ tax-deductible contribution to the J. Harold Courtright or the M. Lee Allison Scholarship Funds.