

MESSAGE FROM THE CHAIR



**G**reetings from the Geology Department! We hope this newsletter finds you well!

The Department is alive and thriving. You'll be pleased to know that the legacy of department camaraderie continues and that our students continue to compete successfully to find quality

internships, jobs in secondary education, and enter quality graduate programs. Some of the most exciting changes in the department are the addition of new faculty. Since our last newsletter, Dr. Forest Gahn and Dr. Ben Jordan have joined our faculty, and Dr. Julie Willis will join us in January. Dr. Glenn Embree retires this December, after nearly four decades at the university. We're sad to see Glenn leave, but are excited to welcome new additions to our faculty.

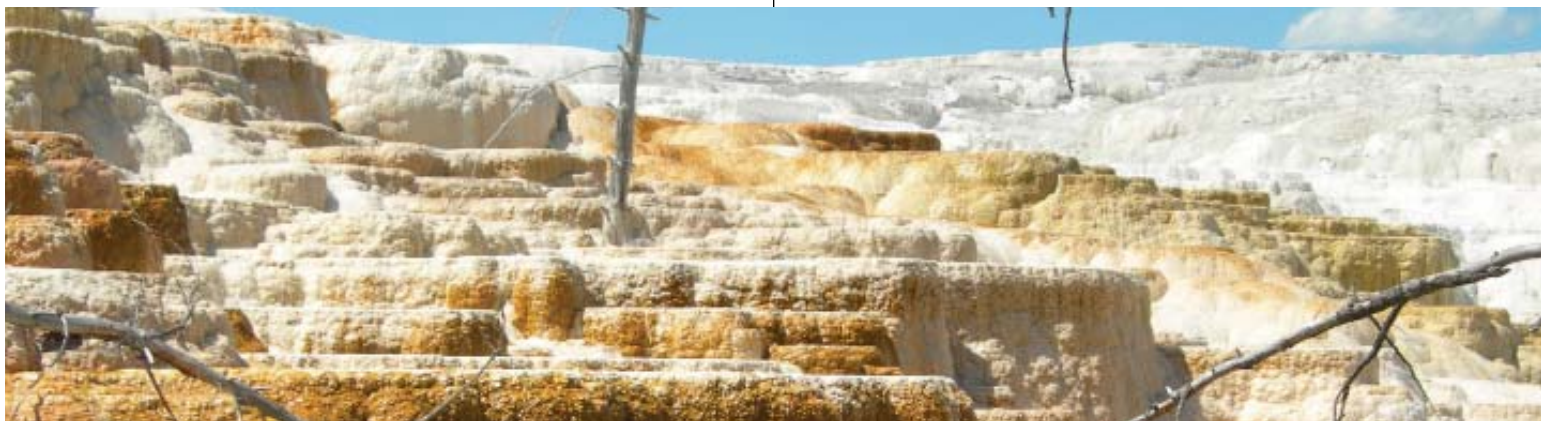
After five years as our department chairperson, Mark Lovell is now teaching again full-time. We're grateful for his service and leadership! He is often seen roaming the halls sporting a large grin, and is making good progress on his Ph.D. thesis. In the "tag, you're it" model of department leadership transfer common to academia, I've begun a term as department chairperson.

Roger Hoggan and his wife continue to serve as mission presidents in the Belen, Brazil mission. Ed Williams and his wife built a new home on the south Menan Butte and are enjoying their retirement. Steve

Hansen and his wife are also serving a mission.

The university continues to innovate. The academic calendar was recently reorganized to create three 14-week semesters. Besides the obvious shortening of the semesters (and related increase in length of individual class periods), all three semesters are more-nearly equal. The semesters are referred to as Fall, Winter, and Summer. In addition, beginning next Fall ('08) the university will begin their new General Education program called "Foundations." As a department, we will no longer teach Geology 101, 102, 104, or 110. GE classes will now consist of courses based on a multidisciplinary approach with contributions from many departments. Our department is heavily involved in preparing courses on energy resources, climate change, Earth history, and natural hazards. Along with this, the university is in the midst of implementing the BYU-I Learning Model, which is a codification of the principles upon which learning and teaching by faith are founded.

Currently, the university is also undergoing a massive construction program. The largest projects are a large addition (on the north side) to the Manwaring Center (MC). This will extend that building nearly to the library. A new building is also being constructed just west of the MC that will house a 15,000-seat auditorium (smaller than, but of the same basic design as the Conference Center in SLC), and a large connected multi-purpose space (big enough to house 10 basketball courts). While not on campus, we're very excited about the upcoming completion of the Rexburg temple. The open house begins Dec 29th and will end with the temple



dedication on Feb 2nd and 3rd. The temple will be open for ordinances the following day.

As you can see, the only constant at BYU-Idaho and in the Geology Department is change. We love to hear from you. At a minimum, please send us an e-mail ([geology@byui.edu](mailto:geology@byui.edu)) or a Christmas card each year. In addition, we hope that you'll take the chance to make connections with current students and look for opportunities to continue to support the work of the department—by, for example, letting us know of internship or job opportunities appropriate for our students, donating specimens or a piece of equipment, or making a contribution to our field studies fund.

-Dan Moore

## REFLECTIONS OF AN OLD FIELD GEOLOGIST



It is with mixed emotions that I contemplate my “retirement” on January 1, 2008. Among the greatest blessings of my life have been the opportunities to teach geology to wonderful students and to associate with the gifted and caring faculty at Ricks College/BYU-Idaho since 1969. The bonds that have been

forged among faculty and students in the Geology Department are especially strong. Perhaps this comes from traveling together and spending glorious days in God’s laboratory and nights beneath His starry canopy. A geologist couldn’t ask for a better environment in which

to teach. The spectrum of world class geologic field localities within an hour or so from campus is exceptional; and the freedom to simultaneously teach earth history from those field localities, geologic literature, and the scriptures is truly a unique opportunity.

During my career here, I have also been blessed to have worked with and learned from some great professional geologists from the USGS, BYU and other universities, as well as our own department. It is significant to me that some of the most outstanding professionals are also among the kindest and most generous men and women I know. In spite of my passion for geology, it has really been the people who have made my professional and personal experiences so memorable.

As I contemplate retiring with some sadness, I am also excited about what the future has to offer. The Geology Department is in great hands and has an extraordinarily bright future. My aspiration is to be able to continue to work with the faculty and students as I resurrect some of my old research projects that had to be shelved during my tenures as Department Chair and Dean. It will be a joy to get back into the field again and learn more about the Lord’s handiwork. I am looking forward to the freedom to chase volcanoes on their timing rather than that of the academic calendar.

Finally, I wish to express my heart felt thanks to all of you who have made my years here so exciting, enjoyable, and meaningful. Please keep in touch and let me know how and what you are doing. For the foreseeable future, I can be reached through my University e-mail address: [emgreeg@byui.edu](mailto:emgreeg@byui.edu).

-Glenn Embree



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## NEW FACULTY MEMBER: FOREST GHAN



I arrived at BYU-Idaho as a full-time faculty member during August of last year (2006), but it was not my first visit to Rexburg. In 1991, I arrived at Ricks College as a freshman majoring in geology.

Since high school I knew that I would be a geologist, specifically an invertebrate paleontologist specializing in fossil crinoids. Born and raised in Burlington, Iowa, I gained an interest in natural history along the banks of the Mississippi River (just north of Nauvoo). That led me to enroll in a year-long geology elective during my junior year of high school—a life changing event.

Ricks College appealed to me as an excellent place to prepare for a mission and further my goal to become a geologist. Glenn Embree, Steve Hansen, Roger Hoggan, and Ed Williams, the “founding fathers” of this department, made my experience at Ricks College particularly rewarding. I also met my wife here, and after completing a mission to Mexico City and graduating from Ricks College, we were married and moved to Provo where I completed a BS in geology.

Amy and I moved to Cincinnati where I worked on an MS. Subsequently, we moved to Ann Arbor where I completed a PhD in geology at the University of Michigan (2004). However, before wrapping up the PhD, we moved to Rexburg to fill an 8-month sabbatical replacement position in the BYU-Idaho Geology Department. Near the end of the temporary position, we found ourselves at a difficult crossroads: accept a permanent faculty position at BYU-I or move to Washington D.C. for a post-doc at the Smithsonian. Fortunately, President (now Elder) Bednar suggested that I “have my cake and eat it too.” I accepted the post-doc at the National Museum of Natural History (Department of Paleobiology), and after a few years in Washington, Amy and I returned to Rexburg.

We are excited to be back and have been immensely blessed in the last year. After many years of struggling to have children, our first child was born in June (a boy, Eli James). Moreover, interacting with the faculty and students on this campus has been incredibly rewarding. I’m teaching several courses including Historical Geology, Oceanography & Weather, and Paleontology. Next summer I’ll be directing our Expedition program with Ed Williams—I’m looking forward to that and the future of BYU-Idaho!

## NEW FACULTY MEMBER: BEN JORDAN



I grew up in the Uinta Basin of Eastern Utah. Growing up so close to Dinosaur National Monument and the Uinta Mountains, I guess that it is unsurprising that I eventually became a geologist.

I served a mission to Indiana and Michigan, after which I attended BYU-Provo where I graduated with a BS in geology with university honors and a minor in physics (I started out in physics, but then repented). I wanted to be an explorer, and I thought that geology and oceanography would give me the best opportunities to explore. While at BYU-Provo I did a summer internship at Harbor Branch Oceanographic Institution in Ft. Pierce, Florida, and served as president of the BYU Astronomical Society.

Upon graduating I went to the University of Rhode Island’s Graduate School of Oceanography in Narragansett, Rhode Island. There I earned my PhD in geological oceanography. My graduate work was on the correlation and petrogenesis of volcanic deposits in Central America and the Caribbean Sea. My graduate experience also included two months at sea in the South Pacific mapping and sampling underwater volcanoes and seamounts.

For the last three years I have worked at the United Arab Emirates University in the Middle East (near the cities of Dubai and Abu Dhabi). My house was less than

an hour away from the heart of the Oman Ophiolite. Living that close and having such easy access to the ophiolite rocks of Oman and the UAE will always be a highlight of my career. My family and I also loved the cultural experience of living there.

I am married to the former Michelle Drake of St. George, Utah and we have three children: Katherine (age 10), Colin (age 8), and Stephanie (age 4).

## BYU-IDAHO GEOLOGY'S SEISMIC NETWORK

The BYU-I Geology Department helps operate four seismic stations for the National Earthquake Information Center (NEIS). They are located in the Tetons, Victor, above the Palisades Reservoir, and the Centennial Mountains near the Montana border. Data from the stations is sent via internet to the NEIC and to BYU-I. We also receive data from stations operated by the Idaho National Lab (INL), the University of Utah, and the state of Montana. With an upgrade of the software that runs the network during this upcoming winter, our ability to record, replay, and analyze earthquakes is increasing. We will know location and approximate magnitude of earthquakes in the region within 10 minutes.

A new addition to the system is an account with the



One of the BYU-I Department of Geology's seismic stations (photo by Dr. Robb Clayton)

California seismic networks that allows computers at BYU-I to display real-time earthquake information from around the world. When an earthquake appears, it will appear on-screen within 10 minutes and all information about it can be retrieved interactively. An interactive display will be set up in the main lobby of the Romney building.

## STUDENT INTERNSHIPS

Each year our senior students have a variety of internship opportunities where they gain career experience and represent the department and university well. Below is a list of students and where they served as interns over the last two years:

2006

M. Evan Bagley - Craters of the Moon National Monument

John Mayhew - University of Southern Maine

William Hassler - Anadarko Petroleum

M. Clint Jarvis - CBM Associates

Gary Billman - University of Idaho

2007

Stephanie Roemer - Cabot Energy

William Hasler - XTO Energy

Zachary Vineyard - Pason Systems USA

Nathan Davis - Bugware, Inc.

David McDonald - Pason Systems USA

Barry Miller - Water Well Consultants

Jacob Stokes - Landau Associates

Tyson Perkes - Occidental Petroleum

## STUDENT GEOLOGICAL SOCIETY UPDATE

Over the last year the BYU-I Geological Society participated in several activities. Fieldtrips to the Spencer opal mines and the ice caves north of St. Anthony, Idaho were organized. The society also participated in a field day with the Bureau of Land Management (BLM) and organized a bowling team in the campus league.

The society sponsors a student chapter of the



*Students Andrew Smith and Brent Doty in the ice caves, north of St. Anthony, Idaho (photo by Dr. Ben Jordan)*

American Association of Petroleum Geologists (AAPG) and is currently in the process of preparing to sponsor a student chapter of the National Science Teachers Association (NSTA).

For updates and news concerning the society or news on the student chapters of AAPG and NSATA, please visit the Geology Department's website (<http://www.byui.edu/Geology/>)

## AAPG ROCKY MOUNTAIN RENDEZVOUS, LARAMIE, WYOMING

The AAPG Rocky Mountain Rendezvous in Laramie, Wyoming has become an annual event for our geology majors. This year seventeen students participated, ranging from sophomores to seniors. In addition, several of our recent graduates were in attendance. The meeting was extended to four days to accommodate resume and interview workshops, two field trips (Wind River Mountains and an operating oil platform near Denver), a seismic interpretation short course, a student poster competition, a banquet, and, of course, employer interviews. Tyson Perkes was our sole participant in the poster competition this year, presenting results of his senior thesis. We added our own "alumni" barbeque, hosted by one of our graduates, Clayton Painter, and his wife, Holly.

We are still waiting for word from most employers, but it appears that some of our sophomores and juniors will likely obtain internships from service companies; whereas, a couple of our near and recent graduates have already received multiple offers from small- to medium-sized oil companies. Exxon/Mobil has given one of this year's graduates a position because of her computer, rather than geological, skills. Additionally, a couple more companies have indicated that they would like to come to Rexburg during the next year to conduct seminars.

Once again, recruiters indicated that our students stand out in a crowd, and even if they can't hire them now, because of still being in an undergraduate





*In Laramie, Wyoming. Left to right: Tyson Forbush, Dan Little, Dr. William Little, Zac Vinyard, and Matt Cannady. (Photo by Russell Montgomery of Geosearch Logging)*

program, they would like to keep an eye on them for the future. The most common reasons given for their interest were the large number of high-quality senior theses being conducted at BYU-I and the nature of our field camp program. Additionally, they were impressed with how many students have worked as TA's and the nature of their mission experiences. As usual, our folks were complimented for their professional appearance and demeanor, as well as their verbal communication skills. One recruiter noted the large number of Eagle Scouts among our ranks. All in all, it was another very successful venture, and we are already looking forward to participating next year.

## AAPG/ROCKY MOUNTAIN SECTION MEETING, SNOWBIRD, UTAH

**B**YU-Idaho had a major presence at this year's AAPG/RMS Annual Meeting in Snowbird, Utah.

Four of our students presented posters based on their senior thesis research. Three of these projects were extensions of their field camp experiences, including Stefanie Roemer (Complex Deformation of Paleozoic Strata due to Folding and Faulting in the Southern Beaverhead Mountains, Clark County, Idaho), William Hokanson (Geologic Map of Snaky Canyon Quadrangle, Clark County, Idaho), and Gary Billman (Correlation of Mississippian and Pennsylvanian Strata in the Southern Beaverhead Mountain Range, Idaho). The fourth poster, titled Petrographic Analysis of Campanian Sandstones, Kaiparowits Formation, South-central Utah, was presented by Tyson Perkes.

One of our recent graduates, Clayton Painter, now working with Randi Martinsen at the University of Wyoming, presented a poster on his M.S. research (Another Look at Hartzog Draw Stratigraphy, Powder River Basin, WY). Two faculty presentations were also made, including a poster by Robb Clayton (Thrust Belt Structures and Paleozoic Stratigraphy of the Scott Butte and Snaky Canyon Quadrangles, Southern Beaverhead Mountains, Idaho) and a talk by Bill Little (Using Alluvial Architecture to Define Stratigraphic Sequences in Foreland Basins, Upper Cretaceous Strata of the Kaiparowits Basin, Utah). These presentations generated a great deal of interest and brought a significant amount of attention to our program, including a request by a small petroleum company to visit our campus, offers from two other companies to fund student research projects, a graduate school invitation to one of the students, an invitation from another Idaho university to jointly participate in



field trips, and email requests for additional information regarding these projects. Additionally, Bill Little had the opportunity to chair a poster session and to judge an oral session. This was another wonderful opportunity for geology students at BYU-Idaho.

## REPORT ON THE 2007 SUMMER FIELD CAMP

Mapping continues in the southern Beaverhead Mountain Range as part of the BYU-I summer field camp. This is a structurally complex area involving Paleozoic carbonate strata that have been subjected to folding (some overturned), thrust faulting, high-angle reverse faulting, and normal faulting. Seven students participated in the 2007 camp, including Evan Bagley, William Hasler, Drew Janes, John Mayhew, David McDonald, Steven Monk, and Kyle Parker.

Having completed preliminary maps of the Snaky Canyon Quadrangle (2005) and Scott Butte Quadrangle (2006), this year we moved northward into the southern Copper Mountain Quad. The major contribution of this summer's group was the identification of a previously undescribed thrust fault that resolved many troubling issues remaining from the mapping of previous years. This discovery will aid in one of our overall objectives, which is correlating Sevier thrust structures across the Snake River Plain. As in earlier years, additional mapping activities were carried out in the Big Hole and Lemhi Mountain ranges. Field camp mapping activities have been extended by several students into senior theses that have led to presentations by our undergraduates at professional meetings (see previous



*Field Camp. Left to Right: Ammon Clayton (Dr. Robb Clayton's son), Evan Bagley, Drew Janes, John Mayhew, Kyle Parker, Dave McDonald, Steve Monk, and William Hasler. (Photo by William Little)*

section). Next summer we should have another eight students participating, and we anticipate completing the mapping of the Copper Mountain Quadrangle.

## SEISMIC AND GEOLOGIC DATA SOFTWARE DONATED TO THE DEPARTMENT

This year we received a large gift from Seismic Micro-Technology, Inc. (SMT) of seismic and geologic data interpretation software (Kingdom) that will be used in classes to help prepare students for the petroleum exploration industry. We are very grateful to SMT for their generosity.

The department welcomes donations that strengthen our program and benefit students, staff, and faculty.



## MUSEUM NEWS

Last year we received another large donation of specimens to the museum mineral collection from Keith & Mauna Proctor. What a spectacular and educationally-important difference they have made to our museum.

Many of the museum displays, as well as the display cases in the Romney Building are currently undergoing refurbishment and renovation. Over the next few semesters most of the cases in the hallways will have completely new and updated displays covering the subjects of geologic time and the rock cycle.

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Department Office

## ALUMNI DIRECTORY

The department is currently preparing an alumni directory. This directory will be provided as a service to the BYU-I Department of Geology's Alumni. Please contact the department with your current information. We would like:

- Name
- Mailing address
- Phone
- Email address

If you do not want your contact information shared with other alumni, please let us know.



*Stromatolite mounds of Cambrian age near the head of Tin Cup Creek on the west side of the Grand Tetons. (Photo by Dr. William Little)*