



THE GEOLOGICAL NEWSLETTER

"NEWS OF THE GEOLOGICAL SOCIETY OF THE OREGON COUNTRY"

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The Geological Society of the Oregon Country

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www.gsoc.org

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JANUARY/FEBRUARY ACTIVITIES

Friday Night Lecture, January 9, 2015, Jan 9: Dr. William Orr, professor emeritus, University of Oregon, will present "What Was It Before It Was a Wing"?

Dr. Orr's talk will address some of the issues and items that keep paleontologists awake late at night. An example is wings of fish, amphibians, mammals and birds as well as arachnids and insects. For the vertebrates, the wing won't work until it meets very stringent requirements as an airfoil. Dr. Orr will also address some of the other unlikely structures we see on fossils that seem impossibly complex and sophisticated.

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VISITORS WELCOME AT ALL MEETINGS

Friday Night Lecture, February 13, 2015, Jan 9: Dr. Scott Burns, Portland State University, will present "Mt. Lassen National Park - a must see site for all geologists!"

Mt. Lassen is a national park that few people visit, but it is very interesting. It is not that far away from Portland and the talk is put together to encourage everyone to make to trip there if they have not seen it. It has every type of volcanic eruption there in one place, and Mt. Lassen is the largest volcanic dome in the world. The Cinder Cone in the NE corner of the park is one of the most perfect in the US! An incredible debris avalanche landslide came off of the top of the volcano and formed the main lake on the west side. Come and hear Scott Burns talk about one of his newest favorite parks!

Join GSOC members at **Pizzicato Pizza, 1708 SW 6th Ave.**, at **6:00 p.m.** before the lectures for an informal dinner and conversation.

Free parking is available at Portland State University **Friday** nights after 5 p.m. in Parking Structure 2 on Broadway Ave. directly across from Cramer Hall and on level one of Parking Structure 1, bounded by Broadway and 6th Aves. and Harrison and Hall Streets.

FUTURE ACTIVITIES

Plans for the **Eightieth Annual GSOC Banquet** are in progress. The banquet is scheduled for Sunday, March 8, 2015. Full details and a registration form is available on the last page of this newsletter and on the GSOC website.

President's Field Trip, Sept. 9, 2015 – Sept. 13, 2015

Mark your calendars for next year's President's Field Trip to Steens Mountain on September 9th through 13th, 2015. Reservations can be made now for accommodations at the [Steens Mountain Resort](#). (Field trip will be Sept. 10th, 11th, and 12th, with the 9th and 13th being travel days.)

Check the GSOC website (www.gsoc.org) for more information and updates to the calendar.

BOARD MEETING NOTES

December 13, 2014

President Sheila Alfsen called the meeting to the home of Rosemary Kenney. Other board members in attendance constituting quorum were Janet Rasmussen, Dawn Juliano, Paul Edison-Lahm, Bev Vogt, Marty Muncie, and Bo Nonn. Also in attendance was GSOC member Bart Bartels. The minutes of the October 11, 2014 board meeting were approved with a correction to the date.

Treasurer's Report

The Treasurer's report was approved. Friday night door "boxite" donations have garnered \$152 so far after three meetings.

Events

Friday night lectures.

Janet has commitments for Friday night lecture from Dr. Bill Orr (January) on the evolution of wings, and Dr. Scott Burns (February) on Mt. Lassen. Possibilities for addressing the need for a larger room were discussed, including working with the Portland State Geology department to allow our lectures to be assigned for credit. **Snack committee:** Marty has signed up enough volunteers through February. Dawn and Sheila will help with setup February while Marty is out that month.

Field Trips

Downtown Geology field trip: Paul hasn't decided when he will be able to plan this trip, so planning was tabled for the moment, but he reports that Tara, Rik, Clay, and Sheila have expressed interest in being guides. Sheila will contact the "Children at Home in Wild" (Volunteers of America) program about doing the field trip for students in that program. (Bo will also make a short presentation at a meeting on the "Children at Home in the Wild" field trip that he and Sheila participated in this summer.)

President's Field Trip to Steens Mountain (Janet): Field Trip dates are Sept. 9th – 13th, with 9th & 13th being travel days. Reservations can be made now at the Steens Mountain Resort. Paul will put this up on the website.

The Holiday Party was successful. People loved having it at Carol's house (thank you Carol!) and it was nice having the music scheduled at the beginning of the event.

Annual banquet: Dr. Tanya Atwater is confirmed as our keynote speaker at the annual banquet, Sunday, March 8th, where she will discuss her role in the development of plate tectonics. She will give an additional lecture on March 9th with PSU — which may pick up the cost of her hotel. The board voted to cover Dr. Atwater's airfare from Santa Barbara (approximately \$360), any additional transportation costs and her \$100 honorarium. Ticket prices will be increased to \$30 to cover airfare. We will also need to reserve two rooms at Ernesto's to accommodate additional attendance.

Sheila will put together a poster and send to local organizations such as CVO and DOGAMI. Dawn & Carol will write up the announcement.

80th Birthday Activities

Bo, Sheila and Paul have volunteered to produce articles on GSOC's 80th birthday for the website/newsletter. Topics may include plate tectonics, women and GSOC, and historically significant lectures that have brought in new members. Any additional suggestions for articles are welcome!

Old and New Business

Nomination Committee: Nominations are closed and will be announced at the January meeting and accepted by motion for adoption at the February meeting. The nominations are Janet for President, Bo for Vice-President, Dawn for Treasurer, Paul for Secretary, Kirben Smoody for Director (1 yr.), Marty for Director (2 yr.), and Larry Purchase for Director (3 yr.).

GSOC Business Cards: Anne O'Neill will put together a GSOC business card to hand out on field trips. Sheila will edit and the Board will review and cover costs.

Announcements: Fossil Fest is February 21st., 2015. Janet may be organizing a get-together again for GSOC members who want to meet up.

Next board meeting is 10:00 a.m., February 14th, 2015 at Rosemary Kenney's house.

Notes compiled from board meeting minutes submitted by GSOC Secretary Paul Edison-Lahm.

Rhyolites in Eastern Oregon

synopsis of GSOC Friday night lecture, November 14, 2014, given by Dr. Martin Streck, Portland State University Department of Geology chair, entitled "Eastern Oregon Rhyolites Provide New Clues to CRB Mysteries"

by Carol Hasenberg

Martin Streck spoke to a standing room only GSOC crowd about the work that he and a number of his graduate students have done in advancing our knowledge of the Columbia River Basalt (CRB) flows of the Miocene. His team has focused upon the rhyolite flows that occurred as a result of heating by the basalt magma that produced the CRB.

Miocene rhyolite flows in eastern Oregon have long been studied by geologists. The relationship between the rhyolitic magma and the massive amounts of CRB basaltic magma is not precisely known, although they are spatially close so infer that the rhyolite is a result either of partial melting of the crust by or fractional crystallization of the CRB magma. In fact, the spatial distribution over time of the rhyolite can give geologists ideas about the origin of the CRB magma itself.

Streck first filled the GSOC audience in on what is known of the basalts by themselves. Locations of feeder dikes for the CRB eruptions have been found in Northeastern Oregon (Chief Joseph Swarm), the Monument swarm further west, and the Steens swarm in the Steens Mountain area of southeastern Oregon. The main groups of eruptions that comprised the CRB are the Steens, Imnaha, Grande Ronde, Wanapum and the Saddle Mt., but the Grande Ronde output made up 75% of all the CRB. This main eruptive phase was dated at approximately 16-15.5 million years in age.

Rhyolite eruptions occurred in eastern Oregon in a similar period of time. They were part of a large swath of bimodal volcanism that erupted from McDermitt Crater in northern Nevada through the Snake River Plain in Idaho to modern day eruptions at Yellowstone National Park. These eruptions were younger towards the east, and are believed to have been caused by a plume of hot material from the earth's mantle that the North American tectonic plate has been traveling over these several million years.

In order to make much sense of all this volcanic material geologists needed to test the composition of the rock and determine its age. Previous studies

had age dated quantities of rhyolite of similar age occurring on the eastern and southern fringes of Steens basalt. More rhyolite was also found to the north of the Steens area dating around 16.5 to 15.5 million years in age. Within that time period the older flows were to the south in northern Nevada, and the younger flows were to the north, similar to what happened with the basalt feeder dikes. Other data showed that this northward trend continued toward Baker City dating to about 14.7 million years at Dooley Mountain.

Martin's team began to conduct age dating tests of rhyolitic material of this period. The isotope Ar39 was used for the dating. At the Mahogany-Three Fingers caldera system in SE Oregon the new age dates were found to be in the range of 16 to 15.75 million years. Also Littlefield rhyolite a little further north was found to date at 16 million years. There were some complications in the age dating because older material was mixed together with the magma in the eruption and crystals show two groups of ages. Also some of these rhyolites are black and can be confused with basalts. The team was required to measure density in the samples to categorize the type of eruption.

Streck's team also worked to date a mass of rhyolitic material in the John Day area associated with the Dinner Creek Tuff Eruptive Center (DITEC). Dating in three areas near Strawberry Mountain show age dates of 16.1 to 16.6 million years. Other DITEC sites show ages between 16 and 15 million years. These ages are contemporary with the main phase of CRB eruptions and do not show age trending to the north.

In addition to the dating work, Streck's team worked on determining the composition of crystals they found in thin sections of the DITEC material. Very interestingly they discovered mafic globules in the Dinner Creek Tuff which turned out to be the exact composition of Grand Ronde Basalt. Streck theorized that the Grande Ronde basalt magmas flowed into the rhyolite chambers before eruptions. The discovery and analysis of the globules also

strongly tied the origins of the two eruptive events together.

As a result of this work, modern thinking is that the main body of the CRB magma was stored in far southeastern Oregon (conversion zone) and migrated into the feeder dikes to the north. En route they interacted with the overlying crust to produce the rhyolites.

NOMINATING COMMITTEE RESULTS

The following slate of officers has been selected by this year's nominating committee:

President **Janet Rasmussen**
Vice President.....**Bo Nonn**
Secretary **Paul Edison-Lahm**
Treasurer**Dawn Juliano**
Director, 3 years.....**Larry Purchase**
Director, 2 years.....**Martha Muncie**
Director, 1 year.....**Kirben Smoody**

Nominations will be closed for this year's slate of officers after the January meeting of the society. The slate of officers will be voted on and approved at the February monthly meeting.

The Nominating Committee members were Richard Bartels, Janet Rasmussen and Sheila Alfsen. Our thanks to the selected members and members of the Nominating Committee!

Don't forget that annual **DUES PAYMENTS** are due! Think about all those great member benefits for a mere annual fee of \$25 for an individual and \$35 for a family!

PS – If you joined GSOC in September 2014 or later, your 2015 dues are paid, good deal!!!

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compiled by Carol Hasenberg

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GEOLOGICAL SOCIETY OF THE OREGON COUNTRY ACTIVITIES:

ANNUAL EVENTS: President's Field Trip—Summer or Fall; Banquet—March; Annual Business Meeting—February.

FIELD TRIPS: About 4 per year. Fees: see field trip announcements on the calendar next page.

GSOC LIBRARY: Rm. 69, Cramer Hall, Portland State University. Open 7:00 p.m. prior to meetings.

PROGRAMS: Second Friday evening most months, 7:30 p.m., Rm. S17, Cramer Hall, PSU, SW Broadway at SW Mill St., Portland, Oregon.

MEMBERSHIP: Per year from January 1: Individual--\$25, Family--\$35, Junior (under 18)/Student--\$15.

Membership applications are available on the website www.gsoc.org.

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Geological Society of the Oregon Country, P.O. Box 907, Portland, Oregon 97207

TRIP LOGS: Write to the same address for names and price list.

APPLICATION FOR MEMBERSHIP THE GEOLOGICAL SOCIETY OF THE OREGON COUNTRY

Name _____ Spouse _____

Children under age 18 _____

Address _____ City _____ State ____ Zip _____ - _____

Phone (____) _____ - _____ Email address _____

Geologic Interests and Hobbies _____

Please indicate Membership type and include check for appropriate amount:

Individual \$25.00 _____ Family \$35.00 _____ Student \$15.00 _____

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