

CONTACT

The Alumni Newsletter of Wheaton College's Department of Geology and Environmental Science



Geology majors and alumni gathered this summer at the home of Steve and Donna O'Rourke in the Black Hills.

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FROM THE DEPARTMENT CHAIR

Stephen Moshier

If you follow any of those Internet lists that rank everything from "best foods for healthy skin" to "worst country songs about dogs" you know that lots of them rank best and worst colleges and college degrees. Of course, the word "hot" is more frequently used than "best." As silly and suspect as most of those lists appear, two things about them warm my heart. One is that Wheaton College is very often on "hot" lists for a number of distinctions. The other is that geology and environmental science are "hot" majors! We already knew that. The immediate benefit for our department is a healthy community of students in both majors. We know that six high schoolers on the early admission list intend to study one of our majors if they choose to matriculate at Wheaton College next fall. Perhaps they have been keeping up with those lists on the Internet.

You might also already know that alumni from colleges and universities across the land are being asked to become directly involved in the education of the current crop of students by serving as mentors and networkers. Wheaton College has "Wheaton in Network" (WiN), an online tool that facilitates connections within the Wheaton family. Some of you have joined and others of you should consider it! There are other ways that geology and environmental science alumni are giving us encouraging support. Many of you faithfully contribute to the Geology Scholarship, Boardman (Black Hills) Scholarship, Geology Research Fund (benefiting both students and faculty), or the Black Hills Improvement Fund. [Please be sure you indicate any of these funds when you contribute to the college] Others of you have made actual or virtual visits to the classroom (see article on Petroleum Geology in this issue) and the Science Station during geology field camp. Some of you have volunteered for our Alumni Advisory Council. For all of these thoughtful and tangible demonstrations of your support, we thank you! You are of our list of the "hottest alumni."

We hope you enjoy reading here about the past year that was rich with changes, adventures and many blessings. ■

JOIN STUDENTS AND FACULTY ON A FIELD TRIP TO THE GREAT BASIN

We are planning a field trip for students, faculty and alumni to the Great Basin of Utah and Nevada, May 11-17, 2015. Participants will fly into Salt Lake City and depart from Reno. Jeremy Vaughn '99 will lead the trip, drawing on his professional experience as geochemist for Barrick Gold Corp. Highlights will include igneous provinces and economic geology, energy resources (geothermal and petroleum), Paleozoic stratigraphy, Pleistocene landforms and environmental issues. We hope the interaction of students, faculty and alumni will be stimulating and just plain fun. Contact the Department of Geology and Environmental Science office (630.752.5063) for information on costs and schedule. ■



*Environmental Science majors taking biology in the Black Hills.
Photo credit:
Yuxi Zhao*

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JEFF'S JOURNALS

Spring 2014

No big things happened beyond continued organization of our WASTE Project for water treatment experimentation here on campus (more on that below). Steve and I co-lead a three-day field trip for Structure (me) and Historical (him) up into wet, wet Wisconsin. It rained enough to obscure important outcrops but we forged on and had a good experience with 20+ majors anyway. Outstanding feature: huge, thrusted sheets of translucent blue ice were rafted up on the shore of Lake Michigan in Green Bay. They were beautiful and formed the stage for a guest lecture provided by our buddy Dr. Steve Dutch at UW-Green Bay.

Summer 2014

I supervised WASTE operations with our student leaders, Jacob Kvasnicka '16 and Meagan Jackson '16. These are ES majors with great futures as well as their impressive accomplishments now on campus.

It was a delight to serve together with grad, Lauren (Powell) Heerschap '01 as a team for the major's geology mapping course during the second half of the WCSS program in June-July. Lauren is an amazing person in general and geologist in particular. She has wonderful interpersonal skills along with lots of experience/wisdom in various areas of study. I hope that she will again find time to join us in future field-course years. The weather was great and all the outcrops are still there (for now). This summer we welcomed alumni at the science station for a long weekend in July, hopefully starting a tradition for future summers. This time all of our guests were from our Advisory Council. AC member and dear friend, Steve O'Rourke hosted the Council, Geo faculty and all Geology Majors for dinner at his house three miles away. The house is something to behold in its unique beauty and setting. The real host(ess) was Steve's wife Donna, another part of the O'Rourke team with daughter Katie '11. The department wants to apply a new alternating-year pattern of AC meetings at the WCSS and field trips right after graduation.

Right after the four weeks of field education, I added Jim Clark and Ian Treat '15 to the Wheaties involved in Water-For-Life outreach in Kosovo. This was my fifth sojourn into the tiny nation but Jim and Ian's first. This time was intended to bring Jim's "homemade" resistivity and seismic refraction instruments to our local WFL colleagues, train them to survey for depth to bedrock and possible subsurface water, and leave the instruments, a laptop, and software for hopefully many site studies. WFL has been primarily rehabilitating existing contaminated water wells. New initiatives should expand this to groundwater exploration and water treatment installations. The five of us fool-hearty guys rented a car and drove the new highway from Kosovo, into Albania and finally into Montenegro. I drove and no one was killed or even physically injured! It was harrowing but the geology along the way was fabulous (ophiolite peridotites, folded sedimentary units, pillow basalts, old mines...) Plans are consolidating now for another effort in Kosovo over 2015. There is so much to be done.

Fall 2014

The big push this semester is for publications completed (if not yet published). I am co-author with a geologist in Washington State on a new GSA volume involving application of geoscience as service, to society and nature globally. Even though there are many of us working in or training for the environmental professions, most geologists are employed in the extractive industries or academia. Our unique skills and perspectives are badly needed in a world with tremendous problems at the interface between humanity and nature. Three papers in the volume include me as author or co-author. I am sole author on GEOPHILANTHROPY and

co-author for, *RELIGIOUS FAITH AS A MOTIVATION IN USING GEOSCIENCES TO DEVELOP A SUSTAINABLE FUTURE and WASTE STABILIZATION PONDS IN THE SERVICE OF THE GLOBAL POOR: THE WASTE PROGRAM*. This last one also has other Wheaton College faculty and students on as authors. The full volume will have about fifty articles covering a wonderful array of topics from all over the globe. Our best scientific thinking and enterprise is guided by the heart!

The GSA volume co-editor, Greg Wessel, and I chaired a special topical session at this year's Annual Meeting of the GSA, in Vancouver, BC. The professional interaction was great with several of our current majors and Geology alumni including AAPG Executive Director, David Curtiss '92, Ole Miss hydrogeologist Gregg Davison '85, Baylor geochemist James Fulton '97. Also there and presenting papers were recent grads, Kit Carson '12, Frances Griswold '13, David Wheatley '12, Chris Gates '13, and Joshua Olsen '14 (see below for presentation titles). It was my great pleasure to join Vancouver resident and diamond-geology expert, Steve Moss '99 on a field excursion north up Howe Sound to view salmon, Quaternary volcanic and glacial features, and other outrageous scenery. Steve's wife and young son came along.

Chris Keil, Jim Clark, Ray Lewis (Biology), and I remain as faculty members of the WASTE Project on campus. This initiative to study via experiment and research literature concerning wastewater treatment pond technology, has entered its second phase. The Wheaton campus lab work has gathered a lot of data on environmental factors that affect sewage disinfection in pond systems. Currently, we have two GSA presentations completed and two professional publications on their way to describe WASTE as educational program and global-development endeavor. It is now time to move our efforts on for a Phase 2, which is hoped to include a larger, outdoor demonstration-training system established on the grounds of our partner, Ave Maria University in southwest Florida. This is a time for fund raising (ugh!) with lots of prayer to cover the expenses of building a Phase 2 facility. Once in operation, Wheaton and Ave Maria students would become trainers to help sanitation, agriculture, and other community development practitioners from all over the world to learn about and plan systems for candidate communities. The well-known Christian ECHO agricultural ministry center is only 20 miles away from AMU. ECHO receives important visitors from global regions in need of adequate sanitation services and the enhanced irrigation WATE technology provides. Thus far, 14 student WASTE team members from six different disciplines have participated in the project. ■



Members of the Geology and Environmental Science Department gather around the virtual fireplace during the department Christmas party in the exhibit hall of the Meyer Science Center.

KEIL'S CORNER

Environmental Science Students are Active!

It's amazing to me when I stop and think about all the different opportunities students in the Environmental Science (ES) Program are taking advantage of as supporting parts of their Wheaton education. From performing arts like Improv, Arena Theater and Conservatory ensembles, to varsity and intramural athletics, to residential life and student government involvement, to co-curricular environmental activities and organizations, the students in the ES family amaze me with the breadth and depth of their interests.

This year we have a particularly large number of students involved in overseas opportunities. Four students are studying this spring at the International Sustainable Development Studies Institute in Thailand. One of our own is spending the semester in New Zealand studying at the Creation Care Study Program. This coming summer and fall, three Environmental Science majors will go across the globe to participate in HNGR internships.

Kelly Wilson '16 is the director of the Honduras Project (HP) and will lead a team of 24 to rural Honduras in March to install a gravity fed water system along with village partners. This is Kelly's third year on HP, first as a team member, then as a cabinet member and now she's providing outstanding leadership to the project. Four geology majors are part of the HP team, and oh yeah, I'm the faculty advisor. So 25% of the HP team

DOC MO'S MEMOIRS

This fall semester marked my twenty-third year at Wheaton College. Crazy! Each year just seems to get better than the one before it. I suppose my summer was most notable, so that's what I will journal here.

This was a "Black Hills Field Camp" summer for our geomajors. We needed to have two instructors on hand at any time to accommodate the class of eighteen souls, so I took the month of June with Charles Carrigan (Olivet Nazarene University) and Jeff took the month of July with Lauren Powell Herschap ('01, Fort Lewis University). Both Chuck and Lauren have served as instructors for the course in previous years. For various reasons, we had to run the "western trip" to Yellowstone Country during the second week of June. Wheaton College President Phil Ryken and his family joined us on the trip. His son Josh was a geomajor in the class, so I guess they were curious! We all had a marvelous time, despite camping in the cold, early summer nights (we did experience a snowfall one afternoon). A highlight was the drive up and down the Chief Joseph Parkway to the Northeast entrance to the park. Phil and Josh are avid birders, so we all shared a magical moment watching a bald eagle glide over red cliffs of the Triassic Chugwater Formation against a brilliant blue sky. My wife Carol stayed at the Science Station during the Yellowstone trip (enjoying the peace and quiet), but it was wonderful to spend our time together there.

In July I traveled to England to attend a workshop at Oxford University sponsored by The BioLogos Foundation. Last year I described the grant that four Wheaton colleagues and I received from BioLogos to write a textbook for our Theories of Origins class. The week in Oxford was stimulating and wonderful. A highlight included a dinner at the Natural History Museum, where we sang hymns that reverberated throughout the exhibit hall. William Buckland (one of the museum founders) would have loved it!

has their home here in the Department of Geology and Environmental Science. Yay us!

Student research in the ES program continues to be strong. The aquaponics research mentioned in last year's contact finished up well. The aquaponics system was used for a mini-project last semester and this semester the same student will do more detailed research on the nitrification process. A number of ES students have been part of the WASTE team. Two students have completed very rigorous research projects associated with WASTE. Jacob Kvasnicka '16 produced an excellent manuscript on BOD5 reduction and Meagan Jackson '16 investigated the nitrogen cycle in the WASTE process.

Research at the Wheaton College Science Station is growing. Two ES students were part of a research team from the University of Minnesota investigating the mountain pine beetle that is causing such havoc across the West. Elsewhere in CONTACT you can read about the research done at the WCSS by Johanna Depenthal and Kelsey Powell.

A Rocha continues to bring environmental awareness and activities to campus. The recycling committee has been very active and involved in the conversation to improve recycling on campus from both an infrastructure and behavioral standpoint. And the community garden had another great season last summer.

If any of you alumni out there want the chance to get one of these dynamic students involved in your organization, they are all looking for internships and jobs! I can connect you with the perfect candidate. ■

Prior to the workshop I visited Michael and Andrea Roberts at their home in Garstang, North West England. Michael is a geology historian and retired Church of England vicar. An avid hiker, Michael led me across trails in the nearby Peak and Lake Districts, giving me a good look at the glaciated terrain and Carboniferous strata. We visited Dent, the birthplace of Adam Sedgwick, the Woodwardian Professor of Geology at Cambridge who mapped and defined the Cambrian system back in 1835. We took turns standing in the pulpit of the church where he and his father preached.

Another trip before the end of the summer: the American Scientific Affiliation annual conference in Hamilton, Ontario. In the spring I was elected to the group's Executive Council, so I attended a council meeting before the conference. This meeting was special because it brought together the likeminded Christian-science organizations of the US, Canada, and United Kingdom. The Affiliation of Christian Geologists ran a field pre-meeting trip along the Niagara Escarpment that was attended by a school bus full of enthusiastic people.



Finally, in the fall, yet one more trip: this time to Cincinnati for the wedding of my son and new daughter-in-law! It was a marvelous weekend shared with family and friends. ■

Doc Mo "preaching" from the pulpit of St. Andrew's church, Dent, where Adam Sedgwick and his father preached in the early nineteenth century. A memorial stone in the church states of Sedgwick, "As a man of science and a Christian, he loved to dwell on the eternal power and Godhead of the creation as revealed in nature and the fuller revelation of His love, as made known in the gospel of his son Jesus Christ."

CLARK'S CAPERS

Jim has now returned from a refreshing sabbatical leave in California working on development of inexpensive geophysical instruments for water exploration. His sabbatical ambitions exceeded outcomes, but nevertheless a prototype of a microcomputer controlled resistivity instrument is functioning. He also learned much more about digital electronics and interfacing sensors to a laptop. During fall semester Ryan Franklin '14 faithfully spent mornings further improving the device so that now both resistivity and induced polarization are measured. This allows both electrical resistance and electrical capacitance to current flow for subsurface layers to be estimated. Further instrument improvement is occurring this spring semester with geophysical major Daniel Hudson '15, implementing a 24-bit analog to digital converter that we hope will eliminate the need for toggling gain on the instrument. The goal is to simplify operation of the instrument as much as possible while still keeping the cost minimal (less than \$100) so that it is accessible to well drillers in developing countries.

SPECIAL TRIBUTE TO JAMIE SELANDER

Jamie Worrel Selander '04 probably never thought about returning to Wheaton College after she graduated and set out to complete an MS in geology at Northern Illinois University. But, as Jamie finished at NIU in summer 2006, her alma mater was in need of a qualified office-lab coordinator. Steve Moshier had just assumed the Department Chair from Jeff Greenberg (who thought sitting in that chair for 20 years was long enough). So, for the next eight years, just about any success of the Department of Geology and Environmental Science at Wheaton College can be attributed to Jamie, who did happily fill the coordinator position. Jamie effectively wrote and updated material for the GEOL 211 lab manual, set up labs each week, taught sections of lab, supervised student teaching assistants, curated and cataloged thousands of rocks, minerals, fossils, and archival photographs, operated the dreaded scantron grading machine, edited this newsletter, and faithfully provided office support, including ordering equipment and supplies, keeping budgets and schedules, and updating web content for both the Department of Geology & Environmental Science and the Wheaton College Science Station. Jamie's service extended beyond the department during the summer of 2010, as she became one of the key staff involved in moving collections, books, equipment and furniture into the new Science Center for all the departments, not just geology. Her extraordinary work ethic and calm demeanor worked to counteract the entropy produced by four professors and the growing population of geology and environmental science majors. Jamie also became a valued colleague of the other office and lab coordinators in the division.

So, it was with mixed sadness for us, and great joy for Jamie and her family, as they moved to Texas this fall. Jamie's husband Nic Selander was transferred to a TEAM International Christian Missions office in the Dallas-Fort Worth area. We will miss the whole family, but continue to enjoy Jamie's and Nic's two little girls via Facebook. ■



JOIN US ON FACEBOOK!

"The Department of Geology and Environmental Science"

Jim went to Kosovo during the summer with Jeff Greenberg and geology major Ian Treat '15 with the goal of teaching two indigenous Kosovars who are working with the YWAM organization Water for Life how to use his geophysical instruments. Arben and Beznik learned quickly the resistivity and seismic refraction methods. Jim also taught them how to use the free GIS software, QGIS, to record spatial information about the wells in the rural region of Kosovo where they are working. ■



Ann Shillaber '12, Sara Federschmidt '11, David Wheatley '12, and Emma (Bayer) Watkins '12 at Sylvan Lake in the Black Hills in 2010.

GREETINGS FROM THE NEW JAMIE!

Jamie Fearon

This past fall, I began as the new Office Coordinator/Lab Associate for the Geology and Environmental Science department. Though I wasn't a Wheaton student myself, I've had close ties with the school for quite a while. I grew up in Wheaton, and spent many an afternoon at the Stupe during middle school. Instead of attending Wheaton College, I studied geology and environmental science at Olivet Nazarene University. Upon graduating from Olivet ('10), I attended field camp at the Wheaton College Science Station and got to know Dr. Greenberg, Dr. Moshier, and Dr. Keil. I earned my MS in paleontology at Montana State University ('13), studying the potential adaptations for digging in the small, herbivorous dinosaur *Oryctodromeus cubicularis*. After spending a year teaching geology at Luther College, I had the pleasure of returning once again to the Science Station, this time to teach the general education geology course. Now I am wrangling the professors, playing with 3D scanners, teaching intro labs, and organizing and cataloging the fossil and mineral collections. I am glad to be back in my hometown, and excited to finally be part of the wonderful Wheaton College community I have grown up around! ■



Lacy Smith '01 and Josiah Engblom '02 separating sediment for a research project on Black Hills stream sediment.

SCIENCE IS REAL: TEN WEEKS OF WATER QUALITY RESEARCH IN SOUTH DAKOTA'S BLACK HILLS

Johanna Depenthal '16 (ENVR)



On June 2nd, Kelsey Powell '16 and I stepped into our laboratory at the Wheaton College Science Station and realized for the first time what we'd gotten ourselves into. Boxes of equipment stood stacked on the floor, dead spiders disintegrated in the sink, and a massive book titled "Standard Methods for the Examination of Water and Wastewater" lay heavily on the table in the center of the room. Through the thin wall, we could hear our advisor, Dr. Chris Keil, introducing himself to his new Intro to Environmental Science class, confirming that there would be no hand-holding for this job.

After a deep breath, Kelsey and I threw ourselves into unpacking, setting up equipment, and getting up to speed on the physical, legal, historical, and social context of our research site in the Black Hills. On several days we joined Dr. Keil's class on field trips to fens, bogs, and wastewater treatment plants, which not only gave us a better feel for the Black Hills watershed, but allowed us to get to know many of the Gen Ed students. I contacted local experts at SDSM&T and poured over geological maps while Kelsey fearlessly analyzed thousands of data points in the South Dakota Department of Environment & Natural Resources database. Armed with this knowledge, we focused our research on the effects of development on Rapid Creek between Pactola Basin and the western edge of Rapid City and began systematic sampling of water temperature, pH, Dissolved Oxygen, Nitrate, Phosphate, and Ammonia levels, as well as Total and Suspended Solids content and Specific Conductance levels at four Rapid Creek sites. Spring Creek was too distant to sample daily, but we identified another five sites for weekly sampling to build a foundation for future research.

Daily sampling trips and lab analysis of samples kept us more than occupied. By the end of July, we not only had a fully functioning laboratory, but also had built a database containing the results of over 115 sampling events, including 87 on Rapid Creek and an additional 30 on Spring Creek. More importantly, Kelsey and I had gained the confidence and experience that comes with identifying a research question, designing a long-term experiment, maintaining equipment, juggling sampling campaigns and in-lab analysis schedules, and managing finicky probes. Though challenging at times, working independently of step-by-step supervision was a learning experience neither Kelsey nor I will forget. ■



Petroleum students listen as Katie Foltz '13 describes her Master's work.

GSA 2014 ANNUAL MEETING CONTRIBUTIONS

MINERALOGICAL AND CHEMICAL TRENDS DURING ACID-SULFATE ALTERATION OF HIGH-FE BASALTS AND HYALOCLASTITE AT KRAFLA AND NAMAFJALL, ICELAND: IMPLICATIONS FOR MARS
CARSON, George L. III, MCHENRY, Lindsay J, and CAMERON, Barry I.

ACID-SULFATE FUMAROLE ALTERATION AND NEAR-NEUTRAL SINTER PRECIPITATION AT LASSEN: POTENTIAL ANALOG FOR GUSEV CRATER, MARS.
MCHENRY, Lindsay J., GERARD, Teri L., and CARSON, George L.

A FIELD-BASED GEOCHEMICAL AND PETROGRAPHIC STUDY OF THE FLUIDS PRESERVED WITHIN THE HARRISON PASS PLUTON WITH IMPLICATIONS FOR THE FLUID ORIGIN OF CARLIN-TYPE GOLD DEPOSITS
GATES, Christopher H.

NOT JUST OFFICIAL GEOHERITAGE SITES!
GREENBERG, Jeffrey K.

PRELIMINARY MODELING OF PALEOTSUNAMIS AND HISTORICAL TSUNAMIS NEAR THE ISLANDS OF THE FOUR MOUNTAINS, ALEUTIAN ISLANDS
GRISWOLD, Frances and MACINNES, Breanyn

HISTORICAL TSUNAMI AND PALEOTSUNAMI RECONNAISSANCE IN THE ISLANDS OF THE FOUR MOUNTAINS, ALEUTIAN ISLANDS, ALASKA.
MACINNES, Breanyn and GRISWOLD, Frances.

CAN THE STRATIGRAPHY OF CRESCENT HARBOR MARSH BE EXPLAINED WITHOUT LAND-LEVEL CHANGES?
OSTROM, Brian, MACINNES, Breanyn, and GRISWOLD, Frances.

PENROSE'S WHAT A GEOLOGIST CAN DO IN WAR: A CAUSE AND EFFECT LOOK
OLSEN, Joshua E.S., and LENCZEWSKI, Melissa

CLASTIC PIPE SOURCES AND STRATIGRAPHIC RELATIONSHIPS: EVIDENCE FOR MULTIPLE LIQUEFACTION EVENTS IN THE MIDDLE JURASSIC CARMEL FORMATION, SOUTHERN UTAH
WHEATLEY, David Fairchild, CHAN, Marjorie, HANSFORD, Mark, and TREAT, Ian

ALUMNI ENHANCE PETROLEUM GEOLOGY COURSE

Stephen Moshier offered the Petroleum Geology elective during the fall 2014 semester. Alumni guests treated the group of seven students to special presentations from the real oil patch via Skype. Ana Cichowski Meyer '04 shared with the group her journey from grad school to several years with Anadarko, before establishing her own consulting practice focusing on plays in the Central Basin Platform, Texas. Rich Aram '76 gave a presentation on source rock geochemistry based upon one of his training courses at ConocoPhillips. Josiah Hulsey '13 explained how he is developing new plays in old fields around a Louisiana salt dome using 3D seismic and advanced subsurface mapping software. Katy Foltz '13 described her master's thesis research on shale gas at Oklahoma State University. Each student prepared an illustrated ten-page summary of a selected petroleum system, which included the East Texas Oil Field, North Slope Alaska, Greater Burgan Oil Field of Southeastern Kuwait, Alberta Rainbow Field, Marcellus Shale, and California Belridge and Wilmington-Belmont Oil Fields. Students benefited from our access to the AAPG Datapages digital archive, virtually everything ever published by AAPG and affiliated organizations. This resource was a gift of Ralph and Meredith Stone '68. ■



Dr. Boardman and students including Paul Ribbe '56 on a field trip. Let us know who else is in the photo (and where it was taken).



Joshua and Kaitlyn cleaning the Burr obelisk.



This year's GIS poster session was a success, with 18 posters on geological, environmental, sociopolitical, and archeological topics.

EXCAVATING *TRICERATOPS* WITH CARTHAGE

Aaron Kennedy '16 (GEOL)

This past summer I had the privilege of participating in a paleontological dig through Carthage College. Unlike many present-day digs, the one that I participated involved no costs to myself aside from transportation to Rapid City, SD. Participation required no prior experience with paleontology. This attracted a spectrum of participants ranging from the highly experienced (such as the professors in charge), to the actual students of paleontology, and the curious adventurers such as myself. All in all there were about 15 of us though the actual number fluctuated throughout the week and we all got along marvelously.

Though we prospected throughout the week for new bone sites, our primary focus was on a *Triceratops* named Maddie. Carthage had been working on Maddie for several seasons, slowly excavating and removing what they could. This year we managed to remove a large part of Maddie's upper skull, including the squamosal as well as some of her frill. Unfortunately (or fortunately, depending on how you look at it) in the process of clearing out and preparing Maddie's skull for transport we uncovered more of her frill buried in the hillside, meaning that there is even more of her skull to excavate next year!

Ultimately I would highly encourage anyone with even a passing interest in paleontology to look into participating in a dig! Even in the short time I was there I learned so much about not only paleontology but about science in general from the wide range of people attracted to the dig. ■

GEOLOGISTS REFRESH BURR MEMORIAL

James Burr was an abolitionist who was famously buried on the Wheaton campus in 1859. His grave marker included a marble obelisk that was removed decades ago, apparently because it spooked the residents of nearby Williston Hall. The obelisk was lost until it was accidentally discovered buried near the railroad tracks behind Chase Service Center, not far from the soccer field. A trench was being dug for underground cable. The obelisk was slightly damaged by the mechanical shovel, but mostly it was stained by the soil in which it was entombed (see what I did there?). The College decided to restore the monument for display on campus and asked our department for help. With advice from a professional preservationist, Stephen Moshier and two students, Joshua Olsen and Kaitlyn Walleit, cleaned the stone with a mixture of deionized water and baby shampoo. The monument was placed in the stairwell at the entrance to Blanchard hall and was dedicated in a moving ceremony in October. ■

AN EDUCATION NOT "WASTED"

Jacob Kvasnicka '16 (ENVR)

Two years ago, I was invited to take part in a water and sanitation project at Wheaton College known as "The Water and Sewage Transformation Endeavour" (WASTE). WASTE, consisting of Wheaton College students and faculty from various academic departments, seeks to implement sustainable sewage treatment systems in developing regions. My decision to take part in this project has led to one of the most challenging yet rewarding academic experiences of my undergraduate career.

As a freshman, I started out as a lab technician performing routine water-quality testing of our lab-scale system in the basement of Armerding Hall. This allowed me the opportunity to become more familiar with teamwork in the context of a scientific project. As a sophomore, I was extended the opportunity to serve as a student manager to help plan and execute the lab-scale experimentation as well as to take part in the more general project planning. With this more advanced role, I soon realized the responsibility I had inherited. I had to quickly adopt a creative mindset and learn to collaborate and problem solve. Due to the student-run nature of the experimentation, I developed invaluable skills related to project management, and working independently and with others.

These skills became even more necessary when all the student team leaders had graduated and I was to continue research and experimentation through the summer after my sophomore year. Fortunately, during last summer I had helpful support from a fellow ES student whom I could bounce ideas off of and receive feedback. Together we brought lab testing up to speed but the future of the project became uncertain; significant funding will be required to move forward with our pilot phase. The team, however, has been continuing to work hard with this task.

Fortunately, the team was able to plan and execute a successful laboratory experiment during the fall semester of 2014, which will help serve as a springboard to planning for the construction of our pilot system in South Florida for demonstrating, training, and networking purposes. Overall, I've been greatly encouraged by God's faithfulness as well as the several passionate, good-hearted people that comprise the WASTE Project. ■

SUSTAINABLE DEVELOPMENT IN KOSOVO

Ian Treat '15 (GEOL)

If I were to choose one word to summarize my junior academic year, it would be Kosovo. My life has focused around that small country since Thanksgiving of 2013, when my parents announced to my brother and I that they were feeling led to spend a few years as missionaries in Kosovo. My curiosity piqued and I wanted to learn everything I could about the country, like its demographics, history, and geology. After my parents' news, I remembered that Dr. Greenberg had connections in Kosovo through the NGO Water for Life. I asked him if there was any chance that he would be taking students on his upcoming trip in August 2014. Indeed, he would be traveling to Kosovo with Dr. Clark to test out the new geophysical resistivity equipment that Dr. Clark assembled as well as reconnecting with our Water for Life partners, Arben and Besnik.

However, getting to Kosovo isn't exactly a free ride. As soon as I found out I would be able to go last January, I worried about finances. How was I going to pay for the plane ticket? My dream was as far away as the ocean that separated me from the place that I would soon call a second home. I felt so strongly that God wanted me to be a part of this expedition.

STUDENT/ALUMNI NEWS

Congratulations to two of our alumni on completing their doctorates: Fabien Laugier '10 at Colorado School of Mines moving to Houston to work with Chevron, and Glenn Sharman '08 at Stanford University, also moving to Houston to work with ConocoPhillips.

Geology and German major Ian Gottschalk '15 is having a really good year. Next semester we will be a DAAD scholar with a fellowship to study at University of Tübingen, under Dr. Olaf Cirpka, a leader in the field of hydrogeology and groundwater modeling. DAAD (German Academic Exchange Service) is the German national agency for the support of international academic cooperation that awards prestigious scholarships to students around the world who want to study and contribute research in German institutions of higher education.

In the fall, a term paper Ian wrote for Jim Clark was published in *The Professional Geologist*, journal of The American Institute of Professional Geologists (AIPG), the largest association dedicated to promoting geology as a profession. His paper "Measuring Average Linear Velocity by Electrical Resistivity Surveying and Salt Tracers" can be accessed at the AIPG website.



Geology alumni Don Beaumont past away at the age of 90 this past December. Don was a veteran of the Army Air Corps in WWII supporting D-Day. After Wheaton, he completed an M.A. and PhD from Columbia University. Most of his professional life was spent with Texaco in International Exploration after a brief tenure on the Middlebury College faculty. Post retirement, he shared his passion for geology at Senior University in Georgetown and at the University of Texas Life Long Learning Institute through early 2014. His provocative 2010 paper "How the Earth's Geology Determined Human History" was published by the online journal *Sino-Platonic Papers*. Don served as a Deacon and Elder in the Presbyterian Church and was an active member of The Worship Place during the years he enjoyed in Sun City in Georgetown, Texas. He frequently corresponded with us at the department with notes of encouragement and wonderful stories of his life in the geological field.

SCHOLARSHIP AWARDS

The merit-based Geology Scholarship awarded a total of \$3875 this year to five outstanding students. The recipients for the 2014-2015 year included Claire Colwell '16, Ian Gottschalk '15, Mark Hansford '15 Christopher Thompson '15, and Ian Treat '15. Passion for geology, involvement in the department, and academic achievement are considered when selecting recipients.

Thank you alumni for your continuing contributions to our scholarship funds – we are blessed to have scholarships to aid our students. Please remember that you must designate these scholarships when making a contribution to the college.

Then, the day I decided to stop worrying about funding, Dr. Greenberg told me that he had found a source of funding and that I was definitely going!

Landing in the capital of Pristina felt like coming home to a place I'd never been before (like the line in John Denver's song "Rocky Mountain High"). Not only did I see myself as doing "reconnaissance" for my parents, but also I was excited to collaborate with Water for Life and learn how to use the geophysical equipment. The first week we traveled to Kllodernicë, a village outside the Skenderaj municipality. With my new friends Arben and Besnik, we checked on families whose wells Water for Life had refurbished. I admired their willingness to continue the relationships they had made surrounding providing clean water. They believe in maintaining those relationships because many families they help are elderly or poor, and by loving them they share the love of Jesus. The next couple weeks were spent talking with other families in Kllodernicë who wanted to have their wells refurbished as well. We tried out Dr. Clark's prototype in the village with some success. Our last few days together were spent with Dr. Clark lecturing on how to use free GIS software. All in all, it was a successful and exciting trip, and I am looking forward to returning soon. ■

CLASS OF 2014 GRADS

Ten Geology majors and five Environmental science majors graduated in 2014. Congratulations!

ENVIRONMENTAL SCIENCE:

Emily Beckman (12/2014)

Elsemarie DeVries

Kymberly Grove (12/2014)

Nathan Hadley

Erik Swanson

GEOLOGY:

Benjamin Foster (8/2014)

Courtney Goll

Ryan Kammer (8/2014)

Elizabeth Kennedy (8/2014)

Elizabeth Movius (8/2014)

Joshua Olsen

Katherine Paukert

Joshua Ryken (12/2014)

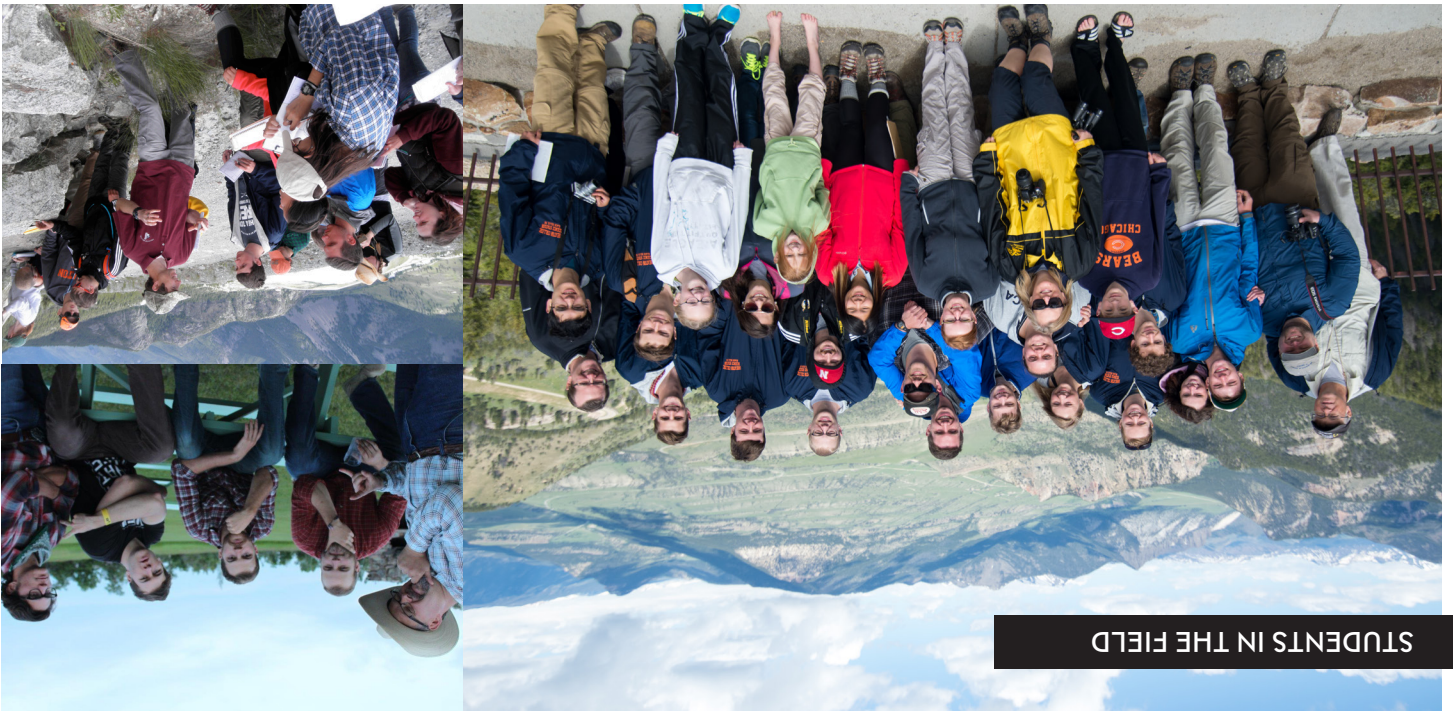
Judith Stewart (8/2014)

Kaitlyn Walleit (8/2014)

DEPARTMENT OF GEOLOGY
& ENVIRONMENTAL SCIENCE

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Left: Geology majors and the Ryken family on the Western trip in Summer 2014 on top of the Chief Joseph Highway, northwest Wyoming. Photo credit: Johanna Depenthal. Bottom Right: Stillwater Mine geologist and WCSS alumnus Josh Brewer sharing his knowledge of the famous layered igneous intrusive province to geomajors, summer 2014.



STUDENTS IN THE FIELD