



This Issue:

Department Chair's Update

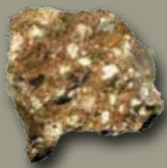
What We're Studying

Why We Rock

Looking Back

Upcoming Events:

Trustee/Faculty Dinner
April, 2015
See page 7



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www.juniata.edu/geology

Department Chair's Update

By Ryan Mathur
professor of geology

Things have remained relatively constant in the department for the past five years, but it has been too long since we've sent a communication, so, as department chair, I'd like to share some updates with you. Although we were, at one time, grouped in with the Environmental Science and Studies Department, we have returned to an independent geology program for the past two-and-a-half years. And we've enjoyed much success recently.



Ryan Mathur
Professor of Geology
Chair, Geology Department



Professor Matt Powell and students at Pulpit Rocks.
front to back: Justin Paul, Chris Bilak, Paula Pryor,
Michelle Roy, Pat Weiss, and Tyler Thomas.

Markers of Success: In the past decade, students interested in graduate degree programs have been accepted with full funding and about 90 percent of others have been hired in geology-related jobs. While they are at Juniata, students do research and are cited as co-authors with faculty members who have published in more than a dozen peer-reviewed journals. They've presented more than 32 times at conferences, such as the Geological Society of America professional meetings and at Juniata's Liberal Arts Symposium.

Curricular Improvements: We have changed the program slightly from our typical offerings by splitting the lab components from Historical Geology and Structural Geology and creating two different courses called Field Methods 1 and Field Methods 2. This adjustment was made so that exiting students would not have to participate in a field camp upon graduation to obtain Pennsylvania Professional Geologist Certification.

Students' Advocacy: Current students in the program are active and enthusiastic about geology. For instance, the Andrew Lawson Geological Society (ALGS) has developed the Geology Olympics. First held last spring semester, this event included speed mineral identification, a strike and dip challenge, hammer and rock toss, and many more creative events. We had several students attend the Geological Society of America conference in Lancaster, Pa., last spring, an opportunity that ALGS and the department helped to fund. The club remains active and, this past fall semester, included a caving trip and several other activities.

Classrooms and Labs: The physical space of the department remains much like it has for the past few decades. The mural still colors our walls. The classrooms received a needed upgrade of new chairs and tables—and we now have the ability to hold chair races on demand! However, the XRD is on its last legs and has been making some strange noises the past few times we have operated it, so I think we will target a new instrument in the near future.

Regarding student research projects, the summers and semesters have been very busy. Larry, Matt, and I have had multiple students involved in a wide range of projects. I have focused on connections in China recently with academic and applied types of geochemistry projects. And, two years ago, Matt received a grant from NASA. We intend to have several students involved in projects this summer. Wish us luck with our research and collaborations!



Roadcut geology in southern Ontario, petrology class 1993. *left to right:* Heather Rosenstein, Susan Wildes, and Bryan Dye.



Dr. Ryan Mathur and Dr. David Hsiung with the Mining in the Americas class, Bear Valley Strip Mine, Shamokin, Pa., circa 2005.



Going for a ride in the ore car, Old Harlowe Mine, southern Ontario, 1996. *left to right:* Neil Ketchum and Bob Kaczmarek.



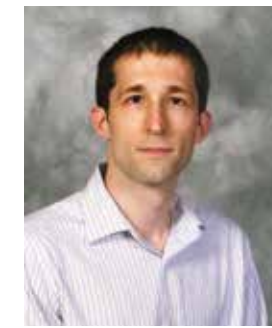
Filling in the outcrop details in a trip log, southern Ontario.



Winter Island Harbor, Mass., petrology field trip 1998.

What We're Studying

By Matthew Powell
associate professor of geology



Matthew Powell
Associate Professor of Geology
Geology Department

In 2007, I arrived at Juniata to teach the soft-rock part of our curriculum. The geologic setting here makes that easy: hundreds of accessible localities, a nearly complete inventory of sedimentary rocks and Paleozoic fossils in the field, a 250-million-year-long stratigraphic sequence, and easy access to the geology outside of the valley-and-ridge province. Since then, I have been taking advantage of those resources by implementing independent research projects within my sophomore-level Historical Geology course.

Please read it and share my excitement that many of our students were quick to focus on geologic processes, rather than simple descriptions of geologic features, and my pleasure at seeing how well they understood the time scales over which those processes occur.

"...the best geologist is the one who has seen the most rocks."

During my recent sabbatical, I had the opportunity to pursue my own projects in paleontology in Hawaii. Beyond the obvious pleasures of living on a tropical island for a while, it was especially gratifying and productive to be able to study how past biodiversity was controlled by the physical environment. I also broadened my geologic experiences by visiting the active volcanoes on the Big Island and collecting fossils in the exposed Plio-Pleistocene reefs surrounding Oahu. I gained

an appreciation for the importance of topography and climate in generating soil types after learning that the state of Hawaii contains 11 of the 12 soil orders, despite having just one bedrock lithology. I am looking forward to bringing these new experiences into my teaching. And, ultimately, I hope that we, as a department, can reach a point where we can provide this same kind of experience directly to our students, so that they can experience even more field work, following the adage that "the best geologist is the one who has seen the most rocks."

Our strength as a geology program continues to be our emphasis on core geology and field experiences. Changes in higher education in general over the past years have only reinforced, and not diminished, our commitment to those points. I am exceedingly proud of what our students have accomplished after graduating from Juniata, and I look forward to continuing that tradition in the years to come.

I'm thrilled to share that the first issue of our in-house journal—which shares student research projects from that course and others—has been published at: tinyurl.com/JuniataGeo.

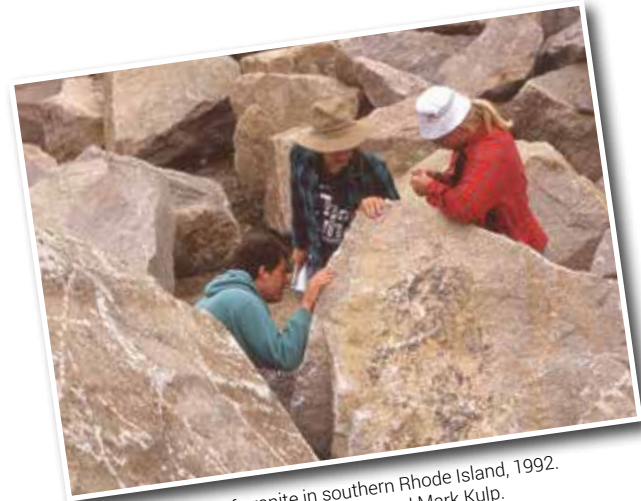


Up close and personal on the outcrop in 1998, with the recognizable faces of Adam Fenstermacher, Mike Peters, Matt Miller, Jason Yapple, and Jaime Kostelnik.

Why We Rock

A Student's Perspective

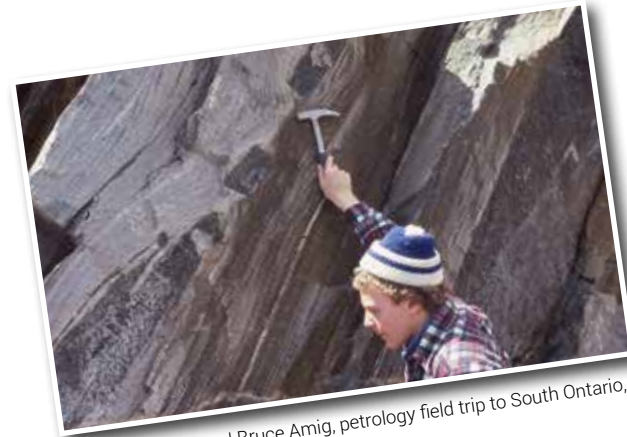
By Tyler Ayres '16



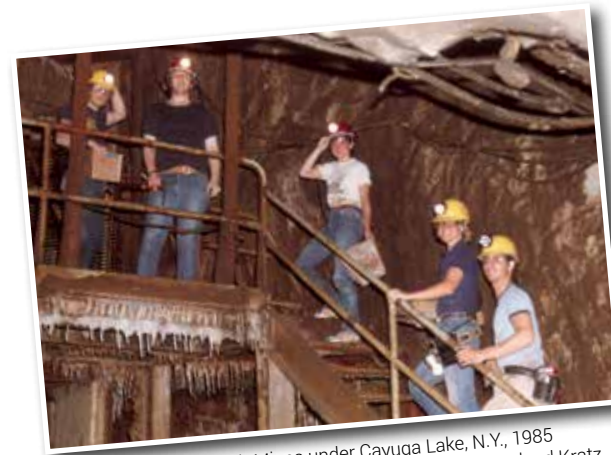
Inspecting blocks of granite in southern Rhode Island, 1992. left to right: Kevin Frysinger, Tom Kulp and Mark Kulp.



Carolyn Cleary seated on some black and white rocks with fist-sized red garnets.



Love that boudinage! Bruce Amig, petrology field trip to South Ontario, spring 1980.



At work in the Cargill Salt Mines under Cayuga Lake, N.Y., 1985 petrology field trip—hard hats modeled by Glenn Amey, Roland Kratz, Carolyn Cleary, Wendy Silcox, and Jeff Hershberger.



A fine group of Petrology students at Marble Lake southern Ontario—including Jon Linn, Jeff Moseman, Dan Murphy, John Sekckinger, Bill Wagner, Melinda Selby, Shelley Kauffman, Carolyn Lampe, and Pat Sterner.



Like fine gypsum, sand sifting through your fingers. White Sands National Monument, N.M., remote field course.

"Now that I am employed with a major gold mining company, the importance of field work is overwhelmingly obvious. From mapping road cuts to identifying alteration halos, Juniata has prepared me for the work force."

—Molly Dendas '10

Students graduating with a Program of Emphasis in geology from Juniata College are equipped with skills that set them apart from the competition, whether they're searching for a career or applying to graduate school. The difference lies in the geology department's approach to learning, which has been empowering graduates for more than 50 years.

In 1962, **Peter Trexler**, professor emeritus of geology, taught the first geology classes at Juniata. Soon after, **Frederick Nagle** and **Robert Washburn**, professor emeritus of geology, joined Trexler and established a full geology curriculum

which benefits students to this day and can be described simply: the best geologist is the one who sees the most rocks.

In other words, the Juniata geology community knows that true comprehension can only be attained by reinforcing knowledge from textbooks with field experience.

"I started field trips the first year I was here," said Trexler. "Field experience isn't the norm for many undergraduate students. Yet, it gives them essential experience, maturity, and insight into the science."

When Washburn arrived, shortly thereafter, the passion for field geology grew and the department began traveling to the Catskills and the Adirondacks. "To wait until students are seniors or graduate

students to get out in the field...that's too late," Washburn says.

And students agree. **Zac Moffa '15** traveled to Canada this past summer on a petrology trip with the College. "It was a different world," said Moffa. "You can get a lot of information from hand specimens, but it's not the same as seeing them embedded in the actual environment. You really put everything together in the field; you get that full sense of everything playing together as a system."

Conceptualizing the size of the earth and the scope of the geologic time scale is impossible from the window of a classroom or a timeline in a textbook. "Until you're standing on that mountain, looking down at the valley, you can't really bring home the concepts," says **Shanna Law '16**.

Fieldwork does more than provide a fuller picture of geologic systems; it provides students with the opportunity to flex their muscles, to really try on geology as a career option and see how it fits.

"It opens up questions and opportunities and helps you visualize what you're going to do with geology," said **Madeline Schiller '16**. "It's a crucial part of undergraduate research."

The efficacy of Juniata's geology program is demonstrated by the success of **Molly Dendas '10**. Upon the completion of her studies at Juniata, Dendas attained a master's degree in economic geology from the University of Arizona.

"Now that I am employed with a major gold mining company,

the importance of field work is overwhelmingly obvious," said Dendas. "From mapping road cuts to identifying alteration halos, Juniata has prepared me for the work force."

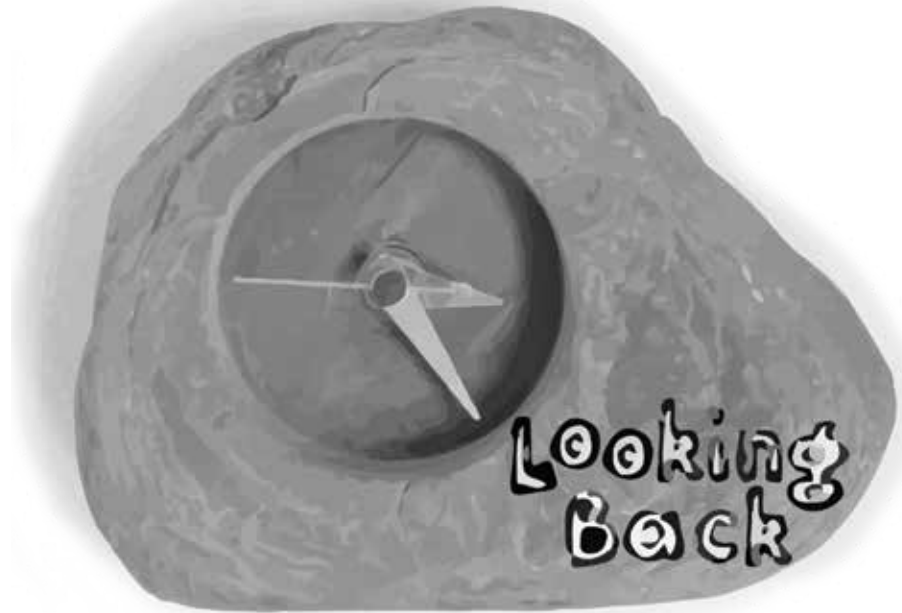
Yet, students at other schools don't always have the opportunities that Juniata students regularly utilize to prepare themselves for future success. Because the geology in and around Huntingdon County is exclusively sedimentary, **Arielle Maines '15** went to New Jersey to see igneous outcrops in situ. She had some conversations that allowed her to reflect on the strength of Juniata's geology curriculum.

"I was talking to some people from other colleges and they told me

that they don't do field trips," said Maines. "In the field of geology, that's something crucial."

Many Juniata students and alumni—Dendas included—also value their experience with undergraduate research. "During my sophomore year I started a research project," said Dendas. "And, by senior year I was working on publishing it in a prominent journal. There are not many undergraduate schools that offer these types of opportunities."

Whether students are taking their first journey into the field or presenting their senior capstone research project at a professional conference, one needn't dig to see that Juniata's curricular strategies are rock solid.



By Larry Mutti, professor of geology

Thirty-six years ago I came to Juniata, morphed my professional interest from structural geology to mineralogy and petrology, and became part of a team of geologists that stretched back to the department's very founding. Like professors **Pete Trexler** and **Bob Washburn**, I launched a lifelong career of commitment to the student-centered values that have made teaching and studying geology at Juniata exceptional experiences. I found in Bob and Pete colleagues devoted to undergraduate education, to exposing students to expansive field opportunity. They shared the conviction that a good geologist was both a person with broad interests and experience and simply an individual who had seen a lot of rocks in different settings and was excited about the interconnectedness therein.

In my years at Juniata I have "covered" a sizable chunk of the field. Mineralogy, Petrography,

and Petrology have been my signature courses. In the early years, when we had three 10-week terms in a year, most students had a 1-2-3 dose of me during their sophomore or perhaps junior year. From those first years to the present, microscopy as a tool to extract mineralogical and textural detail, chemical equilibration as a conceptual framework, and field experience have been the cornerstones of my teaching.

Along the way I found myself teaching Senior Value Studies and Heart of India; Introduction to Physical Geology/Environmental Geology; Economic Mineral Deposits; Geological Research Methods; Mineral Economics, Politics, and Law; Introduction to Geochemistry; The Geochemistry of Natural Waters; Energy, Minerals, and Society; Remote Field Course; and, most recently, Sustainable Agriculture in Pennsylvania and Introduction to Soil Science. I have done a lot of learning and growing in that endeavor, and I have always tried to bring students along with me. Some took the bait with enthusiasm, others with a certain amount of fear and dread.

I had the good fortune of spending sabbaticals with colleagues at Johns Hopkins, the Smithsonian Institution, and Kansas University. My work at Kansas with Juniata alum **Bob Goldstein '79**, launched my current research in fluid inclusion analysis



The New England Lighthouse tour in petrology 1992—only David Galeone is readily identifiable.



Larry Mutti
Professor of Geology
Geology Department

and cathodoluminescence documentation of mineral growth. I've also had the pleasure of working with a number of other fine Juniata colleagues, including **Keith Mann**, **David Lehmann**, **Ryan Mathur**, and **Matt Powell**. I look forward to getting to know and working with a new third member of the Juniata troika.

Following the current academic year I expect to spend three years in phased retirement where I will work half time in one capacity or another. Though I really don't know how to count by halves, I picture how some of that time will be devoted to teaching. As I am responsible for most of the mess around here, some of that time will be committed to organization and management. Some will also be spent in support of students' continued research into fluid inclusions and mineral growth. Outside of the Juniata sphere, I hope to take advantage of my increased flexibility to travel with my wife Ginny, to improve my musical skills, to do more pleasure reading, and to implement many more of the things I have been learning about healthy soils in my own garden. And then there is that community service thing that I have been doing all along but will be able to devote more attention to. I expect life to continue to be full, challenging, rewarding, and certainly hope to maintain my connections with the Juniata geology community.



Petrology lighthouse field trip from spring of 1992. We are pictured in front of the Nubble Light, Cape Neddick, Maine. *front row (kneeling) left to right:* Kevin Frysinger, Kevin Wilson, and Kent Kiesewetter; *second row (standing) left to right:* Kevin McCullen, Larry Mutti, Carolyn Lampe, Carla Palmer, Susan Wildes, Jennifer Shriver, Tom Kulp, Natalie Macke, and David Galeone; *back row (standing) left to right:* Jeff Windisch, Mark Kulp, Jeffrey Fischer, Tom McClain, and Ken Biles.



Professor Bob Washburn admiring a well-rounded glacial outwash cobble with Kate Rodgers and Kate Bucklen, on the Ontario field trip, near Bancroft, Ontario, 1995.

Building on the Past; Dedicated to the Future: The Mutti-Washburn Endowment for Field Studies

For the Juniata Geology Family, field experiences and research opportunities both inside and outside the Brumbaugh Science/Academic Center have been the most memorable and influential activities of their educational and personal lives. As this newsletter highlights—and many discussions with Juniata geology graduates have shown as well—field study is what makes a Juniata Geology experience distinctive. It is a difference maker for prospective, current students and, ultimately, Juniata graduates. As such, our Department aims to expand field study opportunities.

To honor the upcoming retirement of **Larry Mutti** and the recent retirement of his long-time colleague **Bob Washburn**, we hope you will consider making a financial contribution to a new endowment fund for geology field study in honor of Larry and Bob. The Mutti-Washburn Endowment for Field Studies will provide additional resources for the Geology Department and its students to gain enhanced hands-on experiences. This fund will allow geology graduates, and others who have benefitted from geology courses at Juniata, the opportunity to make special gifts and pledges in recognition of Dr. Mutti's and Dr. Washburn's many years of service to the Department and the College.

The early results of this fundraising effort will be shared when Larry is honored because of his retirement during the annual Trustee-Faculty Dinner in April 2015. Once established, the Fund will continue to be a receptacle for additional financial contributions for field studies support for years to come. If you have any questions or would like more information about making a gift, please contact the Juniata Development Office at **814-641-3117** or email Joe Scialabba at scialaj@juniata.edu.



Vertically-plunging, tight flow folds in rhythmically bedded carbonate-siltstone strata near Cloyne, Ontario—petrology field trip.



Office of College Advancement
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Huntingdon, PA 16652

We measure our success as a department by our students' opportunities and achievements. That's important. It means that the Geology faculty is behind each student, every step of the way.

Read additional points of interest at:
www.juniata.edu/geology

How can you help?

As always, we count on the support of our alumni, parents, and friends to enhance the experience of our students. Please use the form below to indicate your gift or give online.

www.juniata.edu/give

Come and support our students when they are in your area, or come to campus to catch a couple of events. We'd love to see you!

Yes, it's the right time for me to support the Juniata Geology Endowment.

\$500 \$250 \$100 \$50 Other \$ _____

Name: _____

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Make checks payable to Juniata College.

Return to:
Juniata College
Lisa Roth, Advancement Specialist
1700 Moore Street, Huntingdon, PA 16652

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