



AGS NEWSLETTER

ARIZONA GEOLOGICAL SOCIETY, INC., TUCSON, ARIZONA

December 2009

December 1, 2009 DINNER MEETING

Our Miserable Future

Lawrence Krauss, Arizona State University

Over the last decade our picture of the universe has changed almost as much as it had in the preceding century. As a result, our picture of the future, both of the universe, and life within it, has dramatically altered as well, as I shall describe here. I will begin by reviewing the recent revolutionary developments in cosmology, and then address several fascinating questions that have arisen as a result of our discovery that the dominant energy of the universe resides in empty space:

- Can life be eternal in an eternally expanding universe?
- Are the laws of physics tailored for the existence of life?
- What will science in the far future tell us about the universe?

Professor Krauss's books will be on sale and will be autographed by him before and after his talk, but not during dinner (7-8 PM).

AGS Awards J. Harold Courtright Scholarship

The Arizona Geological Society announces the award of the J. Harold Courtright Scholarship to Jeff J. Geier, a student working on an M.S. in geology at Arizona State University. The title of his study is *Timing and Structural Control of Gold Mineralization, Santa Gertrudis Mining District, Sonora, Mexico*. Jeff's thesis advisor is Steve Reynolds. The award, in the amount of \$2,000, is intended to help defray thesis-related expenses. The award will be presented at the AGS December dinner meeting if Mr. Geier is able to attend.

In evaluating proposals, the AGS Scholarship Committee considers the scientific significance of the proposed research, the applicability of the research methodology to the problem at hand, and the likelihood that research goals can be achieved.

Harold Courtright had a life-long interest and career in mining and geology. He honed his field mapping skills and porphyry copper exploration techniques in the Northern and Southern Cordillera and was instrumental in discovering some of the better-known porphyry copper deposits in Arizona and Peru, including Silver Bell and Toquepala.

The scholarship fund, set up by the Arizona Geological Society after the death of J. Harold Courtright in 1986 and largely funded by AGS member contributions, is designed to promote graduate research in all geology fields with special emphasis on field geology, economic geology, and the study of ore deposits. Graduate students working towards a degree in the geological sciences at Arizona State University, Northern Arizona University, and the University of Arizona are eligible to apply.

Governor Brewer Opposes Withdrawal of Federal Lands in Northern Arizona from Mineral Exploration and Mining

In a four-page letter to Interior Secretary, Kenneth L. Salazar, Arizona Governor Jan Brewer stated her opposition to the proposed withdrawal of 993,549 acres of Bureau of Land Management and U.S. Forest Service Systems lands. The letter, dated October 30, 2009, spells out the many reasons why the proposed withdrawal of lands "to protect the Grand Canyon watershed from adverse effects of locatable hardrock mineral exploration and mining" is unnecessary to protect the Grand Canyon region and Colorado River. Governor Brewer also relates the adverse impacts such a withdrawal would have on the State of Arizona and the nation.

The withdrawal is aimed at eliminating exploration for, and mining of the uranium breccia pipes that populate large sections of the plateau in northern Arizona.

December Dinner Meeting — Sheraton Four Points, Conference Center 1900 E. Speedway Blvd., Tucson, AZ

(DINNER SALAD, NO-SALT, AND VEGETARIAN/VEGAN MEALS ARE AVAILABLE UPON REQUEST.)

RESERVATIONS ARE REQUIRED. PLEASE CALL 520-663-5295 BEFORE NOVEMBER 27, 2009, OR MAKE YOUR RESERVATION ON LINE AT THE AGS WEB SITE UNTIL MIDNIGHT, NOVEMBER 29, 2009.

Cash Bar @ 6 pm

Dinner @ 7 pm

Talk @ 8 pm

Cost: Members \$24, Guests \$27, Students \$10

A NNOUNCEMENTS

2009/2010 AGS CALENDAR

12/4-6/09

AGS WINTER 2009 FIELD TRIP

PINACATE VOLCANIC FIELD (NW Sonora, Mexico*)

Leader: Dan Lynch

01/05/10

AGS DINNER MEETING

Leslye Obiora, UA Law Professor, formerly Minister of Solid Minerals in Nigeria: *The challenges of mining and mineral exploration in Africa*

02/02/10

AGS DINNER MEETING

Mike Zientek, *Topic to be announced*

Late March / Early April 2010

AGS SPRING 2010 FIELD TRIP

MOROCCO (via Frankfurt am Main, Germany)*

Leader: Doug Shakel

*Passport will be required.

OPAQUE MINERALOGY & MICROSCOPY OF ORE DEPOSITS

*A Short Course held at the Colorado School of Mines
December 14-18, 2009*

Faculty: Dr. John L. Lufkin—Consulting Geologist and former Professor of Geology, Colorado School of Mines

Course Schedule: The course will meet 9-5 daily; lecture and lab will alternate in half to hour segments.

Course Fee: Cost is \$995.

Contact: For further information, contact Dr. Lufkin, 303-997-7365

2010 AGS Dues are Due

Be sure to renew your AGS membership. You can complete and send in the form on page 4 of the newsletter to up-date your personal information or you can do it on line. Checks can be mailed to Arizona Geological Society, P.O. Box 40952, Tucson, AZ 85717-0952 or paid directly to the AGS Treasurer at a dinner meeting. Forms also are available at dinner meetings.

Spencer Titley Honored for Half-Century of Teaching and Research at UA

(Excerpted and paraphrased from the on-line *UA News* story by Mari N. Jensen, UA College of Science. Photo by Lori Stiles, used with permission)

November 5, 2009

Spencer R. Titley, University of Arizona economic geologist internationally renowned for his work on the origin of porphyry copper deposits, was honored this fall for his 50-plus years of excellence in teaching and research at the University of Arizona.

UA's department of geosciences will be holding a dinner in Titley's honor on Tuesday November 17. In September 2009, the UA College of Science honored him for his years of teaching and research at the college's fall gathering of faculty.

Although Titley supposedly retired at the end of the 2008-2009 academic year, he's still at it. This fall he is teaching an honors course on mineral society and resources, and he will be teaching the basic course in ore deposits in the spring.



Spence Titley accepting award from Joaquin Ruiz, dean of the UA College of Science

SME Arizona Conference

December 6-7, 2009

Hilton El Conquistadore Golf and Tennis Resort

Tucson, Arizona

2010 SME Annual Meeting

February 28 - March 3, 2010, Phoenix, AZ

Submit abstracts at sme2010.abstractcentral.com/index.jsp

In Memoriam
Donald G. Bryant (1927–2009)

Donald G Bryant died Saturday, October 17 at his home in Denver after a brief struggle with brain cancer.

Born in Hollywood, CA on June 21, 1927 Don earned, with distinction, a B.Sc in Geological Engineering from the University of Arizona in 1954, an M.S. in Geology from Caltech in 1955, and a PhD. in Geology from Stanford in 1964. In 1967, Don was honored with a Degree of Merit in Geological Engineering from the U of A. He was awarded numerous honors and grants throughout his scholastic career.

Don worked for Cerro de Pasco in Morococha, Peru; Phelps Dodge at Bisbee; and after receiving his Ph.D., he worked for Bear Creek Mining in Salt Lake City, UT. Afterwards he became Chief Geologist for MolyCorp at Questa, NM and Mountain Pass, CA.

Subsequently, Don became Chief Exploration Geologist for all of MolyCorp and managed national and international exploration. In 1970, he began his own consultancy, which took him throughout North and South America, Europe, Africa and Asia. He continued geological work until his death.

During his many years of work in the mining industry, Don authored and co-authored many published papers, including several on the Warren (Bisbee) Mining district, and the Questa molybdenum deposit. He was passionate about mining and exploration geology, especially ore-forming breccias.

AGS and its members extend sincere sympathy to Don's family. We will all miss him.

Use of Member Information and the AGS Mailing List

Members submit personal information when they join the AGS. The information is subsequently published in the annual membership directory, a copy of which is provided to each member as a member benefit. In addition, member names, phone numbers, and email addresses are available on the AGS web site for members who log in to the member area.

Member information is not intended to be used for advertising or solicitation, for either personal or business reasons. Especially to be discouraged are unsolicited spam emails to large (or small) numbers of members for any reason.

The AGS Board of Directors upon occasion determines that certain information may be of general interest and/or import to the general membership and will itself broadcast that information by means of an all-member email. A case in point is the monthly reminder of the AGS general membership meeting.

Upon occasion the Board of Directors will permit a sister organization, such as the Geological Society of Nevada, to use our mailing list on a one-time basis to announce an upcoming meeting or a symposium of national or international interest.

If you would like all or part of your personal information withheld from the membership directory or the AGS web site, please indicate that when you renew your dues. Or you may contact the Greta Orris, AGS Assistant Secretary, who is in charge of the membership list and also is AGS web master: gorris@usgs.gov.

We hope to provide the ability to make this choice on our web site in the future.

DENISON ANNOUNCES PRODUCTION DECISION FOR ARIZONA 1 URANIUM DEPOSIT

On November 10, Denison Mines Corp. announced that it has made a production decision for its 100 percent owned Arizona 1 uranium deposit located in north-central Arizona.

"Arizona 1 is the first of a series of breccia-type uranium deposits which Denison plans to develop in the coming years," said Ron Hochstein, President and CEO of Denison. "We look forward to adding Arizona 1 to our production base, to creating employment and to contributing to the local economy."

The Arizona 1 uranium deposit is located approximately 45 miles from Fredonia and 315 miles from Denison's White Mesa processing facility. This deposit is one of a number of breccia type deposits in Arizona owned by Denison, which include Pinenut, EZ-1, EZ-2, and Canyon, and are expected to be developed sequentially to produce over 4.7 million pounds of U₃O₈.

The deposit is hosted in a subvertical breccia pipe that cross-cuts the surrounding sediments with uranium oxides, pitchblende, or uraninite being the ore minerals. The mineral resources in the current mine plan are 72,121 tons at an average grade of

0.66% U₃O₈ after providing for 10 percent mining dilution at zero grade. The deposit remains open and unexplored at depth.

Exploration to increase resources and extend mine life will be carried out from underground. The mine will be an underground operation utilizing the existing 1,252 foot deep, two-compartment shaft and employing a combination of long hole and shrinkage stoping methods at a mining rate of 335 tons per day, four days per week. The mine will employ a total of 32 people.

Ore will be hauled by truck approximately 315 miles to Denison's 100-percent owned White Mesa mill near Blanding, Utah. The ore will be batch treated in the mill when 17,000 tonnes are available for processing. U₃O₈ recovery is expected to be 95 percent.

Production is expected to total approximately 857,000 pounds U₃O₈ of which 156,000 pounds will be available for sale in 2010, 461,000 pounds in 2011 and 240,000 pounds in 2012.

(Information from Denison Press Release)



ARIZONA GEOLOGICAL SOCIETY

P.O. Box 40952
Tucson, AZ 85717-0952
Phone: 520-663-5295
www.arizonageologicalsoc.org

NON-PROFIT ORG.
U.S. POSTAGE PAID
TUCSON, ARIZONA
PERMIT NO. 1346

RETURN SERVICE REQUESTED



FOR INFORMATION
ABOUT THE
ARIZONA GEOLOGICAL SOCIETY
AND UPCOMING EVENTS
VISIT OUR WEBSITE
www.arizonageologicalsoc.org

AGS books and maps are sold at the monthly dinner meeting and by the Arizona Geological Survey. Visit the AZGS website www.azgs.state.az.us and click on Non-AZGS Publications



You can now update personal information on line as you move, change jobs, or change your e-mail address. Visit www.arizonageologicalsoc.org and log in with your email address to get your password.

2010 AGS MEMBERSHIP APPLICATION OR RENEWAL FORM

Please mail check with membership form to: Arizona Geological Society, P.O. Box 40952, Tucson, AZ 85717. Dues (circle one): 1 year: \$20; 2 years: \$35; 3 years: \$50. (Full-time students receive free membership. The newsletter is by e-mail only, and a membership application form must be returned to AGS annually to remain on the membership list.)

Name: _____

Position: _____

Company: _____

Mailing Address: _____

Street City State Zip Code

Work Phone: _____ Home Phone: _____

Fax Number: _____ Cellular Phone: _____

E-Mail (business) _____ E-Mail (home) _____

Please send the newsletter by e-mail only by regular mail only by e-mail AND regular mail

If registered geologist or engineer, indicate registration number and state: _____

If AIPG member, indicate registration number: _____ Please indicate by circling whether your address, email, or phone number should be withheld from the AGS membership directory or web site.

Enclosed is a _____ tax-deductible contribution to the J. Harold Courtright Scholarship Fund.