

Inside this Issue:

Jeff's Journals	2
Skills to the Field	3
Doc Mo's Memoirs	4
Clark's Capers	5
Science Center	6
Summer Research	8
What's an REU?	8
Sorting Rocks	9
Scholarship Awardees	9
The Black Hills	10
Class of '10 Grads	11
New Geologists	11



CONTACT

The Alumni Newsletter of Wheaton College's Department of Geology

When I consider Your heavens, the work of Your fingers, The moon and the stars, which You have ordained; What is man that You take thought of him, And the son of man that You care for him?

—Psalm 8:3-4



Greetings from our new home in the Science

Center! The transition from old to new over the summer followed seven years of programming, design, fundraising, and finally construction. We reported to you last year on our preparations, including the rock sale and lots of house cleaning of the cabinets, attics and closets of Breyer/Armerding. No department was harder to move than ours! Jamie Selander, our Lab Associate/Office Coordinator worked through the summer to supervise our operations, directing student workers in the wrapping of countless specimens and packing of scores of book boxes (she did a lot of that work herself, too). Much furniture and all the rock trays and storage racks were recycled to the new classrooms and labs. We were supposed to move the department in late July. A national labor strike slowed construction during most of July, which actually worked in our favor as Jamie and her crew were allowed to start moving us over early. The strike ended with days to spare before the arrival of students and the fall semester, but we made it!

We can't begin to describe all the benefits of the new space for our program in these pages. A few days in the new space caused

us to wonder how we managed at all over in Breyer! Yet, we did, didn't we? No doubt you have memories of good times with your fellow geology majors in Breyer Lab puzzling over a mineral, making rivers (and floods) with the stream

table, describing your first core, folding jelly sandwiches into nappes, or taking a nap in the seminar room. In the end, we will do well not to forget that community and fellowship in Christ is what makes Geology a special major and program at Wheaton College.

Highlights since Last Contact!

Population explosion – The number of geology majors has grown from about 25 students last spring to 40 students this fall. Enrollment in majors courses are now requiring two lab sections.

“Field Camp” – Twenty-one students completed the 8-week summer session in the Black Hills. Moshier taught the first two weeks, Greenberg the middle five, and Christopher Williams ('93- Florida Geological Survey) led the western trip to Yellowstone country. Two students from the geology program at Olivet Nazarene University enrolled in the course.

Geology hosts Annual Science Seminar (March 24, 2010) – Extreme Frontiers in Geo-Exploration: Earth and Mars. Jim Clark spoke in chapel (you can see or hear it, <http://www.wheaton.edu/wetn/chapelspring10.htm>) Afternoon lecture: Dr. Wei Luo, Northern Illinois University, “Global Pattern of Dissection on Mars and the Northern Ocean Hypothesis.” Evening lecture: Dr. Marjorie Chan, University of Utah, “Red Rocks on Earth and Mars.”

Jeff's Journals

Sitting here in bright newness of the Science Center (its official name thus far) is a joy. All of us must testify to the goodness of the Lord in providing such a quantum upgrade in facilities. This comes at a time in which we have grown to the highest number of Geo majors in WC history (40 and counting). Something very good must be happening here. I am of course biased but it doesn't seem that undergrad geology could be any better anywhere. Thanks for all of your prayers and support. Please don't stop now. In fact, we actively seek sources of funding to advance this program beyond our grand overload. We need at least one new faculty colleague to effectively serve our great students in preparation for Kingdom work.

GSA MEETING

I just returned from the GSA annual meeting in Denver. It was a nice opportunity to show off a little and connect with lots of people. Senior Geo major, Peter Brice accompanied me as we presented two posters, one on our service-research in Kosova, the other for Peter's summer research on complex structures of the Black Hills. We are currently laboring to publish both efforts in major journals.

At GSA, we met up with recent grad, **Fabien Laugier '10**, beginning his exciting global studies in Geology for the Colorado School of Mines. At our annual gathering of the ACG (Affiliation of Christian Geologists) during GSA, we also spent time with WC Geology alums, Dr. **Gregg Davidson '84** and almost Dr. **Andrew Luhmann '06**. Gregg is hydrogeology prof. at Ole Miss. He has written a book, *When Faith and Science Collide*, as an adjunct of his ministry to inform evangelical seminaries and illuminaries (that is celebrities) about real geoscience. Gregg works with two other Christian professionals, including departmental alum, Ken Wolgemuth '65 in this courageous endeavor. Luhmann is completing his studies of karstic geology at the University of Minnesota. He is first author of, *Classification of Thermal Patterns at Karst Springs and Cave Streams*, published in the journal, *Groundwater*. Unfortunately, we missed connecting with good buddy WC Geology alum and former Instructor, **Gary LaVanchy '98**. Gary has finished his fine study of land use in coastal Senegal at the Univ. of Chicago and now adds to his Masters degree in Geography with PhD studies at the Univ. of Denver. It should be noted that all the international research coming from our department majors is being very favorably noticed by other important organizations. For example, the AGI's Director for Geoscience Workforce would like us to be an example for other undergrad institutions in training geology students to actually practice geological skills in support of international community development. The same positive response about our program came from the GSA Vice-Chair of the Science and Society Division. In fact that division may be seeking large grants to support what we've been doing for several years with very little funding.

Some of us ACGers took a day off at GSA to do an informal field excursion into the local mountains. Early November and it was 74 degrees, perfectly sunny and awe inspiring. We visited some nice Precambrian hard rocks, including schists with 60cm andalusite crystals! We also went to Dinosaur Ridge and Red Rocks to view bones, tracks, etc. in the Mesozoic cover. Thanks to dear Brother, Steve Smith of the USGS for being our guide and temporary donor of his wife's minivan.

RESEARCH

I might actually get around to writing three articles over the next few months. Primary focus continues on projects in Kosova. I am scheduled to contribute a paper describing our educational strategies in global development projects, for a special volume of the *Journal of Geoscience Education*. Another article will focus more on the actual environmental improvements in Kosova. That will be submitted to a development journal. Sometime next semester, Peter Brice and I will finish studies of the roadcut at Pactola Dam in the Black Hills. This should result in a publication on the distinctive deformational features for *Rocky Mountain Geology*. If all this gets accomplished, I hope it attracts more institutional attention to our/your program.

It is our huge desire to see more and better opportunities for Geology majors in research, internships, and employment. With upwards of 40 enthusiastic young folks trusting us with their time here, the responsibility is daunting.

If you have knowledge of student opportunities, please do let us know. These undergrads continually prove their capability to do good, sophisticated work.

The opening of the new building inaugurates a new era of science for Wheaton College. Our department does badly need that forth full-time faculty colleague, especially with some expertise in low-temperature geochemistry. We also will be looking carefully at potential grants to obtain modern analytical instrumentation. Of course, we are not adverse to donations of good, if not brand new equipment.

GLOBAL OUTREACH

The Kosova commitment remains primary in the effort to engage students and professionals. The ultimate objective can be described as transformational ministry. We participate to facilitate the physical and spiritual transformation of people, while the environment is also transformed to its more proper function. The great genius in this type of pursuit is that we, the "rich" folks who go, gain so much and maybe even more than we can give to the "poor" we serve in the majority world. I hope that we have at least two more years in partnership with the Kosovars before that exploit is finished. Maybe our role there will continue indefinitely as more villages are trained and transformed. It is particularly encouraging to see people of Islamic heritage and love of the USA (from our role in stopping Serbian oppression) come to love and appreciate Christians. Cultural sensitivities compel me to avoid many wonderful

details about our Kosovar partnership. Feel free to ask me individually to share some stories.

This year, the college is also attempting to establish some long-term relationships with ministries in Haiti. Those that know about Wheaton's Honduras Project realize the enduring quality of that student-led practical ministry. We pray that the Haiti initiative will follow that pattern. Last summer, Physics/Geology student **Javan Miner '10** served his HNGR internship in Haiti with Jim Clark as academic advisor. We are all excited about how much Wheaton's educational treasures can be useful, essentially given away in service application. This paradigm of truly combining scholarly skills with compassionate outreach is a fine distinctive in the mission of the college. This coming Spring Break, a couple of faculty members with a couple of student leaders intend to visit two Haitian organizations. In this partnership, we will try to coordinate specific

plans to involve disciplines including Geology and Environmental Science, but also Education, Health Professions, International Relations-Government, Sociology-Anthropology, and Biblical Studies.

I have been invited back to South Africa to teach for a YWAM base outside Cape Town. About 300km away, there is also a possible opportunity to help plans for a coastal nature center. Unfortunately, funding support for these volunteer opportunities is hard to find.

TEACHING

I continue to teach two sections of the introductory Physical Geology course each semester. That plus lots of intro summer classes, adds up to thousands of Wheaton students over 25 years. Somehow, I never really tire of telling all the accumulated stories of natural history that drew me deeper into the best discipline in (of) the world. Steve Moshier and I team-teach the Petrology class, with 31 enrolled this fall!

We have 16 good petrographic scopes but needed two lab sections to cover everyone. One huge blessing has been the employment of alum, **Brandon Lewis '08** after receiving his M.S. in Economic Geology from Colorado School of Mines. Brandon helps us out, even though he works as a full-time petrographer for a materials testing company. This past summer, I taught five weeks of mapping to 21 Geology majors at the glorious Science Station in the Black Hills. Highlights of the teaching were excavation of dino bones and ammonites with barite crystals in western South Dakota.

Prior to that, I spent one week of concentrated instruction at YWAM's University of the Nations in Kona, HI. Students in my section of the course were from nine different nations. The YWAM class walked across the still-steaming Kilauea-Iki crater in Volcanoes National Park. All that only increases the desire for more field experiences.

FACILITIES

Our new building is a delight. Come visit and see for yourself. There are wonderful light and open spaces replacing dark, narrow halls and rooms. New displays and a nice museum area on our floor give places for high-quality specimens and poster exhibits. Outside, we set larger rocks representing spectacular features (like 2 b.y.-old basalt pillows, stretched-cobble conglomerate, pegmatitic granite, folded slate, and crinoidal limestone). Assembly of all these items creates an environment where scientific wonder inspires imagination. "Perry Mastodon" is now the showpiece at center of the building's atrium. The move of old bones was quite a spectacle with maybe a thousand people watching him in parade from Breyer Hall into his new station in May 2010.

The more functional areas of the building in our lower level add special areas specifically for faculty and student research. Of course, we existed for decades with nothing at all like this.

continued on page 4



Steve Chignell '11 and Gary LaVanchy '98 work on mapping in Senegal.

Taking Skills to the Field (Globally) // Steve Chignell '11

As part of my GIS (Geographic Information Systems) practicum class last semester, I had the opportunity to work with Gary LaVanchy, a Geology graduate and Wheaton employee, on his master's thesis in geography at University of Chicago. His thesis was based on studying the social and geological impacts of increased urban development in and around the city of Dakar, Senegal and the potential impact of large amounts of sand being mined from beaches and being used for construction. This led to Gary asking me if I would come with him to Senegal over the first week of the summer so we could do supporting field research in Dakar. By marking points on a GPS unit as we hiked up the coast and comparing it with the remote sensing data from the GIS lab, we were able to map the last 30 years of erosion of a beach on the north end of the peninsula that holds Dakar. Our research showed that since mining began, there has been a loss of up to 150 meters in some areas, which is causing the destruction of a coastal forest and some homes in the poorest section on the outskirts of the city. The rest of our time was spent doing work projects for our hosts at the United World Mission base in Dakar, interacting with the local people, and exploring the incredible city at the Western-most point of Africa.



That's a pretty sad recollection now behind us. In addition to increased space for "rock classes" (mineralogy, petrology, structure, etc.) and intro lab, we now have dedicated rooms for "wet" pursuits, like soils, hydrogeology, geochemistry, etc., and an excellent GIS computer lab (Jim will tell you about it). The master architect for the building project is most proud of a huge, long rock storage area that connects through our various labs. We did lose about 30% of our former "dirty lab" space in the move. It is almost unbelievable how much stuff our little program possesses. I guess 150 years of collected rocks, minerals, fossils, maps, equipment, whatzits, etc. should be substantial. As mentioned in the last newsletter, we sold off a huge amount of our surplus materials. Even so, the remaining items are more than we have time to curate and otherwise properly care for. It is ironic, but we are also very thankful that the world-class mineral collection from dear, recently deceased Geology alum, **Art Smith '55** is being donated to us. Anyone want to help curate/catalogue a multitude of specimens? ●



Dr. Moshier explains Perry Mastodon to a school group in the new Exhibit Space on the lower level.

Doc Mo's Memoirs

Been a busy year. Spring semester highlights included travel to Belize over spring break with the Marine Biology course. We stayed at the University of Belize Calabash Caye Field Station on Turneffe Atoll. The group included Biology and Environmental Studies majors. In the spring my Geology major courses included Biogeology and Senior Seminar. With the former, we took in the amazing special exhibit at the Field Museum on Mammoths and Mastodons. Students in both courses helped with developing content for exhibits in the Science Center. Jeff, Jim and I were heavily involved in creating new exhibits. In April, I attended the Rocky Mountain GSA meeting in Rapid City to present a paper on our summer field courses (Gen Ed and major) at the Wheaton College Science Station.

Summer began by packing up the office. I enjoyed getting back to the Science Station to direct the opening and spend the first two weeks with the geo-majors. Having twenty-one students in the course was a challenge. Things got complicated when, in the middle of the first week, I tore up my right calf muscle. Simple thing like jumping off a small boulder up in the Needles and pop! I could hobble around some during the day, but I couldn't lead the overnight trip out to Devils Tower with the class. To the rescue came 2006 "Field Camp" alumni **Debby (Zylstra)** and **Josh Brewer**, who are both grad students at South Dakota School of Mines and both eager to help out on such a mission of geological mercy. Two weeks of physical therapy and I was ready for the flight to Israel.

Three weeks in July with the Harvard U-Leon Levy Expedition to Tel Ashkelon was rewarding and fruitful. We added 14 sediment probes to the 27 probes from the two previous seasons. Our drill rig this season could reach 14 meters and did better in dry sand (we had awful hole collapse issues with previous drillers). We now have a decent idea of the topography of Ashkelon before cultural modifications and tel "growth." We also confirmed that the ramparts that surround the entire site (capped by walls and towers from the Islamic-Crusader era) date back to the Bronze Age. Prior to this, evidence for Bronze Age rampart was limited to the northern half of the tel. During Summer 2011 I hope to take two geology majors to assist in a survey of natural and cultural deposits along the cliff/beach area of the tel.

Fall semester is already a blur. I *think* that's when we moved in to the new building and got settled in these first class facilities (see front page)! Oh yes, the hoard of geo majors in Petrology and I made the pilgrimage to southern Illinois and southeastern Missouri on Halloween weekend. The hale and hardy group camped the first chilly night at Giant City State Park, south of Carbondale. There was a contest to see who could build the best fire in the two hearths of the shelter. Sophomore **Francis Griswold** got the honors! The next day we visited the silver mine near Ironton, MO and swim team junior **Hal Hackett** and I took a dip in the frigid waters of the St. Francis River. We also ate well, which is a requirement for Wheaton geology field trips. ●

Clark's Capers

With the rest of the department I marvel at this new building! It really supports our teaching and goals extremely well. There is now a dedicated GIS Lab with 24 computers running ArcGIS10 ArcInfo, the most recent high-end ESRI software product. And this large lab was completely filled with students so that an additional lab section was needed. Hydrogeology is also bursting at the seams with 27 students enrolled, far more than my previous maximum enrollment of 11. This year just after I had finished lecturing on snow hydrology, God provided a wonderful 2 foot snowfall that closed campus for a day and provided a great snow depth & density lab experience. In both of these courses students have realized how important geology is to environmental, social and ministry work. The new Surface Processes Lab is ideal for Hydrogeology and Geomorphology class. With 7 sinks and work tables surrounding the moveable tables we can easily perform water-related experiments – and then move next door to the GIS Lab computers to evaluate observations with modeling and quantitative analysis. It is now hard to imagine what it was like back in windowless and cramped Breyer.

Another high point of the semester was the Intro to Soils course that also broke the enrollment record for that class. Student interest motivated us to pursue the possibility of offering a Basic Agronomy course next fall.

Although none of us in the department have the expertise to teach such a course, John Vendeland, an agricultural consultant and husband of Wheaton College Public Health professor Susan Vendeland, has accepted our offer to organize and spearhead the course. This course will be highly innovative in that John is assembling an impressive cadre of his friends who are agricultural experts from around the world to teach their individual specialty. No, we are unfortunately not going to offer a globe-trotting quad class. Instead we are consulting with Computer Services who are very excited about the possibility of using Skype or Conference Networking to bring the cyber-lecturer into the Wheaton classroom for interaction with our students. Each week a different topic will be addressed (e.g. genetics, propagation, plant nutrition, disease, entomology, weed control, irrigation, harvesting, postharvest storage, etc.) and an emphasis will be upon agriculture in the developing world. Key principles will be illustrated through a series of in depth discussions of major tropical crop production systems (e.g. coffee, cacao, cereals, vegetable crops, potato, banana, tropical forestry, etc...). We are extremely excited about this course and also about how the format for the course might stimulate similar globalization of curricula in other courses. Perhaps in the future

Perhaps in the future we might tap you to be an expert and bring you into a classroom as a cyber-lecturer too!

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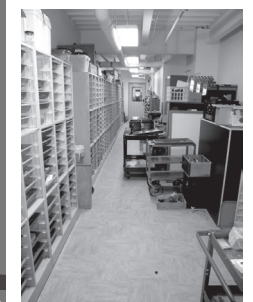
My Great Lakes work is wrapping up with the publication of a paper with Kevin Befus '08 and Glenn Sharman '08 in the journal, *Physics and Chemistry of the Earth* ("A model of surface water hydrology of the Great Lakes, North America, during the past 16,000 years" – in press). There is more that could be done but now that my NSF grant has expired other interests are taking precedence.

I am continuing to "play" with Rick Page in developing cheap geophysical instruments.

In our new science building I have a great electronics research lab, and our present efforts have been to use the sound card of a laptop as the analog/digital converter. Voltage input to the stereo microphone laptop port can be analyzed quickly and easily. We are using the free open-source PYTHON programming language so that no licensing issues will hamper widespread use of our methods. Most of the problems have been solved and we now have a single channel refraction seismograph where the most expensive component (apart from the laptop) is the sledge hammer! Similar methods can be used to make other geophysical tools such as electromagnetic (frequency and time domain), resistivity or seismo-electric instruments. I receive about two inquiries per month from missionaries, NGO's or hydrologists in developing countries asking about the availability of these instruments for water prospecting. There is an important need that must be filled with both instruments and geologists trained in their use. ●



Wheaton Science Center Geology Wing



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B

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F

A Geology Projects Lab. What we used to call the dirty lab in Armerding, this room has sturdy shelves for rock and core boxes as well as storage for field equipment. Benches hold rock cutting saws and lapidary grinders.

B Physical Geology Lab. Recipe: Think Breyer 7 and add natural light, lots more square feet, a smart desk and projection system, and remove the pillars! This room has all the display cabinets from Breyer 3rd floor hallway, which Dr. Greenberg has managed to fill with mineralogical splendors. Plenty of room for our new(ish) 4'x8' Environ Stream Table. Seats 40 students, so we are also teaching many of the lectures for Gen-Ed geology and upper division Geology courses here.

C Earth Materials-Petrology Lab. Recipe: Think Breyer 305 (petrology and mineralogy) and add natural light, lots more square feet, a smart desk and projection system. We are able to video-project thin sections and rock specimens to the screen in near HD and mark on the image with the annotation software. For Mineralogy, Petrography and Petrology, Earth History and Stratigraphy, Structural Geology, etc.

D Geology Collections and Preparation Room. This long "closet" extends behind the museum on the lower level and connects labs in 045 and 049. Most of our geological specimens are stored here. A 2'x2' isolated pad along the wall for the seismograph is visible through a window from the lower level lobby into this room.

E Earth Surface Processes Lab. This lab has counters with pocket sinks, gas and compressed air for geochemistry lab set-ups, smart desk and projection system (did we mention the natural light?). For Geomorphology, Hydrogeology, Soils, Geophysics, etc. Access to a mini-geochemistry lab with fume hood and benches for X-ray Diffractometer, Cold-Stage Cathodoluminescence petrography, etc.

F Geographic Information Science Lab. Twenty-four, high-end desktop computers loaded with Geographic Information System and Remote Sensing software, smart desk and projection system. For Intro GIS, GIS practicum, and Quantitative Methods, faculty and student research using GIS and geological modeling.

G Office – Faculty offices are bright and well organized post move.

H Geology and Environmental Studies Seminar Room. For meetings and small seminars has a glass wall to the hallway with view of lower level museum. Features a giant flat screen to enjoy geology documentaries and shelves for reference book collections and journals.

I Faculty research rooms – basically "second offices" for working on projects and shelving books and resources.

Move to the new Science Center

// Jamie Selander

This past summer, the Geology Department moved from third floor Breyer to the Lower Level of the new Science Center. An event long anticipated, sorting and organizing began after groundbreaking in 2008 and culminated in the Rock Sale last year. By May 2010 we were far from cleaning out all of our closets, and the moving company decided that Geology had the largest amount of belongings to move. Student workers (one of which was **Steve Chignell, '11**) were generously provided to help us pack up. A move during the summer with Geology faculty off on their regular activities teaching at the Science Station (the Geology Major track ran the same summer) and working on their research meant that I was there to help sort, discard, pack/unpack, and direct the moving process for the department. With the help of three student workers, we spent over a month after exams ended packing up Geology's bountiful rock collection, tools, supplies, books, and odds and ends. We found many papers and items that looked as though they had not been disturbed since our original move into Breyer in the 50's, and managed to throw away a lot of the detritus that accumulates from a nearly 60 year stay in a building. As a result of our "spring cleaning," we are now much more organized in the new building. Items "re"discovered during the moving process include 2 flat drawers of Perry Mastodon ivory, a giant crinoid rock slab that was hiding under shelving, boxes



Third floor Breyer Hallway, filled with boxes.

of old slide sets including a glass set from the 40's, and enough grit for rock polishing to last a decade. Chemistry discovered in their ceiling above one of their labs a beautiful old core box that now resides in the lower level Exhibit Space, and a big beautiful chunk of fluorite that belonged to Dr. Wright (Chemistry professor

who taught at Wheaton in the 30's) was found in a Chemistry store room.

Beginning the first week of July, the construction workers union went on strike and slowed the

continued page 9

Summer Student Research //

by Peter Brice '11

This summer I delved into structural geology, becoming “the world expert” on a particular highway outcrop next to the beautiful Pactola Reservoir near the WCSS in the Black Hills. Mentored by Dr. Greenberg, I studied the charming, quarter-mile, Precambrian ocean floor exhalative outcrop for 6 weeks. Identifying and measuring two dominant sets of folds, three foliation and crenulation cleavage surfaces, and pervasive shearing took most of my time, but we also discovered neat features such as static hydrothermal mineralization in shear zones. The research thus far culminated in a poster presentation at the Annual GSA Meeting in Denver. Contemplating the vastness of the geosciences at this meeting was a formative experience, which many Wheaton students will hopefully experience next year in nearby Minneapolis. Research of this outcrop will continue this year, especially as another student becomes involved studying thin sections!



Peter Brice '11 collecting samples at Pactola Dam, Black Hills.

Also shared at the GSA Meeting was Dr. Greenberg's and students' work in Kosova the past few years. Active in this project, I returned to Kosova this summer, working through Water For Life and with locals to transform the lives of four families! Through partnership with the village, Tushile, and fundraising back in America especially by Amy Nielsen '11, we have started to rehabilitate wells and pipe clean water into the homes in the village. The integration of our geoscience knowledge and education from Wheaton with this rural development has laid on

my heart the importance of using our education and skills to be servants of God. Praise be to God for the blessings and opportunities he has given us.

As the department rapidly expands, a fourth professor would make tremendous contributions to the diversity

and research opportunities within our department. Yet until the endowment materializes, our dedicated, smart, and innovative professors are continually coming up with new, exciting opportunities for their students! ●



David Grasman '13 doing field work for his summer REU.

What's an REU? // by David Grasman '13

This past summer I had the opportunity to conduct research on the Missouri River under the guidance of Dr. John Holbrook, a leading fluvial stratigrapher who teaches at the University of Texas at Arlington. This research project was funded by the NSF and was listed as an REU (research experience for undergraduates) opportunity available to any undergraduate students interested in getting their hands dirty. Ten students were selected from around the country to take part in this particular project. Our goal was to determine what climatic factors caused the Missouri River to change from a braided river system to a meandering system and approximately when this change took place.

The first part of the eight-week internship was spent in classrooms at the University of Texas, where several elements of geomorphology, river characteristics and patterns, and hydrology were crammed into nine hour lectures. These lectures were intended to provide us with lenses appropriate for identifying key river features in the field. Most of our research was concentrated on a thirty-five mile stretch of the Missouri River that straddled the Nebraska-Iowa border. Equipped with topographic maps and aerial images of our quadrant, we had to visually identify where the Missouri River has avulsed over the past 2,500 years. To confirm our hypothesis, we collectively drilled over five-hundred cores for detailed soil analysis. After several weeks of drilling cores and generating beta maps of the region with GIS, we traveled up to the University of Nebraska to date many of our sand samples using OSL (optically stimulated luminescence) methods. Our results were presented at the GSA conference in Denver. ●

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Sorting Rocks // by Amy Neilson '11

Beginning in January of this year, Dr. Greenberg and I began sorting, organizing, and pricing the leftover rocks, fossils, and minerals from the last rock sale. Although we had a hugely successful sale last year, we still had quite the collection of surplus goods that we would like to clear.

Over the summer we moved into the new (and amazing) Science Center and discovered that there was even more that needed to be sold. So, ever since classes reconvened in September, I have been preparing for our next big sale.

It has been a fun project, involving the care of delicate display specimens that I

normally would not handle. Also, sorting the comprehensive boxes of rocks has improved my mineralogical identification skills—a welcomed side effect.

We are still considering various venues in which to conduct the sale, considering ideas such as online on an established website (or start our own), at a rock and mineral convention, or even just in the hallway of our new building. We do not have a clear date in mind yet, either, but we all agree that the sooner the better (we could use the storage space!). Right now, I'm simply focusing on laying the groundwork for the sale by itemizing and pricing our impressive collection—which I look forward to doing each week. ●

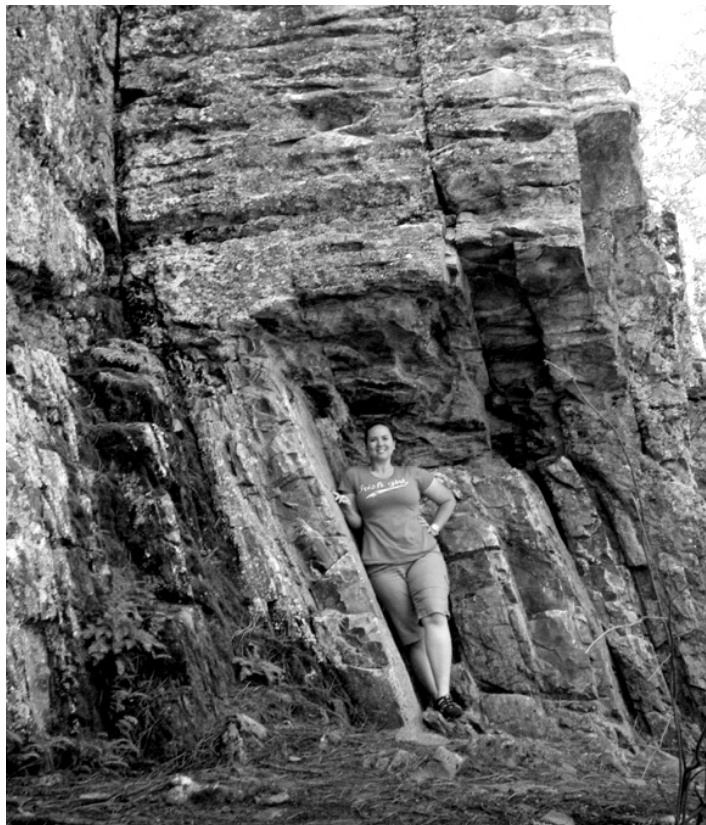
Move to the new Science Center continued

completion of the new Science Center for a few weeks. Geology's original move in date was scheduled for July 26, but was bumped up to July 6 to compensate for the lost time.

Unpacking was finished by the first week of August, with no damage to any of Geology's materials. It was a blessing that the bulk of our department was moved at the beginning of July, and gave us sufficient time to settle in and unpack before the beginning of classes (it took two weeks to unpack the rock collection alone). The move went as smoothly as could be hoped thanks to the skill of the moving company, and the new building is wonderful—what a change from Breyer! Thanks goes to Dr. Jerry Haddock for building so many wooden boxes during his tenure at Wheaton, without which we would not have been able to safely transport the bulk of our rock collection. ●



The old Physical Geology Lab in the basement, packed up for the move, and student Steve Chignell '11.



Amy Neilson '11 at an angular uniformity in the Black Hills.

Scholarship Awardees

Since our last newsletter, the department had the privilege of awarding the Donald Boardman Black Hills Scholarship and the Geology Department Scholarship. The Boardman Scholarship is a need based scholarship to help defray the cost of attending the Science Station. As majors are required to complete courses at the Science Station for graduation, we are blessed to have a scholarship that makes the summer more affordable. This year we awarded a total of \$4000 to **Benjamin Bader '11**, **Emma Bayer '12**, **Hal Hackett '12**, **Christina Hegdahl '11**, **John Micah**

Markley '12, and **Amy Neilson '11**.

This year the department's merit based Geology Scholarship distributed a total of \$2850 to **Emma Bayer '12**, **Michael Davis '12**, **Frances Griswold '13**, and **Jonathan Yates '12**. A passion for geology, involvement in the department, and academic achievement were considered when selecting the recipients.

Thanks to all who contributed to our scholarship funds this past year. You make it possible to continue and grow these awards. ●

Geologists in the Black Hills // by Emma Bayer '12

This past summer, I had the remarkable opportunity to study geology in the beautiful Black Hills of South Dakota. I had no idea what adventures lay ahead as we drove up the gravel road to the Wheaton College Science Station, but I did know that God wanted me there. Months earlier, I had decided to pursue geology as a major, but studying rocks and plate tectonics was the last thing on my mind when I first entered college. Needless to say, God set me on a path that led to the Science Station and I entered this summer with excitement and anticipation. It was an opportunity to solidify the geology that I had been studying in the classroom and hopefully, an occasion to learn how to use a Brunton compass

“God set me on a path that led to the Science Station and I entered this summer with excitement and anticipation.”

for something other than a mirror!

It was hard work. A typical day consisted of eight hours of study in the field followed by a few more evening hours of drafting in the classroom. From bushwhacking our way through tick-infested forests with rock hammers (sometimes in the pouring rain), to hiking seven miles (uphill both ways) to find and interpret the outcrops of sedimentary and igneous rocks at Bear Butte, I will always remember this summer as one of the best of my life. From double rainbows that graced the sky above the Science Station, to caves full of dogtooth calcite crystals, to watching sunsets at Inspiration Point and worshipping God with music in the outdoor amphitheater; God's awesome handiwork was everywhere.

My experience at the science station gave me practical knowledge and experience in field methods and regional geology, an application for the material that I have worked so hard to master in the lab at Wheaton. I find wonder in exploring the mystery of the natural world and I am thrilled to be a part of such a relevant and dynamic program. In geology, I have discovered a practical application for my love of everything from maps, to travel, to minerals. The Science Station experience fostered this love. I cannot imagine a better way to have spent last summer. I learned and refined skills indispensable to a geologist and certainly gained a better appreciation for God's spectacular creation. Additionally, I made friendships that will last a lifetime and memories that I will always look back on with fondness. ●



Emma Bayer '12 at Yellowstone National Park.



2010 Graduates. From left to right, bottom row: Christina Ellerman, Fabien Laguier, and Gabriel RiCharde. Top row: Cory Hart and Forrest Webb.

Class of 2010 Graduates

Six majors graduated in 2010. **Bryn Hendricks** graduated in December, and in May, **Fabien Laguier**, **Gabriel RiCharde**, **Forrest Webb**, **Christina Ellerman**, and **Kathryn O'Rourke** completed their degrees. To celebrate, we took the graduates on our annual trip to Macaroni Grill. Bryn Hendricks began working with an environmental consulting firm in Iowa soon after her graduation in December. Bryn Hendricks

was the recipient of the Gerald Haddock Outstanding Major Award for 2010. Fabien Laguier is working towards a PhD at Colorado School of Mines. Gabriel RiCharde is pursuing an MS at University of Kentucky and is recently engaged. Forrest Webb is also at the University of Kentucky. Christina Ellerman is living in the Seattle area. Katie O'Rourke has returned home to Texas, and is applying to grad school. We are very proud of our graduates and hope they come back to visit us frequently.

New Geologists

Lindsey (Christiansen) Henry '04 and husband Chris welcomed the birth of their first child Heath Christopher Henry in December 2010.

Richard Aram '76 welcomed his first grandson Ethan Ryan Aram in May. Rock hammer for scale.



Wheaton College / Geology's Past



Future Professor Jerry Haddock (seated third from left) ponders a fossil nautilus.



Geology majors in the late 70's

Clockwise from top left:

Geology majors work on mapping an outcrop at the Science Station. ● Majors on the Petrology field trip to Missouri fall 2010. ● Majors line up to fill plates in the Exhibit Space lobby area. ● Geology majors at the annual Christmas Party. This year's party was in the new Exhibit Space on the lower level. ● Geology majors packed into the Exhibit Space singing Christmas carols.

