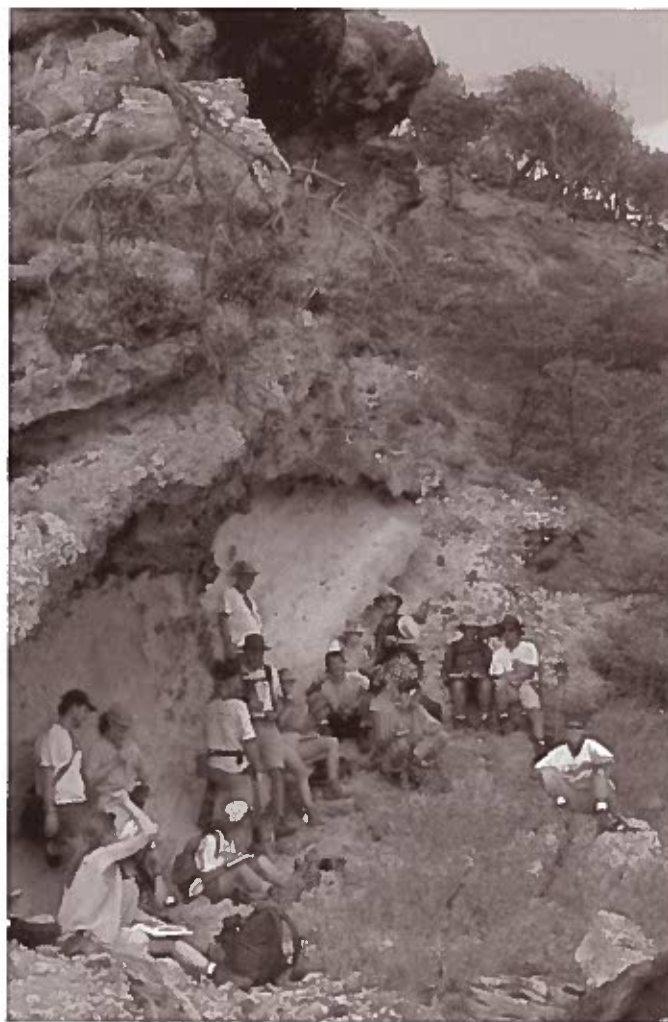


GEOSCIENCES

**University of Illinois
at Urbana-Champaign**



**Department of Geology
Alumni Newsletter
Spring 1998**

GeoSciences

Department of Geology Alumni Newsletter Spring 1998



Seeing is Believing:

Participants in the 315/415 field trip to Bonaire, Netherlands Antilles, analyse the Goto Mere outcrop in Washington-Slagbaai National Park for patterns and fabrics of Miocene dolomitization events in forereef limestones of the Seroe Domi Formation.

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GeoSciences is the alumni newsletter for the Department of Geology, University of Illinois at Urbana-Champaign. It is published in the fall and spring of each year.

Department Head: Jay Bass; **Assistant to the Head:** Peter A. Michalove;
Editor: Deborah Aronson; **Production:** LAS Office of Publications;
Administrative Secretary: Terri George

<http://www.geology.uiuc.edu/>

From the Department Head

Dear Alumni.

Having just completed my first semester as head of the Department of Geology, I am delighted to have had the opportunity to meet and correspond with many of you from across the country. This is certainly one of the most rewarding aspects of my position. I am especially pleased to see your enthusiasm and level of commitment to geology at Illinois, and I look forward to seeing and hearing from many more of you. We are hoping that some of you will be able to visit your old department and attend the annual awards banquet this May. The banquet is being combined with our annual GeoThrust meeting, so it is guaranteed that some of our alums will be here. Please feel welcome to take this opportunity to reconnect with old friends, meet the new faces in our department, visit with students, and celebrate the accomplishments of our alums and current students. This will be an annual "mini homecoming," and I hope you can make it.

I am glad to report that we are very busy working on several projects that will build on the strengths of our department and continue to increase its profile on campus. This semester our introductory course, Geology 100, has a record enrollment of 950 students. Now, close to 4,000 students enroll in geology courses each year! In addition, the number of geology majors has doubled in the past few years.

To serve this many students, and help with our other department projects, I appointed Professor Steve Marshak as the associate



Jay D. Bass

head. Steve is doing a great job with a variety of departmental duties.

Our new faculty members, Tom Johnson and Bruce Fouke, have settled in and are making their presence felt; Tom is having outstanding success obtaining funding to support his research program in hydrogeology and environmental geology. Meanwhile, Bruce just returned from leading our first-ever field trip to Bonaire, Netherlands Antilles. Bruce, 17 students, and four other faculty compared modern and ancient sedimentary environments during the first week of January. The trip was a huge success.

We are searching to fill the Ralph E. Grim Chair in mineralogy or sedimentary geology, which Richard Hay held until last June. We hope to find an outstanding senior scientist for that position. Ralph Grim's generous intellectual and financial support to the department will be remembered. We are also conducting a faculty search for a microbial geoscientist. This faculty position is partly funded by a grant from the

Campus Environmental Council. Our proposal to the Council was rated at the top in a competition, and will allow us to recruit a leading scientist at any level from assistant to full professor. These two new positions, as well as our two recent faculty additions, are an enormous opportunity for the department to define new directions and build strength. They also show the great faith that the campus has in our department. Our alumni support is recognized by the campus administration, and has made a real difference in our competition for scarce resources, such as new faculty lines.

In the midst of all this good news, I am saddened to tell you that Hilt Johnson passed away this last fall. He was a devoted alumnus, faculty member and an inspiration to several generations of students here. We will all miss Hilt. There is an article about him in this issue.

Again, I look forward to continuing contact with all of you. As usual, the geology department will host a reception at AAPG in Salt Lake City. It will be at the Marriott Hotel from 5:30 to 7:30; the room will be announced in the program and posted in the hotel. I hope to see you there.

Sincerely,

A handwritten signature in black ink that reads "Jay D. Bass". The signature is written in a cursive, flowing style.

Jay D. Bass
Department Head

John D. Bredehoeft Named Outstanding Alumnus

John Bredehoeft, M.S. '57, Ph.D. '62, has been named the 1998 Outstanding Geology Alumnus. Bredehoeft, who served for 32 years with the U.S. Geological Survey, has received numerous awards in the course of his career. In 1997 alone, he received the Horton Medal from the American Geophysical Union, the Penrose Medal from the Geological Society of America and was voted a life member of the National Ground Water Association.

The geology department will honor Bredehoeft at a banquet on Friday, April 24, at 7 p.m at the Champaign Country Club.

In 1995 Bredehoeft founded the Hydrodynamics Group which focuses broadly on environmental problems involving ground water.

The geology department will honor Bredehoeft at a banquet in his honor, which will be held Friday, April 24, at 7 p.m at the Champaign Country Club. All alumni are cordially invited to attend this event. This is a good chance to catch up with classmates and meet other alumni, as well.



Paul Witherspoon, Ph.D. '57, received the alumni achievement award from Jay Bass at a banquet held in his honor September 19 at the Champaign Country Club.

If you are interested in attending, please mail your check—made payable to the Department of Geology—for \$22 per person to Terri George by April 18. If you have questions, you can call Terri at (217) 244-4066. The address is:

Terri George
University of Illinois
Department of Geology
245 Natural History Building
1301 W. Green St.
Urbana, Ill. 61801

Calling all Alumni!

The Geology Department will host a cocktail party at the spring meeting of the American Association of Petroleum Geologists. The party will be May 18 from 5:30-7:30 p.m. at the Marriott Hotel in Salt Lake City (where the convention is being held). The room number will be posted in the hotel.

Jean Daly Retires

Jean Daly, staff clerk at the Department of Geology, retired on December 24th after serving 11 years as business manager for the Hydrogeology Program. Among her special duties were serving as a liaison to a consortium of research sponsors and organizing the annual hydrogeology short course, attended by scientists from around the world.

The department honored Daly at a dinner event on December 16 at the Illini Union Colonial room. At the dinner Daly's friends and colleagues showered her with gifts and words of praise. "Several generations of graduate students, post-docs, and programmers, not to mention quite a few of the faculty owe her a special debt," said Craig Bethke, professor of geology. In her retirement, Daly is pursuing family and church activities.

Endowments: Opportunities For Named Giving

Great academic departments, such as the Department of Geology at the University of Illinois, can thrive only in a nurturing intellectual environment, one in which teaching, research and scholarship can flourish. Endowments, an idea popular since ancient times, can provide this environment, giving students and faculty the freedom to explore new avenues of study and the opportunity to push forward the frontiers of knowledge.

Endowments provide a means of permanent support to the department. Interest from an endowment is used for a specific purpose in the name of the donor and continues in perpetuity.

Endowments can be especially appealing because their scope is unlimited and can be tailored to support a wide range of people and programs. Possibilities are detailed below.

Named Endowed Chair

Endowed chairs, such as the department's Ralph E. Grim Chair, are the most prestigious positions the University can bestow on its faculty members. An endowment of \$1.5 million could create another chair and enable the department to attract a new faculty member of world-class stature.

Named Professorship

A named professorship allows the department to attract top-level faculty from around the world. An endowment of \$750,000 can establish the means of appointing a promising new professor. The income from an endowment of this level would be used to supplement an existing faculty position.

Named Visiting Professor

One way to keep our department strong is to have outstanding visiting professors who bring their expertise and unique

perspectives to the department. A gift of \$500,000 will enable us to bring a series of distinguished professionals here for one year each to share their expertise with students and faculty.

Named Fellowships and Assistantships

A gift of \$250,000 or more will establish a graduate fellowship that will help bring some of the brightest graduate students in the world to the department, as the Texas/ Louisiana Fellowship now does.

Named Research or Educational Endowment

An endowment to support research in a specific sub-discipline (such as sedimentology, geophysics, etc.) or to support modern instructional media such as equipment for computer visualization and modeling of geological processes in a three-dimensional format can be established for \$200,000.

Named Scholarships

These scholarships, such as the existing Midwest Scholarship Endowment, can be established with a gift of \$25,000. They are typically awarded on the basis of merit or need, and play an increasingly important role in attracting talented undergraduates from across the nation.

Named Lecture Series

For \$15,000 a donor can establish an annual lecture on a given area of interest or expertise by a distinguished scholar in that designated field, such as the existing Ralph Grim Lecture Series in clay mineralogy. The donor would gain recognition every year as the named lecture is publicized.

Endowments can be established by current giving or by testamentary giving (bequests). If you would like further information, contact the LAS Office of Development at (217) 333-7108.

Endowments provide an important foundation for the future of the department and keep the University of Illinois Department of Geology at the forefront of excellence.

A "Thank You" From Fellowship Recipient

As the first recipient of the Texas/Louisiana Fellowship, I wanted to whole-heartedly thank the alumni who have made this award possible. I thought you might like to hear how that fellowship has positively affected both myself and the department. First of all, being recognized by my department is very encouraging, and the responsibility that comes with this award will motivate me for many years. The extra time created by this fellowship has enabled me to advance my research, which should also reflect favorably on the Department of Geology. Continuing to create fellowships like the

This type of fellowship works to help support this department and its graduate students, not just financially but psychologically.

Texas/Louisiana Fellowship will attract more high quality students to the University of Illinois. By receiving both recognition and support, these students are also encouraged to stay. Ultimately, the future successes of students benefiting from your generosity will continue to promote the image of the department and the university.

I had a chance to personally thank some of the people responsible for creating this fellowship, but I would like to thank everyone that contributed and to applaud your vision. This type of fellowship works to help support this department and its graduate students, not just financially but psychologically.

Again, my heartfelt thanks and greatest appreciation.

Sincerely,
Mike Brudzinski

.....
Brudzinski was featured in the Fall 1997 issue of Geosciences.



Okay everyone, say "coral reef." Members of the Geology field trip to Bonaire, Netherlands Antilles, stop long enough for a group photo, before going to examine the next outcrop.

Bequest Enables Student To Go On Field Trip

The Department of Geology recently received a bequest from the estate of Dorothy J. Gore, M.S. '52, that was designated to help female graduate students. That bequest has already enabled graduate student Yoshie Hagiwara to join a trip to Bonaire last January to study carbonate formation on coral reefs.

Hagiwara wanted very much to take the class field trip to Bonaire with 16 other students and five professors. However, she could not afford the entire cost of the trip. At the last minute, the department received Gore's bequest and was able to help Hagiwara take the trip.

"I didn't know what I was going to do," said Hagiwara. "The trip costs kept getting higher and higher and I wasn't prepared to pay the extra costs. When I heard about receiving this stipend I was pretty surprised, especially since it wasn't something I had applied for."

Hagiwara is completing her first year as a graduate student. Her adviser is Tom Anderson.

Graduate Student Cari Meyer Receives Grant

First-year graduate student Cari E. Meyer has received a grant from the American Federation of Mineralogical Societies Scholarship Foundation in recognition of her

outstanding academic achievements. She received her bachelor's degree from Western Illinois University.

In Memoriam:

Hilt Johnson

William Hilton (Hilt) Johnson, professor emeritus, died November 30 at his home in Las Cruces, N.M. He was 62. Many students have strong memories of Johnson and his famous field trips. Johnson retired in 1995 after 33 years as a faculty member. He received his bachelor's degree from Earlham College in Richmond, Ind., in 1956, where he was the president of his senior class.

Johnson received his master's degree and doctoral degrees in geology from the University of Illinois in 1961 and 1962, respectively. After receiving his doctorate, Johnson joined the department as a faculty member. He became the associate head of the department in 1991 and the acting head from 1993 to 1994. When he retired, Johnson and his wife, Joyce, moved to Las Cruces, N.M.

Johnson's research interests included quaternary stratigraphy, glacial geology and geomorphology. He wrote numerous professional papers, books and reports, and the section on the quaternary period and Pleistocene Epoch in the 15th edition of the Encyclopaedia Britannica.

Many alumni remember Johnson fondly from the geology field camp he taught in the Big Horn Mountains of Wyoming during the 1960s and '70s. He was the field camp director from 1964 - 1968 and 1976 - 1979. He also taught an introductory course on the geology of the national parks and monuments for non-science majors.

Johnson also was a research affiliate and con-



Hilt Johnson

sultant with the Illinois State Geological Survey (ISGS). The survey presented him a Lifetime Distinguished Achievement Award in 1995.

A longtime resident of Mahomet, IL, Johnson served on the board of trustees for the Sangamon Valley Public Water District at Mahomet for 15 years. He also organized the Canyon Association in the Las Alamedas neighborhood at Las Cruces.

Johnson is survived by his wife, Joyce; two sons, Eric Mark Johnson and Scott Webster Johnson; a daughter, Jennifer Johnson Krueger of Cincinnati; and three grandchildren.

A memorial service was held at the Unitarian Church in Las Cruces. Contributions can be made to the M. D. Anderson Cancer Center for Sarcoma Research, in care of Dr. S. Patel and

Dr. Peter Pisters, Box 77, 1515 Holcombe Blvd., Houston, Tex., 77030.

The University of Illinois geology department held a memorial service Feb. 12 at the Levis Center on campus. Johnson's family came from New Mexico and there was a large turnout of friends and colleagues. Speakers included Tom Anderson, Jay Bass and James Kirkpatrick from the geology department; Ardith Hansel, one of Johnson's colleagues at the ISGS; Edward Hajic, a former graduate student; Ivan E. Sherburn, Jerry Dewhirst and Barbara Mann, friends from Mahomet; and Johnson's daughter, Jennifer Johnson Krueger.



Wyoming field camp, 1965: from left, a student with Hilt Johnson, Dean Rogers' son, and the Dean.

Profiles

From Coral Reefs To Martian Fossils, Fouke Hunts For Ancient Water Everywhere

Sedimentologist Bruce Fouke pursues an ephemeral subject, even for a geologist. He looks for traces of ancient seawater and groundwaters that long ago flowed through carbonate rocks. Fouke's high-resolution reconstructions of paleo-fluids, and their application to a variety of exciting new disciplines within the geosciences, are forging a new definition of sedimentology and stratigraphy for the geology department.

Sedimentary rocks are made up of grains of sediment, as well as small "cement" crystals in pore spaces between the grains. The cement crystals precipitate from water within the pores and bind the sediments into a solid rock. Therefore, the cement crystals represent a preserved record of water composition and fluid flow that remains after the waters are gone. Geochemically analyzing these cements and grains at a scale of several microns allows Fouke to reconstruct quantitatively the chemical composition of the waters that were present during and after the initial deposition of the sediments. The composition of post-depositional waters in the rock, and their resultant chemical changes, are also a major part of his work. By applying basic strati-

graphic principles at both the outcrop and microscopic scales, Fouke is able to establish grain and cement chemistries and their changes over time. He also uses



Professor Fouke holds a whiteboard for senior Kelcey Dalton at the Goto Mere outcrop on Bonaire, as she enthusiastically explains the geochemistry of low-temperature dolomitization in coral reef limestones.

several computer programs (that he wrote himself) to help model the relative dates within the sample, based on the chemical analyses. Fouke can then gain information such as whether the water was salty or fresh, or even hot or cold, and the time at which the water was in the rock.

"My work combines high-tech geochemical procedures like cathodoluminescence and mass spectrometry with classic geological concepts like 'the older deposits are at the bottom,'" says Fouke.

Circulation, or hydrology, is the trickiest element to reconstruct,

says Fouke. The first line of evidence is the distribution of crystals over a large area. For example, the spatial distribution of cements is a first order control on flow paths.

Fouke has several specialized tools for his detective work, the work horses for which are cathodoluminescence and microsampling.

Cathodoluminescence is a type of petrography in which visible light is emitted when electrons bombard a rock sample in a vacuum.

Cathodoluminescent images give Fouke a "road map" showing which parts of the cements are the oldest and which grains have been chemically altered.

Microsampling using dental drills is then completed within this crystal road map.

One of Fouke's projects, which is being completed in collaboration with Dr. Dennis Kolata at the Illinois State Geological Survey, involves reconstructing the composition and

paleoceanography of the ocean on the mid-continent in the Late Ordovician, some 450 million years ago. Fouke is particularly interested in a dramatic change that ceased marine sedimentation and caused calcite and other crystals to precipitate on the ocean floor, forming regionally distributed "hardgrounds."

"The burning question that we are still trying to answer is, were these hardgrounds formed above or below seawater?" says Fouke. "The integration of detailed field mapping, petrography and geochemistry across these

hardgrounds will allow us to better understand the waters present at the time of their formation."

Rebuilding Program

Fouke's arrival at the U of I is important for rebuilding the department's sedimentology program, says department head Jay Bass. "With the retirements of Albert Carozzi, Philip Sandberg, George Klein, Ralph Langenheim and, most recently, Richard Hay, the department's core of sedimentary and carbonate geology was decimated," says Bass. "We couldn't be more thrilled with Bruce's appointment. He is not only an extremely broad scientist with an interest in a diverse range of problems, but he is highly personable, congenial and always bubbling with enthusiasm. Bruce wasn't our first choice in that particular search—he was our only choice, and we had to compete hard to get him!"

The feeling is mutual. "I'm delighted, and indeed very thankful to be here. It's everything I've striven for at this stage in my career," says Fouke. "Jay Bass and the rest of the faculty have all made great efforts to make my entrance here a real success. They have laid a scientific and academic template for infinite potential, and I am thoroughly enjoying my new role as an active member of our department!"

Fouke's research has taken him from the coral reefs of the Caribbean to the search for life on Mars. He explains the wide range of his research projects by noting that he is a man of extremes (Not the least of which is his height. At 6'8" he occasionally bumps his head on the ceiling of his basement office). It's also a question of asking fundamental questions, notes Fouke.

The more fundamental the level at which you construct your scientific questions, the more universal the range of projects you can work on. In Fouke's case, anything related to ancient water can be addressed in his research.

Life on Other Planets

One of the most unusual applications of Fouke's research is the search for life on other planets. "There has been a revolution in our thinking about how to look for life on other planets. And much of this revolution was initiated here on the Illinois campus," says Fouke. "We've gone from looking for funny looking little green guys—not that they can't be out there!—to looking hard at microbes: primitive, early forms of life."

It has been suggested that the earliest microbial life, both on Earth and elsewhere, developed in a type of "extreme environment," where rapidly changing extreme environmental conditions would support a wide variety of microbial life. One such extreme environment is a hot spring, where subsurface waters erupt from the ground, cool, de-gas and rapidly precipitate minerals. Researchers have assumed that hot spring deposits of aragonite and calcite, called travertines, could entomb microbes in individual crystals.

But what would these preserved microbes, and the carbonate cement crystals in which they are entombed, look like? In an effort to answer this question, Fouke went to Mammoth Hot Springs in Yellowstone National Park as part of a NASA team to study how microfossils are preserved there. Although the team found abundant living microbial life on the surface, the ability to

identify microbial fossils—optically and chemically—is still in its infancy. Fouke hopes to continue this research in other travertine deposits. Results of Fouke's work will be used to interpret the fist-sized Martian meteorite (known as ALH84001) as well as to fine-tune strategies to search for fossilized extraterrestrial life forms on other planets.

Speaking of objects hurled at the Earth from outer space, Fouke has also become involved in the quest to understand—as he puts it—"how the dinosaurs got dinged." Fouke's work with Dr. Walter Alvarez has taken him to the Yucatan Peninsula where the impact of a giant comet or asteroid—thought to have caused the dinosaurs' extinction at the KT boundary—formed a crater five miles deep and 250 miles in diameter. That explosion, although kinetic and not nuclear, had the equivalent energy of an explosion 10,000 times the force of the world's entire nuclear arsenal, says Fouke, in awe. Fouke and Alvarez have searched for sediments launched from the crater at impact. The term they coined for this work was "ballistic sedimentology." The vapor clouds formed at impact were very hot and full of water and gases. As they cooled, particles stuck to the water droplets in the atmosphere and formed marble-sized pebbles. These "accretionary lapilli" are one of the few pieces of evidence of what happened in the atmosphere following the meteorite's impact. Fouke is currently conducting geochemical tests on these lapilli.

The Big Picture

His wide-ranging research projects belie the fact that Fouke loves teaching best of all.

"The big-picture plan I have had since my youth was to teach," says Fouke, "but I'm convinced you can't be a good teacher without being a really good researcher. I try to find a healthy balance between teaching and research, and I involve students heavily in everything I do."

Even as a child Fouke had a wide range of experiences, from attending civil rights rallies in

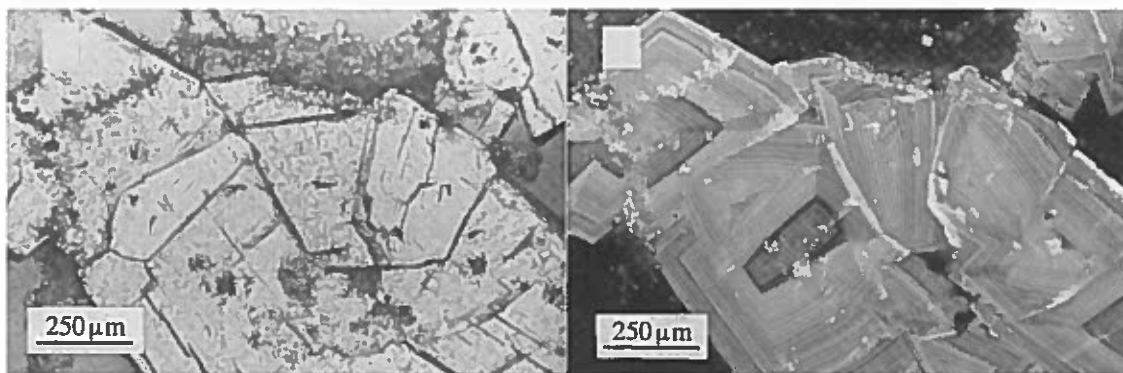
recounts Fouke. "I was having the time of my life. My only worry was to get enough to eat to keep going when baling hay."

Fouke attended Bradley University (Peoria, Illinois) on an engineering scholarship, and took an introductory geology course his junior year that changed his life. "After one lecture, the bells rang and angels sang," he says with his trademark 1,000-watt grin.

went to SUNY Stonybrook to learn about coral reef chemistry. During this phase he spent several years scuba diving in the Netherlands Antilles: Aruba, Bonaire and Curacao.

Fouke's first post-doctoral position was in Amsterdam and it involved extensive travel, from Ukraine and Russia to Spain, Italy and North Africa. His second post-doctoral position was at the

Learn more about Fouke's research at his Web site: <http://www.geology.uiuc.edu/HTML/Faculty/bfouke.html>



Paired photomicrographs of a thin section sample of dolomitized limestones from the Seroe Domi Formation in the Netherlands Antilles. The left photograph is of dolomite cement crystals observed under plane-light. The right photograph, taken in precisely the same position on the thin section as the left photograph, exhibits the same dolomite crystals under cathodoluminescence. The concentric crystal zonations record changes in the geochemical composition of formation waters that actively flowed through these limestones over 5.5 to 6.8 million years before present (age based on Sr isotope dating methods). Professor Fouke has recently completed construction of an integrated cathodoluminescence/microdrilling/video capture system to complete these types of analyses in his laboratory at the Geology Department.

Chicago with his parents to raising hogs in rural Iowa. Fouke's father, a United Methodist minister, was very active in politics and the civil rights movement. Fouke's parents took him and his two sisters to join in several of the pivotal protests during the 1960s. Living in inner city environments, Fouke learned at an early age what it was like to be a minority. Then, as a junior in high school, Fouke and his family moved to a town of 1,200 in central Iowa. When Fouke wasn't in school he was helping neighbors on their farms.

"I went from being a fairly smart street kid to raising hogs!"

Coming Home

It was coral reefs that first drew Fouke to geology. He was interested in how reefs formed and what kind of biological and chemical changes take place in reefs over time. At the University of Iowa, where he received a master's in geology in 1984, Fouke studied coral reef sediments in the Bahamas. At the University of Chicago, where he received a master's in paleobiology in 1986, Fouke looked at the biology of the coral reefs of Jamaica, as well as paleoecology. For his doctorate, which he received in 1993, Fouke

University of California, Berkeley, and his third was at NASA's Ames Research Center in California. After three post-doctoral positions in four years, Fouke admits he and his family (wife Ann, toddler Kaitlyn) are ready to settle down. They are expecting their second child this spring. And, in an interesting twist of history, Fouke's wife has strong family ties to Urbana. Ann's maternal great-grandfather (Dr. Oscar Leutwiler) was a professor of engineering at Illinois, and Ann's maternal grandparents met and dated while at Urbana High School. "We've come home!" says Fouke.

Fouke Inspires, Motivates Students

While addressing the geochemistry of dolomitization as part of his dissertation research, Bruce Fouke spent several months mapping on the island of Bonaire, Netherlands Antilles. Bonaire is renowned for its living coral reefs and sea life, and is an international model for its underwater national park. Bonaire provides a unique opportunity to compare and contrast modern environments of shallow lagoon and fore-reef sedimentation and geochemistry with equivalent Miocene through Pleistocene geological deposits.

This past January, Fouke took 17 students and five faculty members and instructors back to Bonaire for an eight-day field course on the geology of coral reefs (for more information about Bonaire, readers can go to the Web site <http://www.geology.uiuc.edu/HTML/BonaireFT/>)

Approximately half of the course was taught while snorkeling on the reefs in shallow nearshore marine environments surrounding the island, while the other half of the

course concentrated on land-based outcrops. The group's home for the trip was the Slagbaai plantation house, which was built in 1869 within what is now Washington-Slagbaai National Park. Special permission to use the Slagbaai facilities for teaching purposes was granted to our department by the Bonaire Stinapa National Park Foundation.

The geoscience topics covered during the field trip included a comparison of modern and ancient examples of three general topics: carbonate and siliciclastic depositional environments, including tropical benthic ecology; sedimentary geochemistry, diagenesis, and water-rock interaction histories, with emphasis on $^{87}\text{Sr}/^{86}\text{Sr}$ geochemistry and dolomitization; and groundwater geochemistry and hydrology. Other highlights included a tour of the Cargil solar salt

evaporating pans, and a look at the archaeology of the islands.

Illinois geology students made field trips to the Bahamas in the 1970s and '80s, but this is the first time the department has led a field trip to the southernmost Caribbean. A significant gift from the late Ruth G. Marshak helped students with their expenses for this field trip.

The Bonaire trip—and Fouke's part in it—already is gaining mythic status. "It was the best thing I've ever done," asserts senior Alex Glass. "Bruce is so well

rounded. He knows a lot, not just in various areas of geology and sedimentology, but also paleoecology, which is my interest," says Glass.

"Depending on who he's talking to, he goes into a certain mode, so he's good at meeting you at your level and meeting you at your area of

subspecialty. Bruce also is a great motivator. He pushed me to get scuba certified and I'm deeply indebted to him for that."

"Bruce is a great mentor because he has experienced everything and can offer great advice," says Jenny Jackson, a senior math major/geology minor who also went on the trip.

Fouke is gratified by the students' enthusiasm. "I was motivated to become a teacher in part because of all the great mentors I've had along the way," says Fouke. "Hopefully I can 'pass the torch' by providing career-changing and perspective-expanding experiences to my students. This was a great bunch of people," Fouke adds. "I've taught similar courses on various islands throughout the Caribbean, but there was magical sense about this group."



The island of Bonaire, Netherlands Antilles, is a part of the Aruba-La Blanquilla island archipelago off the northern coast of Venezuela. Bonaire lies within a complex tectonic region at the strike-slip contact of the Caribbean and South American plates. As a result, Bonaire has experienced thousands of meters of uplift and erosion during the Neogene.



Garino Brings His Tenacity, Experiences To GeoThrust

John and Carol, who retired from nursing management in 1988, have been married 41 years and have four children: three daughters and a son.

Enjoyed Sales

Garino sold Mobil Oil products to companies, such as White Pine Copper (a copper mining business), taconite mining businesses including U.S. Steel, and paper mills that needed lubricants and fuel for machinery. Garino and his team would assess the equipment and propose the best products to use. They primarily conducted engineering work, such as a technical analysis of wear rates on engines.

"I frankly enjoyed sales very, very much," says Garino. "I like going in to a company, making a proposal and convincing them it was the best thing for them to do. And then the next challenge was performing as we said we would, which we always did."

Garino spent half of his 30-year Mobil career in Milwaukee. Mobil was rated the number one market leader worldwide in commercial marketing, and Garino estimates his group had about 50% of the business in Wisconsin, the upper peninsula of Michigan, and Minnesota. Because of his activities and accomplishments, Garino became a Registered Professional Engineer, state of Wisconsin.

Following this success in Milwaukee, Mobil moved Garino to Detroit, where he spent about five years selling to the automotive

When John Garino was an undergraduate he kept his nose to the grindstone and didn't take much time out for fun. And he still remembers Don Henderson's courses. "Dr. Henderson, boy! was he tough," remembers Garino with a grin. "He would give open book exams and you could bring all the books you wanted...but none of them would help!"

"John sure was a hard driver," remembers Bill Wilson, a former roommate and current business partner. "He got me to study a lot harder than I usually would, that's for sure. And he hasn't changed in that respect. John is tenacious and very organized. When he gets involved in something he really sticks with it."

Garino, B.S. '57, whose involvements now include the Geothrust committee, grew up in Coello, a small town in the mining country of southern Illinois. His parents had emigrated from Italy in the early 1920s.

Garino came to the University of Illinois and the Department of Geology to pursue a career in mining. As a 27-year-old undergraduate and war veteran, he brought a seriousness of purpose to his studies not all young people have.

"I worked hard and took lots of hours of classes and it was worth it," says Garino. "My college experience gave me the ability to do

things independently and gave me confidence in myself to do almost anything. I've had a good career, one I'm proud of."

Although Garino's career didn't



John Garino, above, with his wife, Carol, and at right in 1956.

follow the path he originally intended, he has no regrets. Garino signed up with Mobil Oil shortly after graduation ("my wife, Carol, was pregnant with our first child. There was no way I was going to take a job I was offered in Lima, Peru") and spent the bulk of his career in commercial marketing.

industry. He was in charge of Mobil's \$60 million commercial fuel and lube division in Michigan and Indiana. From there, Mobil moved Garino to Philadelphia where he managed the company's \$150 million commercial fuel and lube division for New England and much of the Atlantic seaboard. In 1988 Garino retired, and he and his wife returned to Milwaukee. At this point Garino also embarked on a second career that involved several business ventures related to his early mining interests.

Busy "Retirement"

One of Garino's first ventures upon retiring from Mobil involved joining a Milwaukee friend who had a company called TexPar Energy. That company's primary business was refining and selling the "bottom-of-the-barrel" residual fuel oil, but Garino helped them expand into selling military jet fuel to General Electric and McDonnell Douglas, the major jet-engine and airplane manufacturers in the country.

"I had the connections in this area, I knew who used what kind of fuel for engine testing," said Garino, of his role in the project.

Garino also went into business with Wilson. Their partnership began with some oil and gas drilling in Canada and the United States with a company called Quantum Energy. Garino sees this as a growing market, with the demand increasing indefinitely. As a Mobil employee, Garino was

prohibited from being involved in any drilling projects of his own.

"Once I left Mobil, I could get involved in drilling," says Garino. "So now I'm doing what I planned to do when I was in school."

Another company that includes Garino and Wilson, Merlin Energy Ltd., is reclaiming anthracite coal tips (slag piles) in Wales. Each tip is about two miles by 1/4 mile wide and 200-300 feet high. The

"I like going in to a company, making a proposal and convincing them it was the best thing for them to do. And then the next challenge was performing as we said we would, which we always did."

group currently owns four tips and is considering buying more, but it takes four years to reclaim a single pile. Garino says very few people are doing this type of reclamation project, which takes a lot of oversight to make a profit. This is the only reclamation project operating in southern Wales. The project, which began in April 1996, is already making a profit, says Garino.

"John's persistence in making sure things are run properly has made the Wales project a success," says Wilson. "He's really the one who oversees the project on a day-to-day basis, which is what it needs."

Another important role Garino played was finding other investors for both the drilling project and the reclamation project.

Garino's business interests and his love of travel often mesh nicely. He was able, for example, to combine a trip to England with a visit to the site in Wales when he and Wilson were contemplating the project. Just last year, Garino and his wife traveled to the UK, Italy, France and Switzerland. They are planning a big trip this fall to Turkey, Greece and Ukraine with friends from Mobil.

Garino, with his breadth of experience and tenacity, brings a fresh voice to the Geothrust committee.

"I don't know how much I'll contribute," says Garino, modestly-tanned from living six months a year in Arizona and fit from playing golf regularly—"but I believe in education and I appreciate the education I got at the

University of Illinois. Now it's time to give something back."

"John has been a staunch supporter of the University of Illinois and the geology department for a long time," says Morris "Brud" W. Leighton (B.S. '47 and co-chair of the Midwest Geothrust committee). "He is a real go-getter and entrepreneur and we appreciate the special perspective he brings to the Geothrust committee."

Graduate Student Joel Johnson Does “Best When Busy”

Graduate student Joel Johnson is most productive with a tightly packed schedule. Even now, during his last semester as a master’s student, he is ambivalent about not having to teach, as he has done every previous semester.

“It’s great to have the extra time to work on my thesis, but I miss some of the structure teaching put on my time,” says Johnson. “I

Duluth-Superior Symphony Orchestra.

“The time commitments of the symphony really helped me stay organized,” says Johnson. “Even though it was consuming, being in the symphony was very enjoyable and relaxing, and it especially kept me sane during hectic times at school.”

Johnson certainly lives by his creed “the busier you are the bet-

The Darland All-American award reflected Johnson’s leadership qualities, his well-rounded education and his strong moral character. The Eagle Scout is certain that he gained his work ethic from his parents and grandparents.

“Growing up with very hard-working parents, and grandparents nearby, I learned to always give my best effort and to see every project I start to completion,” he says.

Johnson also saw his father earn his own Ph.D. in 1991, one year before Johnson graduated from high school.

“My father has been very inspirational to me and seeing him go



Joel Johnson at the Grand Canyon during spring break 1997.

think being really busy keeps me going. Though, of course, an occasional break is nice,” he says with a laugh.

In college (University of Minnesota, Duluth), Johnson stayed busy by being a full-time student—majoring in geology, double minoring in chemistry and Spanish—while also playing string bass for the

ter you do.” He excelled in college and received numerous awards, including the Raymond Darland All-American Scholarship, the American Institute of Professional Geologists Grant for Leadership, and the University of Minnesota, Duluth, outstanding senior geology major, as well as two field camp scholarships.

through his doctoral degree really motivated me to go on with my education,” acknowledges Johnson.

Illinois Basin

For his master’s degree, Johnson, with adviser Steve Marshak, is examining a structure within the

Illinois basin. While the basin has been studied for decades, Johnson is looking specifically at a subsurface fold, known as the Du Quoin Monocline, in the south-central part of Illinois. By using geophysical well-logs and seismic data, Johnson is trying to determine the three-dimensional shape of the monocline, its structural configuration (i.e. the relationship of faults beneath and near the fold), and the tectonic evolution of the structure during the Late Devonian through Pennsylvanian periods.

Because it involves a subsurface feature, this project does not involve field work, but it does require analyzing huge amounts of data. Thanks to an immense amount of geophysical well-log data acquired and stored at the Illinois State Geological Survey (ISGS) and recently released seismic data from Mobil, also acquired by the ISGS, Johnson has plenty to work with.

"Having the support and resources of the ISGS has been wonderful," says Johnson. "Everyone there has been enthusiastic and very helpful with many aspects of my project and I can't thank them enough.

"The seismic data set will perhaps lead us to the most exciting discoveries in this area," says Johnson. "From it we should be able to determine the configuration of faults beneath the monocline and their relationship to other faults in the region."

Some of Johnson's research is being supported by a grant from the Mid-America Earthquake Center, a National Science Foundation-funded consortium that is researching the risk of earthquake activity in the region.

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Superb Leader

In the course of his master's degree research, Johnson's interests have shifted slightly, from structural geology to the effects of tectonics on sedimentation. Johnson credits his course work and field trips, as well as his adviser, with preparing him for the next phase of his career.

Marshak says of Johnson, "Joel is a superb leader, particularly at

field camp, where he was a teaching assistant. And it has been fun to watch the evolution of his interests as a graduate student."

"Everything has really fallen into place for me here," says Johnson. "Steve has been a great professor and adviser. A lot of what I've learned about both teaching and research has come from watching Steve. His enthusiasm is key, but his ability to explain things in multiple ways also really helps students. He's also patient and seems to make time for students regardless of his busy schedule. You can tell he loves what he's doing."

Johnson first met Marshak at field camp when Johnson was an undergraduate.

"I could tell he was hard working, ambitious and enthusiastic. I knew I wanted to work with someone like that," says Johnson.

"The University of Illinois has really given me a lot and I feel very fortunate to have come here," says Johnson. "Not everyone has the kind of guidance that I have had, both in graduate and undergraduate school."

Johnson has the same enthusiasm for promoting geology, and science in general, that he admires in his own adviser.

"It's a fun experience to see people's eyes light up when they figure things out," says Johnson. "In field camp, for example, students started out projects completely flustered and confused, but by the end it was exciting to see

how far along each of them had come in such a short time."

Johnson says his strong structural background will serve him well as he moves on to a Ph.D. program.

"I think it is good to have strong understanding of structural geology when considering most geologic problems, especially those involving the effects of tectonics on sedimentation," he says. "I also think having a well-rounded background will help give me a broad perspective, which is needed when trying to solve complex geologic problems."

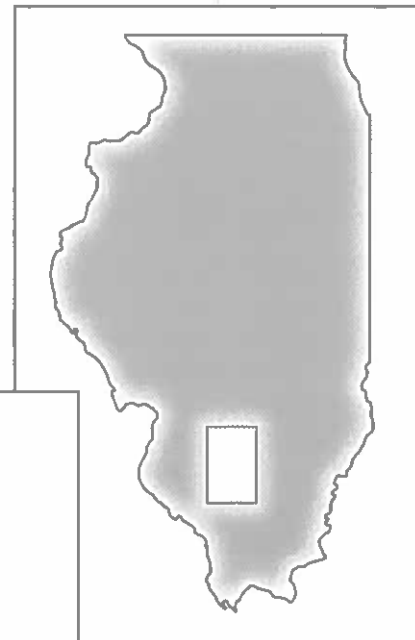
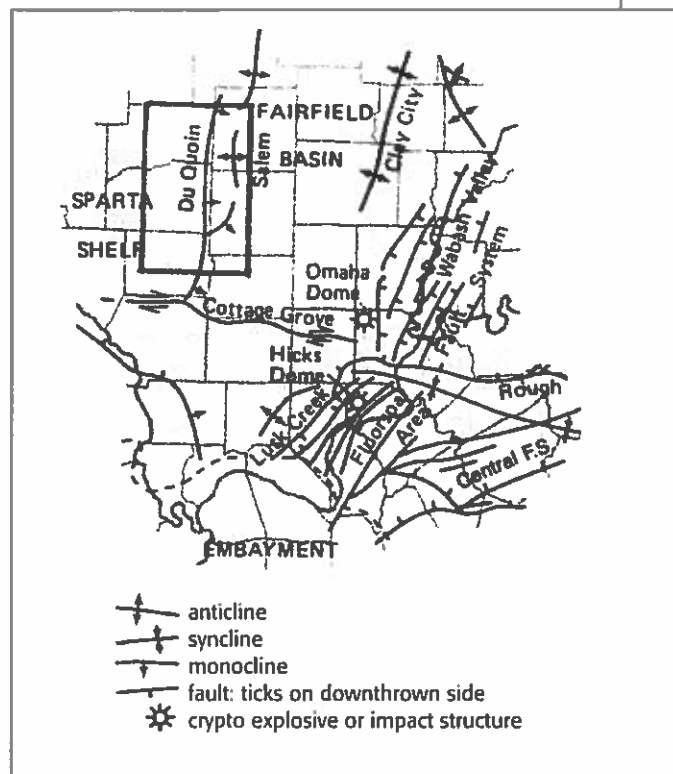
Setting Goals

After completing his master's degree this spring, Johnson plans to head west for a doctoral program. He'd like to experience what he calls "a different style of geology, with a different focus," and he'd like to be able to see outcrops and incorporate field work into his studies.

Ultimately, Johnson looks forward to finding an academic position.

"I've always been interested in teaching, from the very beginning," says Johnson, "and my role as a teaching assistant at Illinois has served to confirm that interest."

Another thing Johnson is looking forward to is playing string bass again. Because these instruments typically cost \$10,000, Johnson has always played a rented one and, consequently, hasn't played since 1996, when he left Duluth. However, he recently bought an old one for a pittance and is getting it refurbished. It



Structural features of the Illinois basin and adjacent areas. Johnson's study area is the boxed area located in south-central Illinois (from AAPG Memoir 51, Leighton et. al. 1991)

should be ready to play this spring.

"I can't wait to be able to play again," says Johnson. "It's a real stress reliever."

Johnson is focused on that ultimate goal and the steps in between. Knowing that more schooling lies ahead and that his girlfriend, Yen-Ying Chee, now

living in Minneapolis, will join him next year motivates him to keep working hard, from early in the morning to midnight most nights.

"Looking forward to the future keeps me focused on what I have to do to get there," he says.

Obituaries

FRANCES GRIM, wife of the late Professor Emeritus Ralph E. Grim, died last October. After her husband's death, she continued to be a friend of the department and stayed in touch with many people in the department.

WALLACE HAGAN, A.B. '35, M.S. '36, Ph.D. '42, of Lexington, Ky., died last July. He served as director and state geologist for Kentucky from 1958-1978. During his tenure, he initiated and completed a statewide aerial geologic mapping project in cooperation with the U.S. Geological Survey. This monumental program resulted in the publication of more than 700 detailed geologic maps, the first such state maps in the country. He was also well known for his activities as a petroleum geologist. Hagan was a lifetime member of the American Association of Stratigraphic Paleontologists.

ROBERT SHAVER, B.S. '47, M.S. '49, Ph.D. '51, died last September. The week before his death from a massive heart attack, Shaver led several petroleum-industry geologists on a five-day field trip through the reef exposures in northern Illinois and Ohio. Shaver worked since 1956 as head of the geology section in the Indiana State Geological Survey in Bloomington and associate professor in the Indiana University Department of Geology. He served as editor of the *Journal of Paleontology* from 1964-69 and in 1976 was elected president of SEPM. His major scientific contributions were his studies of the Silurian reefal growth patterns and the paleogeography of the eastern interior region. He has written more than 100 articles.

Shaver was a veteran of WWII and was a navigator on many missions over Nazi Germany. In recognition of his heroism he was awarded the Distinguished Flying Medal. His first wife, Beryl, pre-deceased him. He is survived by their four children: Joan, Mark, Jill and Bruce; and by his second wife, Sue Shaver, of Bloomington.

WAYNE A. PRYOR, M.S. '54, died May 12, 1997, after a long illness. He served as an associate geohydrologist at the Illinois Geological Survey (1953-1959), and as exploration geologist/

sedimentologist at Gulf Research and Development Corp. in Pittsburgh, Penn., (1959-1965) before serving as professor of geology at the University of Cincinnati for 33 years. Pryor's research and 60 journal papers focused on sedimentology and stratigraphy. He received numerous awards in his career, including being an AAPG Distinguished Lecturer in 1982-83, receiving the "1960 Best Paper at the Convention Award" from the SEPM, receiving a Fulbright Professorship in Germany (1968-69), and receiving the first University of Cincinnati Department of Geology Excellence in Teaching Award in 1997.

Pryor also was the founding president of the Great Lakes SEPM Section (1971-72), and was elected the national SEPM Secretary-Treasurer (1974-1976). He was a member of the AAPG, SEPM, International Association of Sedimentologists, and the Kentucky Oil and Gas Association and was a registered petroleum geologist. Pryor and his wife established the Wayne A. Pryor and Mary Lou Motl Fellowship Fund, administered through the Greater Cincinnati Foundation, to support junior and senior geology students.

Pryor is survived by his wife and two children, Heidi L. Pryor and Michael W. Pryor (both living in Cincinnati).

This information was provided by George D. Klein.

JAMES BREDAR, who attended the geology department in the late 1950s, died last August. He was 65. Bredar was a geologist and partner in TenJab Oil and Gas for 36 years in Owensboro, Ky. While at the university, Bredar was captain of the basketball team and an All American. After completing his undergraduate degree, Bredar served as assistant basketball coach under Harry Coombs, while pursuing a master's degree.

He is survived by his wife, Wilma Allen; a son, James Bredar, of Danville, Ill.; a daughter, Carrie Oliver, of Owensboro; his mother of Salem; a brother, Frank Bredar, of Salem; and a sister, Ann Woods, of Salem. Memorial contributions may be made to the American Cancer Society and Hospice.

Alumni News

Alumni News is divided by decade. Those who were affiliated with the Department during part of one decade through to the next are listed according to the last degree received. Within each decade, items are listed in yearly sequence, not alphabetically.

Thirties

Willis M. "Bill" Decker, B.S. '39, retired from the exploration department of Cities Service Oil Co. (which was bought by Occidental Petroleum) in 1978 and from Jet Oil Co. (where he was vice president of exploration) in 1986. He attended a reunion last fall of VP/VPB 23, a Navy Patrol Bomber squadron. He was in the VPB 23 from 1943-45, serving in both the South Pacific and Central Pacific. "In one six-month period our squadron (made up of 15 planes and 18 crews of nine men each) helped pick up 278 men downed by enemy fire," he says. His daughters Donna (born while he was in the South Pacific), and Kay, and his wife also attended the reunion.

Last December they took a Caribbean Cruise to celebrate his 82nd birthday, his wife's 80th birthday and their 55th wedding anniversary.

Forties

Howard Schwalb, B.S. '49, writes that he is "alive and happy in Green Valley, Ariz." Schwalb is a geologist emeritus with the Illinois State Geological Survey.

Fifties

Russell B. Lennon, M.S. '57, retired from Shell Oil Co. after 33 years as a development geologist.

During that time he spent four years teaching in Shell's training schools and taught evening classes at the University of Houston's graduate petroleum geology program. Now he spends much of his time birding, traveling and doing volunteer work.

Carl G. Davis, B.S. '59, retired from Danville Area Community College in May of 1997 and continues to teach there part time in Earth Science and Physical Science. His daughter, Elizabeth, is a senior majoring in English at the University of Illinois. One of Davis' hobbies is radios and he had an article published in a book of crystal set projects. "The 'crystal' used is galena (this was the first radio receiver, circa 1910), so it's still in the geology area!" he writes. Davis also is writing an article for the Danville Historical Society on the U.S. Polar Bear division that fought in the Russian Civil War. His father was a member of that outfit. Finally, he is working on a project tentatively called "Pictorial Geology of Vermilion Co." It will concentrate on coal beds, cyclotherms and the Pleistocene.

Sixties

Donald J. Colquhoun, Ph.D. '60, is now Distinguished Emeritus Professor of Geology and Marine Science at the University of South Carolina. He retired last July after 37 years, during which time he

had many students and numerous publications. He is still assisting on several Ph.D. committees. He can be reached at d.colquhoun@worldnet.att.net

Daniel A Textoris, Ph.D. '63, is considering retiring from the University of North Carolina, Chapel Hill, at the end of the spring semester. He'll teach environmental geology once or twice a year in a phase-out program. His wife, Linda, will continue in her home-health profession for two more years, until she is 62. "Then, stay in Chapel Hill? Move to L.A., Portland, Ore., or Rockville, Md., where all three children live with spouses?" Stay tuned!

Dianne (Capritta) Juchimek, B.S. '65, retired in November after more than 30 years with the State University of New York. Her last position was coordinator of Collection Development for the campus libraries.

Douglas Mose, B.S. '65, is professor of environmental science at George Mason University in Fairfax, Va., an expert witness for law firms, and an environmental scientist for northern Virginia testing companies.

Seventies

Jim Granath, B.S. '71, M.S. '73, has been appointed regional and case studies publication subcommittee chair for American Association of Petroleum Geologists. He will

GeoSciences is for alumni and largely about alumni. Please take the time to complete and return the information form at the end of this issue. Just as you like to read about classmates and other alumni, they'd like to know the latest about you. Your news is important to them and to us in the Department. Send along a recent photo, too, but let us know if you want it returned.

Egg On Our Faces

BOY! Are we embarrassed! Marion Bickford did not undergo a sex-change operation. Rather, due to a major editorial oversight, we mis-identified Marion as a woman. Many astute readers wrote to correct us. Among the notes we received was one from Douglas Mose, B.S. '65, of Fairfax, Va., who writes: "please note that Marion (Pat) Bickford is a successful male scientist (he is "under-described" in your commentary). Were I you, I would run a feature article on HIM, as his professional record speaks well for the university where he got his Ph.D."

Many others wrote straight to Pat. A few are included below.

From: bob simmonds
<simmonds@olympus.net>
Subject: Is that you, Pat?!

Just opened the latest alum newsletter from Geology-U. of Ill., and learned that Marion Bickford "she retired" and despite "her retirement"...is this another person? has there been a sex change?

From: james c tharin
<tharin@juno.com>

Did the operation hurt much?!
-Cotter

hold that position until 1999. Granath also works for the Conoco Advance Exploration Organization, the international new ventures group for Conoco. He has been doing structure and tectonics project work since 1993.

John M. (Jack) Sharp, M.S. '74, Ph.D. '74, is the Chevron Centennial Professor of Geology at the University of Texas at Austin. He writes that his oldest daughter, Katie, received her B.S. in hydrogeology from Colorado State and "occasionally joins the old man at conventions to improve his image."

Neil H. Whitehead III, M.S. '76, and his wife, Ann W. Whitehead, have become consulting geologists in Littleton, Colo. They were previously consulting geologists in Socorro, N.M.

John Mitchler, B.S. '78, has signed a contract to publish a guidebook to hiking the highest point in each of Colorado's 63 counties. On Sept. 14, 1996, he was the first person to hike or climb to each point. Since then two other people

have accomplished that feat. John also mentions that he has been to the high point of 14 Illinois counties and helped research the location of the high point for all 102 counties. "If anyone is wondering, Champaign County's high point is northwest of town on Yankee Ridge by the radio tower just north of the interstate!"

Eighties

Valla D. Earl, B.S. '84, is working for the Washington State Department of Transportation Construction as a design engineer. Most recently they completed the second and third design phase of an \$18 million "frost free" roadway that involved interesting geology. They also finished construction of several climbing lanes through gorgeous terrain. "I consider myself blessed to work in such a beautiful part of the country," she writes. Valla also recently was promoted into a management position and received her professional engineer's license in 1995. She has two sons, Jonathon (7) and Daniel (6). "We live in rural Spo-

kane with our cats, dogs and horses. I'd love to hear from some of my classmates."

David Watso, M.S. '88, is a senior geologist/3-D workstation specialist with Subsurface Consultants & Associates of Lafayette, La. He was previously a consultant for the same company.

Nineties

Christopher A. Hedlund, B.S. '90, is living and working in Houston, Tx., where he conducts structural geology research for the Shell Exploration and Production Technology Co. His research includes fault mapping, dating of deformation with growth strata and cross section restoration. He can be reached at hedlund@shellus.com

Melinda Ann Legg, M.S. '94, and **Robert F. Ylagan, Ph.D. '96,** were married September 7, 1997. The couple lives at 3720 West Alabama #2305, Houston, Tex. 77027. They can be reached at mbylagan@worldnet.att.net.

Wendy (Gill) Czerwinski, M.S. '95, and her husband, Richard, are the proud parents of Rachel Victoria, born on November 10. At birth she weighed in at 7 lbs., 5.6 oz. All members of the Czerwinski family are doing well. They live in Burlington, Mass., and can be reached through Richard's e-mail at rnc@ll.mit.edu.

Matthew Haverty, B.S. '96, is teaching physics and earth science at Amphitheater High School in Tucson, Ariz., and coaching basketball for seventh graders at a middle school.

REMINDER

You can send your update for the Alumni News via e-mail: geology@uiuc.edu

Let's Keep In Touch

Please take a few minutes to let us and your classmates know what you've been doing: promotions, publications, election to office, marriage, parenthood, moving, awards. We'd all like to hear from you. Send your news to the Department of Geology, 245 Natural History Building, 1301 West Green Street, Urbana, Illinois, 61801; fax 217-244-4996; e-mail geology@uiuc.edu.

Name _____ Response date _____

Home address _____ Office address _____
(indicate if changed)

Home phone _____ Office phone _____

E-mail _____

Degrees from Illinois (with year) _____ Degrees from other universities _____

Present employer and brief job description _____

Other news you would like to share _____

Your comments on the alumni newsletter _____

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