



Arizona Geological Society Newsletter

AUGUST 2016

August 2, 2016 DINNER MEETING

Who: Lee Allison will present “The Future of State Geological Surveys: the Arizona Case Study”

Where: Sheraton Tucson Hotel and Suites, 5151 East Grant Road, (at the intersection of Grant and Rosemont on the North side of Grant in the *PIMA BALLROOM* (enter at northwest corner of the building) and go upstairs to the meeting room.

When: Cash Bar at 6 p.m.—Dinner at 7 p.m.—Talk at 8 p.m.

Cost: Members \$30, Guests \$33, Students Members free with on-line reservation (\$10 without).

RESERVATIONS ARE REQUIRED: Reserve on the AGS website (www.arizonageologicalsoc.org) by **11 a.m. Friday, July 29th**. Please indicate Regular (Oregano & Thyme Seared Chicken Breast), Vegetarian, or Cobb Salad meal preference. Please cancel by **Friday, July 29th at 11 a.m.** if you are unable to attend - no shows and late cancellations will be invoiced.

**The August Dinner Meeting is Sponsored by National Expl.,
Wells and Pumps**

National

**The AGS is grateful for National’s Sponsorship, which helps us offset
the increasing costs of our dinner meetings and other activities of the society.**

The Future of State Geological Surveys: the Arizona Case Study

By Lee Allison, State Geologist & Director, Arizona Geological Survey

The Arizona Geological Survey lost its funding as a state agency on June 30, 2016 and its duties transferred to the University of Arizona, as a consequence of Governor Doug Ducey’s initiative to consolidate and downsize state government and provide annual tax cuts.

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While the Governor's office assured stakeholders the Surveys staff, assets, and capabilities would remain intact, their expectation was that the University would assume all the costs for the Survey operations. The University however, expected to receive an additional state appropriation for taking on what had been state service duties. Despite no funding specifically appropriated for AZGS, UA is providing partial funding to AZGS for one year. By July 2017 the Survey must become fully self-supporting, through grants, contracts, and fees for services. What is currently available for free, such as online earth fissure maps, mining files, and publications, may soon be put behind a paywall.

Our office space at UA is approximately one-quarter the size of its former state offices, limiting the ability to house staff, files, and records. Consequently, AZGS closed its Phoenix branch office, shut down the Arizona Experience store, and both libraries. About half of the Tucson library was given away to university and state libraries, professional societies, individuals and companies. More than 25,000 topo maps were given away in the last days before the state offices were vacated. However, about one-fourth of the library and 5-10,000 topo maps went into the dumpster. The staff has reduced by one-third since the Governor announced the consolidation, due to uncertainties over the future of the Survey, and layoffs are anticipated due to the loss of revenues, reducing the staff by another 15-20%. The AZGS Economic Geology has lost all of its staff, which is ironic as Arizona is the number 1 non-fuel mining state in the country.

State geological surveys across the country are facing unprecedented challenges. The Colorado Survey lost its state funding, found a home at the School of Mines and is rebuilding as the state has incrementally refunded the agency as lawmakers discovered the loss of critical functions. The Nevada Survey lost 50% of its funding during the Great Recession but again, is rebuilding as critical functions are being restored. The Illinois Survey, the largest in the nation, has lost 20% of its funding due to state budget issues. Nationwide, state survey employment is in long term decline as is the proportion of state funding. This is increasingly challenging, as there are few grant opportunities to fund what are viewed as state service functions.

AZGS stakeholders in industry and government are now urging restoration of ongoing base funding through a line item in the UA budget for Fiscal Year 2018, as part of efforts to preserve Survey functions and assets.

**About the August Dinner Speaker**

Lee Allison was appointed State Geologist and Director of the Arizona Geological Survey in 2005, which transferred to the University of Arizona in 2016. Previously, he served as State Geologist in Utah and Kansas. He was Policy Advisor for Science and Energy to Gov. Kathleen Sebelius of Kansas. He has extensive experience in petroleum exploration and development. He holds BA, MS, and PhD degrees in geology and has extensive experience for natural resource exploration and development. Lee is the host of the online video magazine, "Arizona Mining Review." He is a global leader in cyber-infrastructure for the geosciences including coordinating the 15-nation Belmont Forum e-Infrastructure and Data Management initiative.

Fall 2016 Field Trip Planned for October 22 & 23 ± 24, 2016

Leader: Charles Ferguson, Arizona Geological Survey



Cathedral Rock in the heart of the Silver Creek Caldera. The outcrops are Times Granite Porphyry cutting intracaldera facies of the Peach Spring Tuff., which is partly megabreccia.

The Fall 2016 field trip will examine the Peach Spring Tuff, its source, the Silver Creek Caldera and structural geology across the Transitional Zone, Basin and Range boundary from Kingman, Arizona to Needles, California.

The trip will begin at Kingman, where the outflow facies of the Peach Spring Tuff is exposed. It will then head over to the Oatman mining district in the Black Mountains, where the rocks, structure and mineralization within and around the Silver Creek Caldera will be examined. A third optional day (24th) will focus on the detached sector of the Silver Creek Caldera, which is located in the Sacramento Mountains of eastern California.

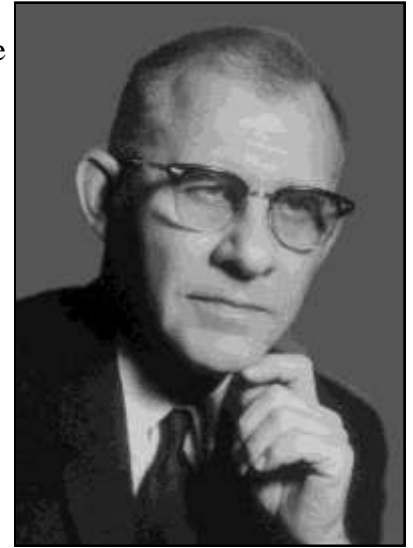
More detailed information about this field trip will be available in the September news letter and on the [AGS web site](#) as it becomes available.

AZ Geological Society Members' Contributions to Geology

Since the Arizona Geological Society was founded in 1948, many of its members have made notable contributions to the science of geology and related fields. This month's newsletter recognizes the contributions of Kenyon E. Richard and James Harold Courtright. Both served as President of the AGS, Kenyon Richard in 1959-60 and Harold Courtright in 1968-69.

Kenyon E. Richard (1915-1993)

Born in San Francisco in 1915, Kenyon Richard received a B. S. degree in geology from the Mackay School of Mines in 1937. Following graduation, he joined Consolidated Coppermines' Robinson operation in Nevada, where he rose to the position of Chief Geologist. Kenyon joined ASARCO, Inc. in 1945 and became ASARCO's Chief Geologist in 1963. He managed ASARCO's world-wide exploration efforts until his retirement in 1967. Kenyon went on to work as a consultant for the United Nations and a number of other mining companies until 1978.



While working in Tucson, Kenyon and Harold Courtright perfected exploration techniques for identifying buried porphyry copper systems. Their efforts lead to the discovery, development or expansion of a number of world-class deposits. Deposits which Kenyon is known to have been associated include: Silver Bell, San Xavier, Sacaton/Santa Cruz, Florence and Mission in southern Arizona, East Jersey in British Columbia, Toquepala, Quellaveco, Michiquillay, Toromocho and Morococha in Peru, and Santo Tomas and El Arco in Mexico and Taysan in the Philippines.

James Harold Courtright (1908-1986)

A son of miner, James Harold Courtright was born outside of Yakima, Washington in 1908. Although he studied at Sacramento Junior College and the Mackay School of Mines, he never earned a degree due to financial constraints. Courtright joined the geological staff at Consolidated Copper Mines' Robinson operation in 1941, where he began his close association with Kenyon Richard. He joined the ASARCO staff in 1945 and was appointed Chief Geologist in 1970. Harold retired in 1974.



Courtright contributed to the discovery, development and/or expansion of many ore deposits, including: Silver Bell, Mission, San Xavier, Sacaton/Santa Cruz and Florence in southern Arizona, East Jersey deposit in British Columbia, Toquepala, Quellaveco and Michiquillay in Peru, and Santo Tomas, El Arco and Concepcion del Oro in Mexico.

Refinements of leached capping interpretation by Harold Courtright and Kenyon Richard combined with their use of the drill as the primary exploration tool contributed to their exploration successes. Courtright's approach to exploration geology is best summarized by his advise to a young geologist - "a geologist has just two tools, boot leather and a drill."

Geology in the News

[Arizona Appeals Court Sides with Rosemont Mine over Air Quality Permit](#); by Ton Davis, Arizona Daily Star, June 12, 2016.

[Colorado City's July 4th Shaken by Earthquakes](#); by Lee Allison, Arizona Geology, July 12, 2016.

[94 Million-Year-Old Climate Change Event holds Clues for Future](#); Florida State University, Science News, June 22, 2016.

[Massive Landslide Crashes into Glacier in Southeast Alaska](#); by Tegan Hanlon, Alaska Dispatch News, July 2, 2016.

[Arizona Mining Continues Taylor Deposit Expansion—HDS-348 Intersects 31 feet Grading 28 Opt Silver, 8.8% Zinc, 6.1% Lead and 1.5% Copper](#); Arizona Mining, Inc., News Release, July 6, 2016.

[Detroit Copper Co. was First Operation Clifton-Morenci District](#); by William Ascarza, Arizona Daily Star, June 26, 2016.

[State's Economic Growth Slowed in 2015, as Mining, Copper took a Hit](#); by Wafa Shahid, White Mountain Independent, July 12, 2016.

[EPA to Begin Long-Term Stabilization Work Saturday at Gold King Mine](#); by Jesse Paul, Denver Post, July 8, 2016.

AGS Digest 22, Ores and Orogenesis Now Available On-line

The proceedings volume from the 2007 Ores and Orogenesis: Circum-Pacific Tectonics, Geologic Evolution, and Ore Deposits Symposium is now available on-line at [Arizona Geological Society Digest 22](#).

Arizona Geological Society Membership Stats (7/16/2016)

Total Membership	Professional Members	Student Members	Organizational Members
454	376	71	7

Up-coming Arizona Geological Society Dinner Meetings

Date	Speaker	Title of Presentation
9/6/2016	Keith Long	No Bonanza from Cheap Oil
10/4/2016	Hamish Martin	The Resolution Copper Deposit, Superior, Arizona: Progress in Understanding the Geology, Ore Genesis and Mine Development
11/1/2016	Alexander Schauss	Minerals, Trace Elements and Human Health



On 5 July, and with the help of 25 volunteers, including Nyal Niemuth and Diane Bain, we re-shelved the holdings of Arizona Geological Survey's Phoenix-based library in the Copper Gallery of the old Mines and Mineral Museum. Photo by M. Conway

Update on the Mining, Mineral & Natural Resource Education Museum in Phoenix, Arizona

On 6 August 2016, AZGS takes possession of the historic Polly Rosenbaum Building on the Government Mall in downtown Phoenix, Arizona. We are charged with designing, building and operating the *Arizona Mining, Mineral & Natural Resource Education Museum*. The museum facility is accompanied by a collection of 20,000+ minerals, including world-class specimens from historic Arizona mines and mining districts, currently curated by the Arizona Historical Society.

In advance of the acquiring the museum, we are sounding out curators of mineral and natural resource museums on funding opportunities and how best to get started.

Background: For decades, the 27,000 square ft. Rosenbaum Building housed the Arizona Mining and Mineral Museum. That museum closed in 2011 due to a shortfall in the state budget and to a failed attempt to repurpose it as the Arizona Centennial Museum.

AZGS Update – Now at the University of Arizona

On 1 July 2016, the Arizona Geological Survey formally transferred to the College of Science at the University of Arizona. We are now ensconced on the second floor of the Arid Lands Building at 1955 E 6th Street, P.O. Box 210184, Tucson, AZ 85721.

We have new e-mail address and phone numbers. For a listing of current staff and their contact information, please visit our AZGS Staff page: <http://www.azgs.az.gov/staff.shtml>. For general information, or to reach out to our staff, please call (520) 621-2470, from 8am – 5pm Monday through Friday.

Retired. Dr. Steve Richard, Mr. Nyal Niemuth, and Ms. Diane Bain all retired in June 2016.

Our move to the UA fermented some disruption in our services as computer servers, e-mail, and telephone numbers were transferred. Our web and map services are once again in place and functioning properly.

Our primary web sites:

- AZGS portal page – <http://www.azgs.az.gov/>
- AZGS Online Document Repository - <http://repository.azgs.az.gov/>
- AZGS Mining Data Site - <http://minedata.azgs.az.gov/>
- National Geothermal Data System - <http://geothermaldata.org/>
- Online Bibliography of Arizona Geology - <http://www.azgs.az.gov/AZGEOBIB.shtml>
- AZGS Online Map and Database Services - http://www.azgs.az.gov/map_services.shtml
- Natural Hazards in Arizona viewer - <http://data.azgs.az.gov/hazard-viewer/>

Please alert us at your convenience if you should encounter any problems with our web sites.

Stay tuned to Lee Allison's [Arizona Geology blog](#), [AZGS Facebook](#) or [AZGS Twitter](#) account for updates on AZGS going forward in 2016.

July 2016 News Advisories

7/07/2016 AZGS Social Media – a prolific outreach tool

7/04/2016 ML 3.0 and ML 2.5 earthquakes rattle Colorado City, Arizona.

5/05/2016 ML 3.8 Earthquake rattles northwestern Arizona

Arizona Geology e-Magazine (6/20/2016) [AZGS moving out of state government to the Univ. of Arizona.](#)

Arizona Mining Review, July 2016 - To be announced.

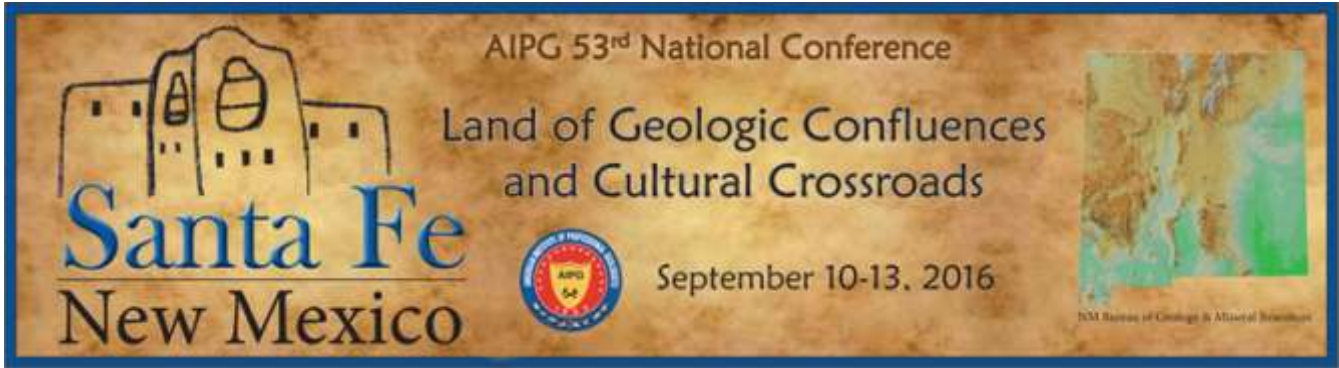
AZGS Publications: Online at the [AZGS Document Repository](#)

Hahman, W.R., Sr., Stone, C. and Witcher, J.C., 1978, [Preliminary Map: Geothermal Energy Resources of Arizona](#). Arizona Bureau of Geology and Mineral Technology, Map 15-1 (Geothermal Map No. 1), 1 map sheet, map scale 1:1,000,000

Bezy, J.V. and Trevena, A.S., 2000, [Guide to the Geologic Features at Petrified Forest National Park](#). Arizona Geological Survey Down-to-Earth #10, 48 p.

Amann, Jr., A.W. and others, 1998, [Ice Age Mammals of the San Pedro River Valley Southeastern Arizona](#). Arizona Geological Survey Down-to-Earth #6, 32 p.

For a copy of the new Inspector General's 19 page report, "Scientific Integrity Incident at USGS Energy Geochemistry Laboratory", http://repository.azgs.az.gov/uri_gin/azgs/dlio/1684



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



FREEPORT-McMoRAN

Freeport-McMoRan sponsors student dinners for the 2016 AGS monthly meetings.

2016 AGS MEMBERSHIP APPLICATION OR RENEWAL FORM

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

Dues (check box) 1 year: \$20; 2 years, \$35; 3 years: \$50; full-time student (membership is free)

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

Name: _____ Position: _____

Company: _____

Mailing Address: _____

Street: _____ City: _____ State: _____ Zip Code: _____

Work Phone: _____ Home Phone: _____

Fax Number: _____ Cellular Phone: _____

E-mail: _____ Check this box if you do not have an email address

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 Arizona Geological Society Scholarship Funds.