National Association of Geoscience Teachers

Pacific Northwest Section

FALL 2009

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This Issue Includes:

From the President

Why teach outside of school? Many of you have taught, presented or conducted geoscience learning experiences outside of your regular job. I have done a few—helping run a field trip for a local geology club with no academic affiliation, presenting a sequence of short geology classes to a church-affiliated group (one open to all beliefs or lacks of belief). I want to explore some benefits that come from teaching outside of the context of college or K-12 credit courses. First, what does the instructor gain? In my experience, one gains a good audience, people who are there to learn, which is the best motivation for learning. Why is it that casual learners, who gain no credit for their learning under any K-20 system, seem so often to be a more receptive, cooperative, and easily engaged group of learners than students in accredited classes?

It could be because those informal students have self-selected to a greater degree than K-12 or college students have. K-12 students in earth science classes, which in many states tends to be middle school students, may not have any choice – the course is required. As for college students taking geology classes, sure, students choose to go to college and choose which classes to take. College students, however, are usually required to take a range of science classes regardless of choice. Many introductory college geology classes, therefore, are full of students who chose that class not because they really wanted to learn about geology, but because they considered it less off-putting than physics or chemistry or biology. By teaching in informal settings, however, you may enjoy the experience of students who really want to learn. It's a refreshing experience, which I find encouraging.

We as instructors not only give back more to the world by teaching from time to time outside of our regular school jobs, we gain as instructors by what we learn from our audience. It may be an audience that includes some adults who are experienced in ways that you can learn from as they share some of what they know with the class. It may be a group of children younger than you have ever taught before, which may expand your understanding of how learning works in the development of the human.

As for what the rest of the world gains from us teaching outside of school, well, the list is long. A few of those really young ones may get geological ideas developed in their minds just enough to help motivate them to choose to study geology later in life, and the world does need more earth scientists. We may share information with adult learners in ways that overcome shallow notions they may have gained from the mass media, on topics such as earth history, evolution, climate change or natural disasters. Finally, depending on what you teach, the students may learn their local geology or environment in ways that keep them informed as voting citizens and, as inhabitants of planet Earth, more knowledgeable of the workings of their local patch of it.

In sum, there are many reasons for teaching outside of school, and all of them are good ones, good for the instructor and good for the people he or she teaches in those informal settings. Just as with the students in those outside-school-credit learning experiences, it's purely a matter of choice for us as instructors to take part. I recommend choosing to take advantage of such opportunities from time to time to expand your teaching experience, give back some extra to the world, and have some fun. ----Ralph

Words From the VP:

Ron Metzger, Southwestern OR CC

Still can't believe that we've officially shifted from summer to fall. Depending on whose thermometer you follow here on the coast, Fall arrived with temps in the mid 90's to low 100's. Of course, that also coincided with 6 days of in-service. The meetings are slowing down and now it's full speed ahead towards fall classes and a mostly new set of faces. As with everyone, I'm sure, that includes packed classrooms as enrollments are literally through the roof and pushing out the door. As I get older and the memory starts to be more temperamental, there are more names to remember. Ah well.

That's enough banter-here are the important notes. Last June, **Brett Gilley** *et al* hosted a great meeting in BC, and this coming June 2010, **Shawn Willsey** will be setting the bar higher with the annual conference taking place in Idaho from the 22-26th. So, it's that time to once again think about staying ahead of the curve and get the 2011 meeting nailed down An initial proposal for 2011 has been submitted by Mike Cummings (Portland State) that involves utilizing the Malheur Field Station near Burns, Oregon.

The station is located about 340 miles from Portland. The idea would be to van pool from Portland and maybe Salem with field tripping to the Station (one day), spend a morning in presentations with afternoon in the field (day two), field trip around Steens Mountain (hot springs in Alvord Valley, faulting on the range front, hydrology of this high desert system) (day three), presentation in morning and field tripping back to Portland (day four). This schedule is off the top of my head so it can be changed without any problem. Housing and food is available at the Station (bring sleeping bags). This itinerary is an initial proposal, and subject to modification.

So, what I need from you is to take a few minutes and drop me a line at **rmetzger@socc.edu** regarding the Malheur proposal. Additionally, if you have an interest in hosting in 2011 or beyond, put that out there as well. I'm willing to host again, but that should be down the road a few more years-need to give those of you that attended an opportunity to forget some of the stops. Look forward to hearing from you and seeing everyone in Idaho in 2010!

Congratulations to Our Members!

Kudos to section members **Bob Christman** and **Andy Buddington on** recent NAGT acheivments.

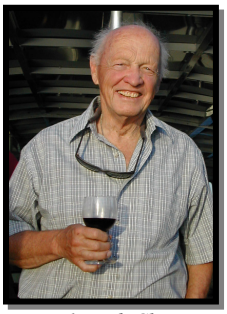

Figure 1. Bob Christman.

In April 2008, the Executive Committee of the NAGT established the **Robert Christman Distinguished Service Award**, in honor of our very own **Bob Christman** of Western Washington University (*Figure1.*) The award was created to recognize members whose notable dedication and efforts, at both the section and national level, have helped further the mission of the NAGT. Bob is the first recipient of the award. He has been a significant figure in the NAGT for over thirty years. The following exerpt is taken from the national newsletter:

"Bob has served the Association as a Councilor-at-Large [1983-84], Secretary/treasureer [1989-91], Executive Director [1992-2002], Co-executive Director [2003-2005]. He was also a co-editor of the Journal of Geoscience Education from 1979 until 1987, contributing 26 film reviews and writing a column for secondary school teachers. Bob served as President of the Pacific Northwest section in 1974 and 1975 and has served as the section's Secretary/treasurer since 1976."

Bob has often been described as the "lifeblood" of the Pacific NW section. We are delighted to his accomplishments and dedication honored with this new award. Congratulations, Bob!

> ***"Bob has often been described as the "lifeblood" of the Pacific NW section"***

Congratulations, also, to **Andy Buddington**, of Spokane CC (and also our past Section President.) Andy was recently elected a NAGT National Councilor-at-Large. Well done!

Recap: PNW 2009 Annual Meeting

Vancouver, British Columbia

Ralph Dawes, WVCC & Ron Metzger, SOCC

Figure 2. Brett Gilley, fearless leader.

The 2009 annual meeting of our section was held at the University of British Columbia in Vancouver. Considering the economy and the new requirements for passports at all international borders, the attendance of 35 people must be considered a rousing success! -- especially in light of the excellent hosting, provocative presentations, lovely dinner, horizon-expanding field trips, and learning and networking that took place. (Next year, in Twin Falls, Idaho, we hope even more of you will come join the fun and valuable professional development activities.) Many thanks to meeting organizers **Brett Gilley** (*Figure 2*), **Mary Lou Bevier** and **Tara Ivanochko**, and the many students and staff who helped stage the meeting, including **Mika McKinnon**, **Greg Nash**, **Thomas Chudy**, **Alison Jolley**, **Teresa Woodley**, **Sheila Wilson** and **Anita Lam**.

The first day of the meeting featured a field trip to North Vancouver and up the east side of Howe Sound and Squamish Arm, then up valley to the vicinity of Mt. Garibaldi. The route of our field trip was along the single paved highway from Vancouver to the site of the upcoming Winter Olympics. The highway is commonly blocked by landslides, so there is concern that access to the Olympics could be cut off by a landslide. We saw many examples of ongoing construction designed to shore up the highway and stabilize adjacent slopes. We looked at the spectacular geology of the Coast Range and evaluated how people in the region have dealt with the hazards inherent in such a dynamic environment, where the mountains continue to uplift and

undergo rapid erosion, including debris flows down steep catchment basins and out onto debris fans -- debris fans which provide relatively rare, low-gradient ground attractive to settlers and house builders who may not know, when they first arrive, how debris flows work.

We learned how the fjords left by the glaciation have limited water circulation, how precious metals in the accreted terranes and crystalline orogenic rocks have spawned mining (and mine waste), and how the beauty of all those mountains, forests, and fjords continues to draw people in, culminating in the 2010 Winter Olympics that will be held there.

The next day, in the Earth and Environmental Sciences building at UBC, was all about teaching and learning. After a tour of the Earth museum in the ground floor of the building (great mineral specimens and a nearly complete dinosaur fossil!), we went to the meeting room, which featured a new screen for projections without an overhead projector -- no blindingly bright light to limit where the presenter can stand. One talk presented a new education course at University of Victoria in geoscience for K12 teachers, which could be used as an example for other college geoscience educators who are teaching or collaborating with pre- and in-service teachers. A presentation on the use of "clickers" in teaching provided all a chance to try them out and see how they worked to engage interest, maintain focus, and perhaps, it was proposed, deepen discussion and learning during class time. One presentation criticized university education as being isolated in "silos" and inertia-bound in tradition, while another gave an example of how having students devise solutions to problems could prepare them well for developing understandings of science concepts based on analogies that they had helped create.

Take-aways from the conference day include (1) the importance of interactivity and group discussion or brainstorming to spark learning progress, (2) the importance of K12 education and its need for college geo-professors to work with the K12 teachers to combine the most accurate geoscience content with the best teaching and learning practices, and (3) the example of the Carl Wieman Science Education Initiative as a model of the future direction of university geoscience education (**www.cwsei.ubc.ca**). We thank the Carl Wieman Science Education Initiative for its contributions to a great conference!

Figure 3. Exposures of Huntingdon Fm. in a quarry near Abbotsford. Photo by R. Metzger.

That evening, the conference dinner was at the Teahouse Restaurant in Stanley Park and included a spontaneous symposium on wine preferences and a view of the sun setting behind Vancouver Island across the Strait of Georgia. Dinner was followed by a walk along the shore of Stanley Park to look at dikes (also spelled "dykes" in Canada, which suffers the slings and arrows of British and American terminology), which intrude sandstone beds of the Eocene Huntingdon Formation.

Speaking of the Huntingdon Fm., it was featured on the geology excursion which occurred the next day, at Sumas Mountain (of Canada) near Abbotsford. There, an extensive, long-lived set of quarries continue to reveal the Huntingdon Formation (and the underlying metamorphic and intrusive rocks) for such resources as aggregate for roads and clay for brick-making (*Figure 3*.) The Huntingdon Formation is said to be the correct (i.e. preceding) name for what is called the Chuckanut Formation across the border in Washington state. Field trip participants found many leaf fossils in the friable siltstones and sandstones, and one possible bone discovered by **Joe Hull**, which, although in such a poor state of preservation as to be dubious, generated some excited discussion. At the end of the field trip we looked at a development of new houses built on precariously steep slopes along a steep fault, where Huntingdon Formation rocks on one side of the road are juxtaposed with metamorphosed and intruded volcanic basement rock, probably of the Harrison Lake Terrane, on the other side of the road. For home buyers, it is apparently a matter of *caveat emptor*.

Figure 4. Pat Pringle uncovers a stump charred & buried in fallout from an eruption 2360 years b.p.

(Note: Ron Metzger takes over here.) The final field trip of the 2009 meeting was an overnighter that initially retraced our path on the “sea to sky highway” and continued up, on a number of levels, from the last stop of the previous trip. My personal goal as section vice-president and the individual in charge of making sure the annual conference has a location and host, was to make sure that **Shawn Willsey** made it safely through the trip so that he would be available to host us in Idaho (at the College of Southern Idaho) next June.

The views were spectacular, as was the geology and group. A few of the highlights of this trip had to include the hike down into the Lillooet Valley. The welded volcanic breccia at this stop was spectacular. There was a bit of a hike down, wandering along some nice terrace deposits, and then one of the more interesting NAGT scrambles to reach the outcrop. There was a little blood, sweat and I would say tears of joy at this stop. Pat and a few others scouted for some tree trunks, and were only modestly successful finding some charred remains (*Figure 4*.) The visuals associated with this stop are among the highlights of the trip.

I already used one of the finds at the pumice sorting facility to stump a retired geologist in my Elderhostel this August. The pumice was secondary to Kerry explaining the rounded granitic pieces that were piled around the stop. Turns out the rounding occurred as the pieces were tossed in the vent during the eruptive

phase. Most samples were about three-quarters rounded with a fracture surface where the concussion caused breakage.

The Vancouver meeting continues setting the bar high for the annual meeting. The exposures, views and samples were amazing (*Figure 5a & b.*) For those of you that know me, it truly pained me to not be able to toss a column or two in the truck along with a large piece of welded breccias from the Lillooet. Not sure what the border crossing would have been like. I've only given a very brief overview of a few of the stops. But then it's sort of like taking a picture of Crater Lake, you really need to be there to absorb it all. That's a plug for Idaho in case you missed the not so subtle hint!

Figure 5. a) Roche moutonnee at Stawamus Chief. The rock is granodiorite (100 ma); b) "Witch" of Stawamus Chief. This refers to the image in granodiorite, NOT the mystical draw of McDonalds to young children. Photos by Ron Metzger.

Pacific Northwest Section of NAGT
Annual Conference – Twin Falls, Idaho
June 22 – 26, 2010

Shawn Willsey, College of Southern Idaho

Yes, you read the location correctly. The 2010 conference will be held on the east (and I mean east) side of the Pacific Northwest section in beautiful south-central Idaho. The College of Southern Idaho (CSI) in Twin Falls will serve as host to this year's annual meeting. Twin Falls is located along the Snake River Plain and is adjacent to the ~500 foot deep Snake River Canyon carved by the catastrophic Bonneville Flood and the site of Evel Knievel's botched attempt in 1974. The region contains many scenic geologic wonders such as Shoshone Falls, Craters of the Moon National Monument, the rugged Sawtooth Mountains, Thousand Springs, and City of Rocks Natural Reserve.

"The College of Southern Idaho… in Twin Falls will serve as host to this year's annual meeting."

Twin Falls is a small city of about 43,000 people, but serves as the central commercial hub for south-central Idaho. Lodging and transportation are simple and straightforward. Lodging can be obtained at a number of hotels/motels in town. There will also be the option of staying in the CSI dorms. Additionally, there are a few area campgrounds for those interested in more rustic accommodations. The Twin Falls airport has daily service to/from Salt Lake City or you can fly into Boise and drive from there. The weather in mid June is typically warm and clear with highs around 80°F and overnight lows of about 50°F.

Field trip locations are tentative at this point, but ***may*** include the following:

- ★ City of Rocks National Reserve/Castle Rocks State Park
- ★ Hagerman Fossil Beds National Monument
- ★ Bonneville Flood path along the Snake River
- ★ Tertiary and Quaternary volcanism and hydrovolcanism in the Snake River Plain

A full conference day is planned to include posters, talks and workshops. Please consider presenting a talk or poster at this meeting. If you would like to present or have any questions, please contact **Shawn Willsey** at (208) 732-6421 or email **swillsey@csi.edu**. More information will follow in the winter and spring newsletters.

Figure 6. City of Rocks, a likely field trip destination. Photo by S. Willsey.

GSA Annual Meeting
October 18- 22nd Portland, OR

The Geological Society of America's annual meeting will be held in Portland, Oregon, October 18th-22nd. Pre-and post meeting events, including fieldtrips, meetings and workshops, are also scheduled. Please go to **www.geosociety.org** for more details and late registration information. Please note NAGT-sponsored sessions in your program, and remember to stop by the NAGT booth and say hello (or volunteer to help)!

Teachers on the Leading Edge Workshop: GSA Annual Meeting, Portland, Oct 17th

Bob Butler, University of Portland

Teachers on the Leading Edge will be offering a Short Course in conjunction with the national meeting of the Geological Society of America that will take place in Portland in October. The Short Course title is: "**Pacific Northwest Earthquakes and Tsunamis for Middle School Teachers**". This one-day short course will take place on **Saturday October 17, 2009** at the University of Portland. A description of the short course is included below. The cost of registration is only $10. The Geological Society of

America will provide 0.8 Continuing Education Units for participants in this short course. The short course is limited to 30 teachers. Teachers do not have to register for the GSA national meeting in order to attend the short course.

Description: By exploring inquiry-based lesson plans featuring Cascadia earthquakes and tsunami geology, participating teachers will gain understanding of: (1) Pacific Northwest plate tectonics and earthquakes; (2) earthquake seismology and tsunami science; and (3) how EarthScope science is advancing knowledge of active continental margin geology. Activities will combine science content sessions with pedagogical sessions led by middle school and high school teachers of Earth science. Participants will receive teaching resources including computer animations of plate tectonic, earthquake, and volcanic processes and virtual field experiences featuring Cascadia tsunami geology and Pacific Northwest geologic hazards.

INTERESTED TEACHERS SHOULD REGISTER FOR SHORT COURSE #514 THROUGH THE GEOLOGICAL SOCIETY OF AMERICA BY CALLING GSA SALES AND SERVICE AT 1-888-443-4472.

GEOADVENTURES for Students! 2010
Geology on an Active Hot Spot, Hawaii

Jenny Thomson, Eastern Washington University

2010's GSA Student GeoVenture Field Trip is "Geology on an active hot spot! Big Island, , with leaders **Dr. Jennifer Thomson** (Eastern Washington University) and **Dr. Bart Martin** (Ohio Wesleyan University.) This eight-day field trip (excluding two travel days) on the Big Island of Hawaii will introduce you to plate tectonics, hot spot volcanism and the geologic features and hazards associated with living on a active volcano. We will discuss volcanic edifices, eruption styles, magma evolution and see various types of lava flows, lava lakes, fault scarps, rifts, craters and calderas. This trip is designed for college-level students and /or those wishing for a continuing education experience who have had at least a college-level introductory geology course or who may be interested in pursuing a degree in geology. GSA student members: $985; Non-members: $1245 (does not include airfare). For more information and registration, visit **www.geoventures.org** - information forthcoming - Sponsored by the Geol. Society of America and Subaru America.

NOAA Teacher at Sea Program, 2010

Michael Collins, AK State Councilor

The NOAA Teacher at Sea program is a unique opportunity for teachers to learn aboard NOAA research and survey ships. This program is for full-time educators at all levels, including K-12, community college, university, museum, aquariums and adult education. Participants can expect to be at sea anywhere from one week to one month, with the average cruise lasting 12-14 days. Most participants try to sail on cruises offered during the summer vacation, but cruises take place throughout most of the year on a space-available basis. All necessary travel costs are paid for by the NOAA Teacher at Sea Program. Application materials for the 2010 season will become available beginning October 1, 2009. For more information go to: **http://teacheratsea.noaa.gov/**

Cordilleran Section/AAPG Joint Meeting
May 27-29th, 2010 Anaheim, CA

The 2010 GSA Cordilleran Section/AAPG joint meeting will be held Thursday May 27th through Saturday May 29th, 2010, in Anaheim, California. The meeting is hosted by Cal State Fullerton Geological Sciences and the Pacific Section of AAPG. If you have an idea and would like to chair a theme session or a symposium contact **Jeff Knott** at **jknott@fullerton.edu**.

State by State:
British Columbia, Yukon, Idaho, Oregon & Washington

British Columbia

Mary Lou Bevier, Brett Gilley, State Councilors

Nothing to report.

Alaska

Cathy Connor, Michael Collins, State Councilors

- ★ **Alaska Cell of the Friends of the Pleistocene**, **Sept 5-6**, 2009 Fairbanks, AK, www.uaf.edu/aqc/fop2009.htm
- ★ **Impact of the Environment on Human Health, AAAS,** Sept. 14-16**.** Held by the American Association. for the Advancement of Science, Arctic Division. The conference will take place in Juneau Sept 14-16, 2009. (http://arctic.aaas.org/)
- ★ **Alaska Science and Math Teachers Conference, "Inquiry—The Bridge to Understanding."** Oct 14-17, 2009. www.aksta.org. The Alaska Math & Science Conference will be held October 14-17, 2009, in Juneau, Alaska, at the Juneau Douglas High School. The cost is $100.00 for early registration. The conference includes keynote speakers, workshops, field trips, vendor exhibits, networking opportunities, ASTA and ACTM membership benefits and credit options. The website, for information and registration details, is **www.regonline.com/AKMathScience**
- ★ **Alaska Miners Annual Convention and Trade Show**, Nov 2-8, 2009 Anchorage, AK. www.alaskaminers.org/convbrochure.pdf

Idaho

State Councilor: Shawn Willsey

Nothing to report.

Oregon

Joe Graf, Tom Lindsey, State Councilors

- ★ **GSA Annual Meeting, Oct 18-22, Portland, OR.** www.geosociety.org for registration details.
- ★ **Pacific Northwest Earthquakes and Tsunamis for Middle School Teachers**, Oct 17, 2009. Teachers on the Leading Edge 1 day workshop. Register for shortcourse #514 at 1-888-443-4472.

Washington

Joe Hull,Jeff Tepper, State Councilors

Nothing to report.