



THE GEOLOGICAL NEWSLETTER

NEWS OF THE GEOLOGICAL SOCIETY OF THE OREGON COUNTRY

March/April 2017
Volume 83, Number 2

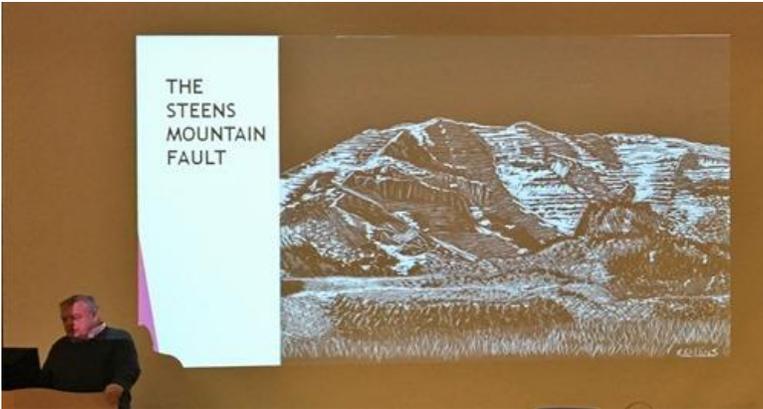
The Geological Society of the Oregon Country
P.O. Box 907, Portland, OR 97207-0907
www.gsoc.org

Time Travel Tales

by Carol Hasenberg

Mike Collins, a retired General Manager in manufacturing, and an avid mountaineering and geology enthusiast, presented his slide show “Flood Basalts, Hot Spots, and Spreading Centers and the Creation of the Western Landscape,” to a full house last month at the GSOC Friday night lecture. His show was based upon a manuscript he has produced explaining the evolution of the Western landscape in terms that non-technical people can understand. It is lavishly illustrated with scratchboard drawings that he has drawn, which take the reader back to scenes he describes in the book.

see *Time Travel Tales*, Page 13



Mike Collins showing one of his excellent scratchboard drawings of Steens Mountain.

Calendar

Annual Banquet with President Bo Nonn

March 12, 2017

82nd Annual Banquet at 1:00 p.m. at Ernesto’s in Beaverton. GSOC President Bo Nonn will present “Cascade Geology From the Top Down: Features You Won’t See From the Road”

see *Annual Banquet* on Page 12

Friday Night Lecture

April 14, 2017, Cramer Hall, Portland State University

Speaker Dr. Anita Grunder, Professor at College of Earth, Ocean, and Atmospheric Sciences, Oregon State University, will present “Basalt and Rhyolite Volcanism of the High Lava Plains of Oregon: Timing, Tectonics and Petrology.”

see *Bimodal Volcanism*, pg 10

Friday Night Lecture

May 12, 2017, Cramer Hall, Portland State University

Speaker Dr. William Orr, Director of the Condon Collection, University of Oregon, will present “Thomas Condon- What we can learn about the man from his personal collections.”

see *Thomas Condon*, pg 10

GSOC Friday Night Lectures are held the second Friday evening of most months, 7:30 p.m., Rm. 53, Cramer Hall, PSU, SW Broadway at SW Mill St., Portland, Oregon. Join GSOC members at Pizzicato Pizza, 1708 SW 6th Ave., at 6:00 p.m. before the lectures for an informal dinner and conversation. Check the GSOC website (www.gsoc.org) for more information and updates to the calendar.

Free parking is no longer available at Portland State University. Hourly rates for parking are available in some parts of PSU parking structures. Parking Structure #2 across Broadway from Cramer Hall is \$7.00 flat rate in the evening. Park in permit (NOT reserved) spaces and pay at the kiosk by entering your vehicle license number. There is also on street pay parking, and many mass transit options.

2017 - 2018 ADMINISTRATION:

President Rik Smoody –
science@smoo.com

Vice-President Sheila Alfson – 503/939-6003
shealf@viclink.com

Secretary Paul Edison-Lahm – 971/404-6064
pauledisonlahm@gmail.com

Treasurer Dawn Juliano - 503/367-7708
dawnmj_2000@yahoo.com

DIRECTORS

Martha Muncie (1 year) –503/232-6342
martymuncie@gmail.com

Larry Purchase (2 years) – 360/254-5635
lkpurchase@q.com

Carol Hasenberg (3 years) – 503/522-4249
csh727@comcast.net

PAST PRESIDENTS:

Bo Nonn – 503/235-9135
bononn14@q.com

Janet Rasmussen – 541/760-7846
jkayerocks@yahoo.com

OTHER SOCIETY CONTACTS:

Newsletter Editor Carol Hasenberg – 503/522-4249
csh727@comcast.net

Website Paul Edison-Lahm – 971/404-6064
pauledisonlahm@gmail.com

Public Outreach Coordinator Sheila Alfson –
503/939-6003
shealf@viclink.com

**Bimodal Volcanism**

April 14, 2017, lecture from the GSOC Calendar

Dr. Anita Grunder earned her BS at Berkeley, and her PhD



at Stanford. She has been at Oregon State University since 1986. Her research is in volcanic rocks as a probe for crustal magma process in time and in diverse tectonic settings.

The High Lava Plains is an enigmatic province between the hot-spot related Steens Basalts and the subduction-related Cascades. We will explore

the implications of the westward age progression of rhyolites and the effect of protracted magmatism on the composition of the volcanic rocks and the crust.

Thomas Condon

May 12, 2017, lecture from the GSOC Calendar

Bill Orr was trained as a geologist specializing in paleontology. Awarded his degrees from Oklahoma, California and Michigan, his career spans 50 years. In his 30 year career at the University of Oregon (1967-1997) he did two tours at the National Science Foundation as program officer and participated on the Deep Sea Drilling Project as shipboard scientist on three tours. He has written some 20 books on diverse subjects, including the standard references in the Pacific NW and Oregon on Geology and Paleontology. In 1982 he was appointed director of the Condon collection at UO and continues in that position today.

Thomas Condon, Frontier Missionary and Oregon's First State Geologist, came to the Oregon Territory in 1852 and soon became interested in its remarkable fossil assemblage. Collections made by paleontologists impart an enormous amount of information about the ideas and motives of the individual. Condon's personal collection of Oregon plant and animal fossils reflect not only his science but his travels and associates as well. Dr. Orr will examine these aspects of his life as well as the nature of his work and achievements.

GSOC Board Meeting Notes

February 12, 2017

President Bo Nonn called the meeting to order at the home of Rosemary Kenney. . We thank Rosemary for having graciously hosting our board meetings since 2000. Board members present constituting quorum were Rik Smoody, Dawn Juliano, Paul Edison-Lahm, Marty Muncie, Larry Purchase, Janet Rasmussen, and Sheila Alfsen. Other members present included Carol Hasenberg, Dave Olcott, Jane Walpole, Peregrine Edison-Lahm, and Doug Rasmussen. The minutes from our December meeting were approved.

Treasurer's Report: (Dawn) The treasurer's report was approved.

Dawn reports that we currently have 63 paid members out of 150 potential members. The board agreed that more frequent announcements and more frequent email reminders are needed to encourage people to pay their memberships. The board delegated discussion of membership and dues issues to the Membership subcommittee.

The board affirmed Dawn's proposal that next year's annual membership meeting for members be held immediately prior to the lecture open to the public. Paul will calendar this for February 2018.

EVENTS

Holiday Party recap

The party at Carol's house was again a success and she reports (based on a careful assessment of the leftovers) that there was enough food. The Hasenbergs would be happy to host again next year.

Friday night lectures

Upcoming speakers: Sheila is working on possibilities for April and beyond. She will reestablish the connection with people in the PSU AV department who have been very helpful with microphone issues.

Friday Night Parking: PSU parking structure access is available but requires payment through a kiosk. The signs have been confusing for some however. Janet will clarify parking procedures with PSU and we'll put the information with our event announcement and in the newsletter: e.g. use Parking Structure #2 at the Broadway entrance across from Cramer Hall, using the "permit" and not the "reserved" spaces; go to parking kiosk to pay by entering your vehicle license number.

Snack committee: Marty has volunteers for April and is looking for May volunteers and beyond.

Public outreach: Sheila is getting many requests and recently spoke at a Camas elementary school. Bo volunteered to do his presentation on meteorites for elementary students.

Annual Banquet: Paul will send out the email announcement shortly.

Field Trips

Downtown Tours: Paul has two Downtown Building Stone Tours planned for June 24th (South Tour) and October 7th (North Tour). Cris Morgante and Paul will be guiding — and any of our other past guides who are interested. Paul will update the tour guide creating a catalogue of the sites.

Quarry Tour: Larry is choosing quarries for this tour, tentatively June 17.

Eclipse/President's Trip: We will be camping on private property in Mill City and exploring the Western Cascades, Friday to Monday (the eclipse is on August 21). Rik will reserve a Porta-potty asap.

Johnson Creek Watershed Tour: Paul and Sheila are working on with Johnson Creek Watershed Council and Terry Tolan for a September tour and science pub.

BOARD MEETING NOTES

continued from Page 11

Mt. St. Helens Helicopter Tour: Sheila may plan this for August, however the helicopter site has been sold, so it's up in the air.

OLD AND NEW BUSINESS

Election Results: President Rik; Vice-President Sheila; Treasurer: Dawn; Secretary: Paul; 3 Year Director: Carol (Larry is 2 year director; Marty is 1 year director).

Member Database Committee: (Paul/Janet/Rik/Peregrine): Peregrine will be assisting cleaning up the spreadsheet with Rik. The committee will be considering a cloud based, low-cost or free database solution, such as Salesforce. Our next meeting will be at 9:00 a.m. prior to the next board meeting.

Communications Report: (Paul) this is tabled until the next board meeting when we can review our web use on a large screen.

Bylaws Committee: Janet will email the committee's proposals to the board.

Next board meeting will be at Paul and Peregrine's at 10:00 a.m., April 15.

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

GSOC Eighty-second Annual Banquet

Sunday, March 12, 2017

The Geological Society of the Oregon Country invites you to its 82nd Annual Banquet. GSOC President Bo Nonn will present "Cascade Geology From the Top Down: Features You Won't See From the Road." Mr. Nonn be giving brief descriptions of mineralogy and eruptive histories of Cascade peaks from California to the Canada border and beyond. It's based on what he's learned about PNW geology over the years and what he's seen in 40 years of climbing with the Mazamas.

Bo Nonn was born in Germany and raised in Wisconsin. He earned a Bachelor's Degree in Geology in the 1960's and another degree in Mechanical Engineering many years later. He and his wife Ellen spent six years teaching in Kenya and Botswana. Prior to retirement, Bo worked in research and development in the medical equipment industry.

Since then, he has pursued some engineering work, obtained a patent, and has been auditing dozens of geology classes at Portland State University.

In his spare time, he has led climbs of Cascade Peaks and taught basic climbing skills with the Mazamas over the past decades.

Bo has been a member of GSOC since 2011.

The banquet will be held March 12, 2017, at Ernesto's Italian Restaurant, 8544 SW Apple Way, Portland, OR 97225, located in a strip mall along the Beaverton-Hillsdale Highway between Raleigh Hills Fred Meyer and Jesuit High School. There is ample free parking, and Beaverton-Hillsdale Hwy is served by TriMet bus route 54. Doors to the banquet room open at 1:00 p.m. Dinner at 1:30 p.m. Program will begin at 2:15 p.m. Reservations will be accepted through March 3 on the GSOC website, www.gsoc.org.

Time Travel Tales

Synopsis of Friday night lecture on February 10, 2017, with speaker Mike Collins, continued from page 9

Collins was inspired to create this work as a result of a Geologic Society of America (GSA) seminar which he attended at a national GSA meeting a few years ago in Portland.

Collins' personal journey began with a visit to Multnomah Falls as set in its backdrop of a multitude of flood basalt layers, which represent lava flows from hundreds of miles away. He then spent time in southeast Oregon near Steens Mountain and the Alvord Desert. This led him to McDermitt Caldera, the scene of violent rhyolitic eruptions and the beginning of a track across Oregon, Idaho, and terminating at Yellowstone Volcano in Wyoming. This "hot spot" trail has proved to be very fascinating for Collins and has fueled his interest in geology and led him to research this and other phenomena that created the Western landscape.

In his research into hot spots Collins found 45 active hot spots on the planet described, with 8 under continents and 3 under North America. Hot spots under land masses tend to produce massive volcanic eruptions in the form of "supervolcanoes" as is commonly described today. These supervolcanoes are compared in size by a metric known as the Volcanic Explosivity Index (VEI). VEI level 8 is over 1000 cubic kilometers of material, and the greatest volcanic eruptions known on earth. Each level below that is an order of magnitude less, i.e., VEI level 7 is 100-1000 km³, etc. The greatest single volcanic eruption in the last 25 million years occurred 74,000 years ago at Lake Toba in Sumatra, producing 2800 km³ of material and an earth changing event in terms of destruction and disruption of ecosystems and species. The Yellowstone supervolcano has produced at least 4 VEI 8 eruptions and 2 VEI 7 eruptions.

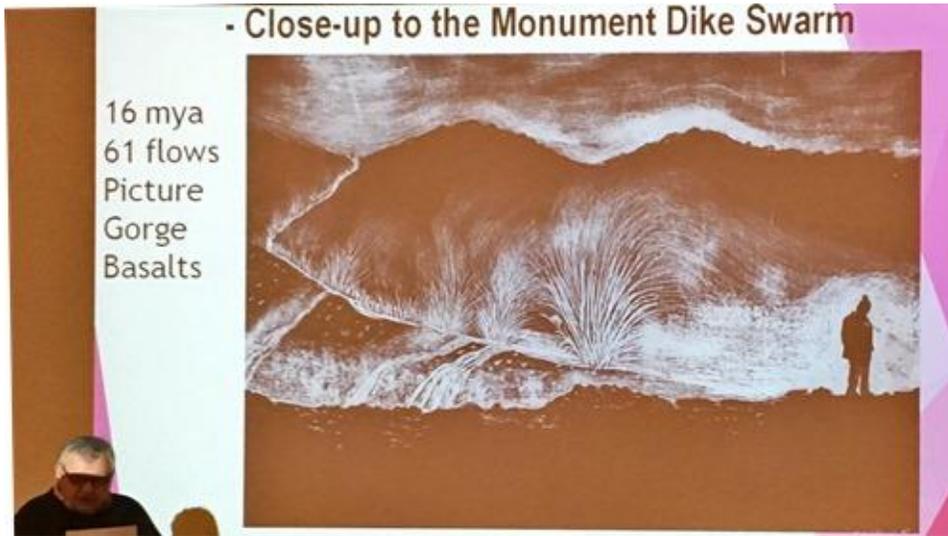
Collins then focused on the hot spot which produced the McDermitt Caldera, the Snake River Volcanics in Idaho and



Some of Collins' research included traveling to places he studied.

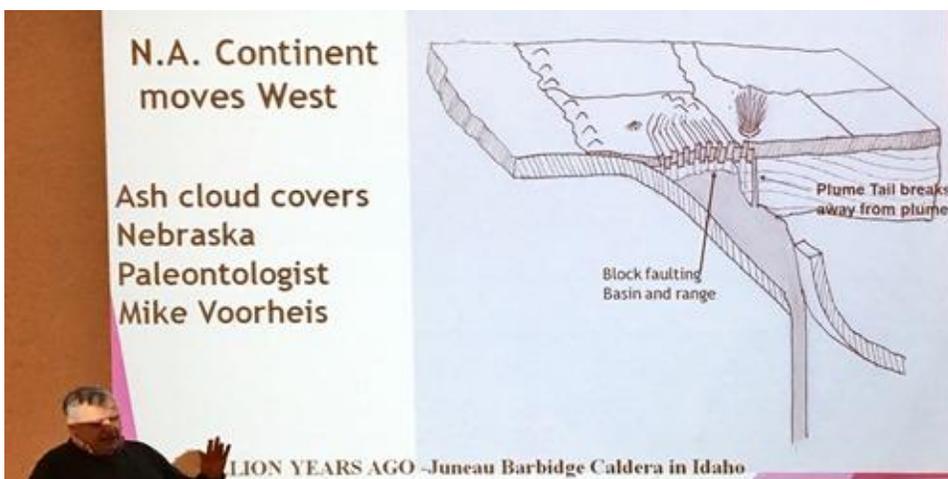
the Yellowstone Supervolcano. He found information that

it was located 55 million years ago on the Farallon tectonic plate, now mostly subducted under the North American continent. Its eruptions in Oregon began 29 million years ago in the Clarno eruptions, including the Tower Mountain and Crooked River volcanoes. Then about 17 million years ago a massive quantity of basalt magma was produced through three series of sheet dike complexes: Steens, located at Steens Mountain in



Collins likes to put the reader "in the picture".

Oregon; Chief Joseph in Oregon, Washington, and Idaho; and Monument near John Day, Oregon. These fissures produced thousands of cubic miles of liquid basalt lava that covered much of what is Oregon and Washington today. We know these lava flows today as Steens Basalt and Columbia River Basalt, and it has been shown that they share the same chemical signature which denotes a common origin. In addition to the basaltic magma, the hot spot also produced the very violent rhyolitic eruption at McDermitt Caldera at about the same time as the nearby Steens. A series of eruptions then tracked east across Idaho with progressively decreasing age dates to the Yellowstone Volcano, which last erupted 640,000 years ago.



Near the end of his talk Collins described some of the magma, the subducting Farallon tectonic plate, and crustal extension, thinning, and fracturing that has contributed to this volcanism. Much of this mystery has been largely conjecture in the past as scientists were able to discover facts about the earth's mantle (liquid rock surrounding the earth's iron

core) through surface lava chemistry and crude seismic imagery. With increasing computational power and expanded seismic networks, seismic imagery and

tomography has greatly improved our understanding of the mantle and will continue to improve. Collins showed cutaway sections of a current model for the interaction of the Yellowstone hotspot and also some current seismic images of the pieces of the subducting Farallon plate and gaps between the pieces.

In addition to its tracking eastward across the Snake River Plain in Idaho presumably as the North America tectonic plate has passed over its position, the Yellowstone hot spot may also have been responsible for a series of bimodal eruptions (with two very different magma compositions) across the Brothers Fault Zone in Oregon. Oddly enough these eruptions track westward to today's Newberry Volcano near Bend.

Collins has found in his studies that these may be produced by the expanding head of the hot spot plume. Our GSOC talk scheduled for April may shed some light on this topic as it focuses upon this area.

In his talk to the GSOC group, Collins covered material in the first 7 chapters of his manuscript. He has also researched geology of the western states south of Oregon from the Pacific to the Teton Mountains and includes this information with illustrations in the work. We encourage him to find a publishing outlet for his work.

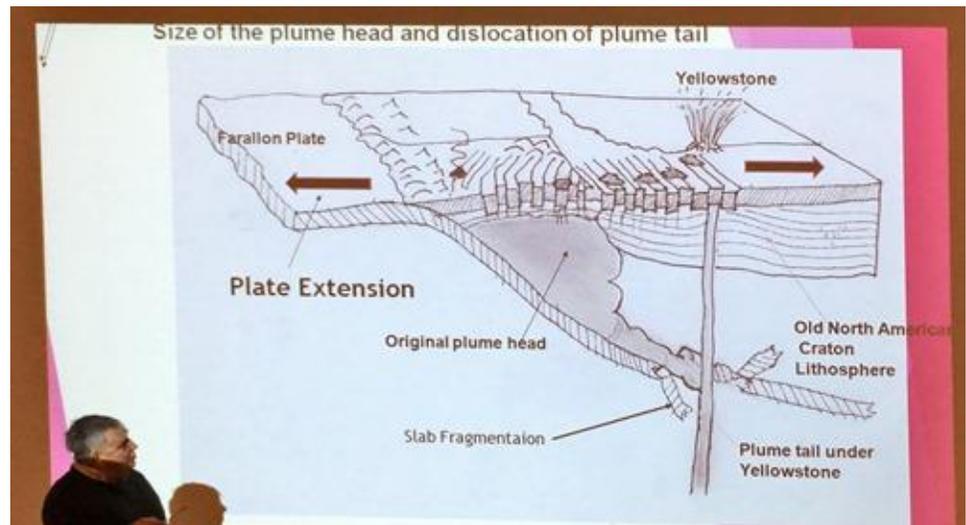
Additional Reading

CRB Plume article on [Mantle Plumes website](#).

[Seismic tomography page](#) from Wikipedia.

[Toba catastrophe theory](#) from Wikipedia.

[Supervolcano](#) from Wikipedia.



WELCOME NEW MEMBERS!

Laurie Feinswog
 Nathaniel and Lacey Sortman
 Kimberly McCreedy
 Kathleen Kerner
 Tricia Knoll and Darrell Salk
 Kate Ely

