

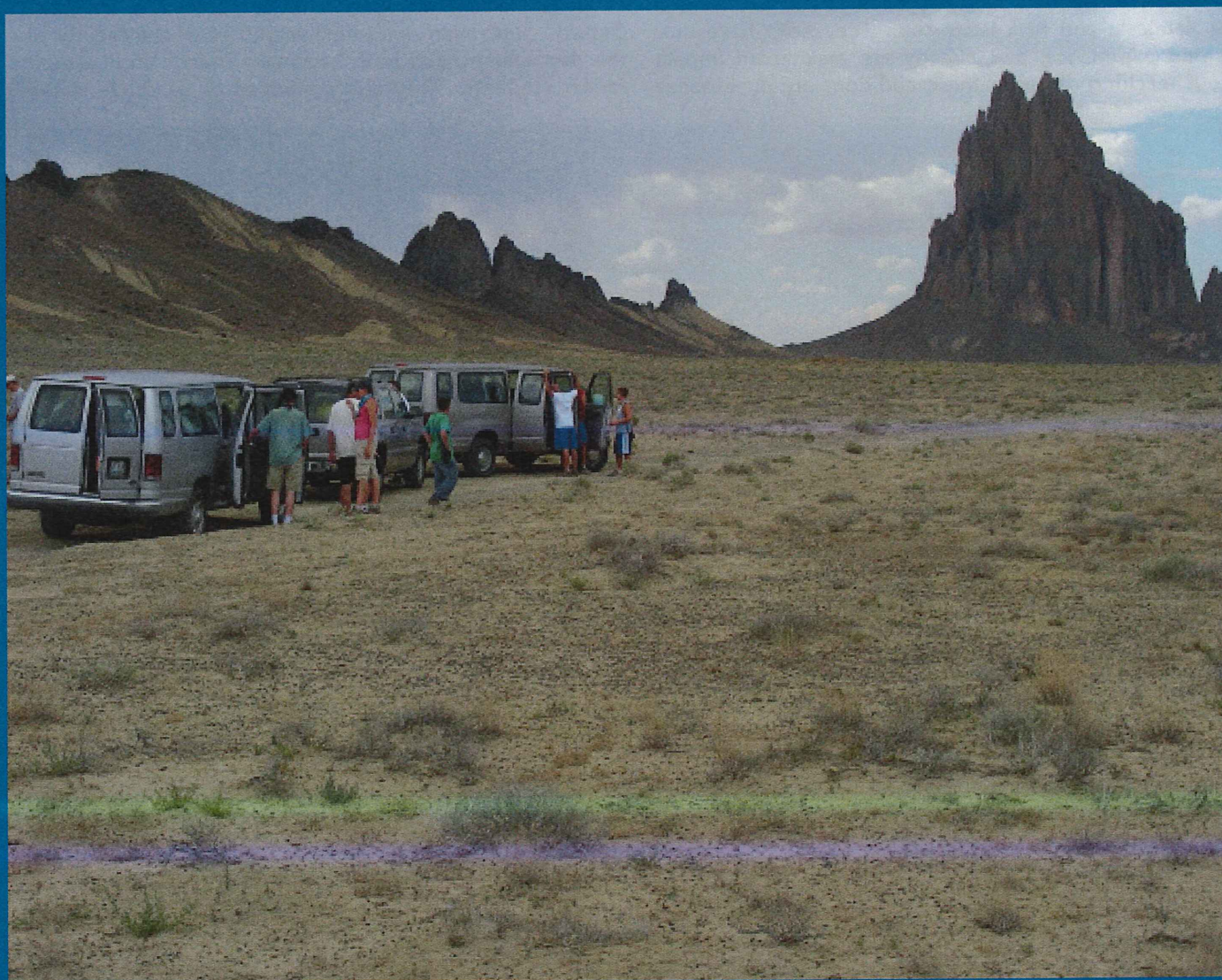
College of Arts & Sciences Earth & Environmental Sciences

Department
Newsletter

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Letter From The Chair

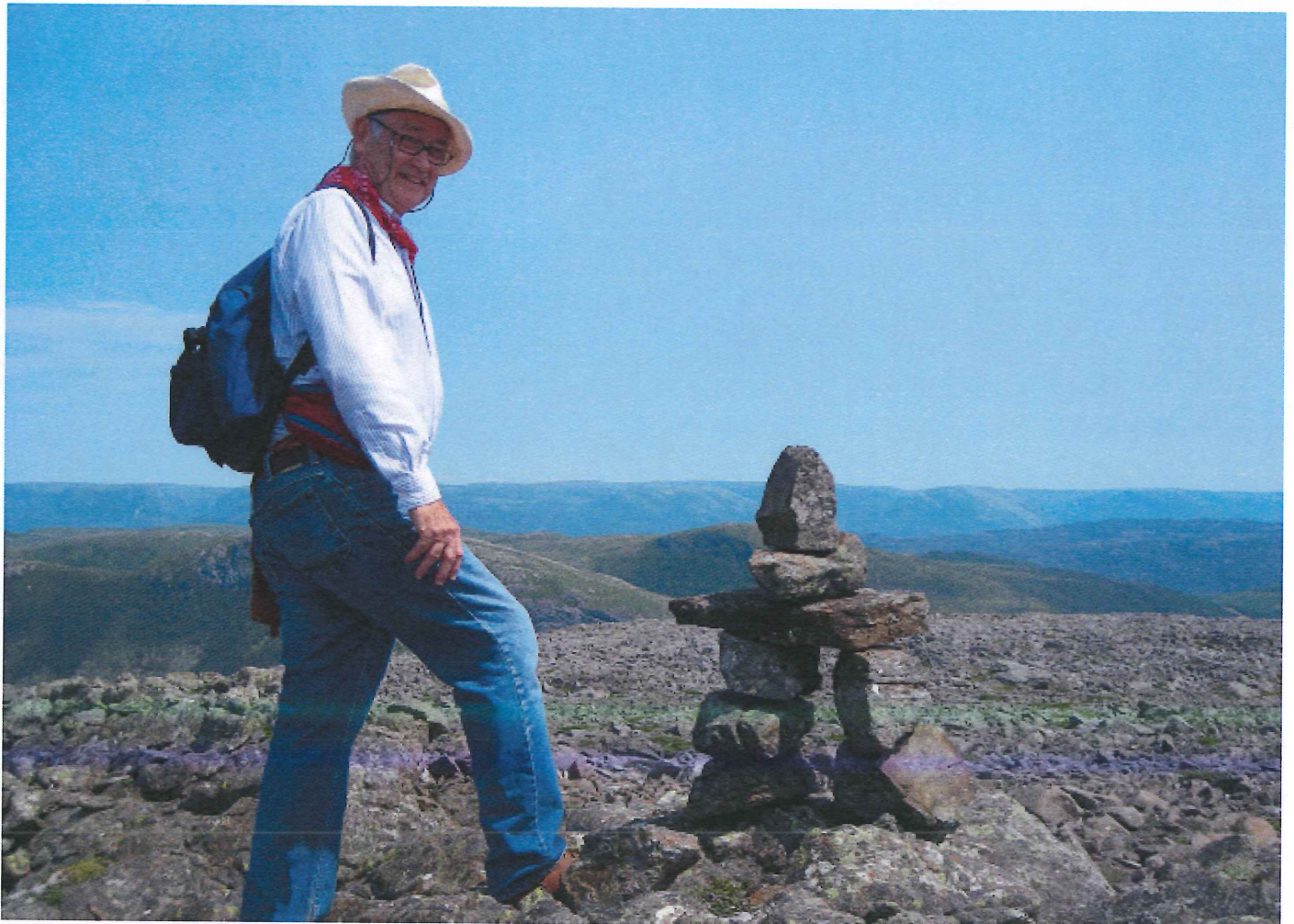
At the beginning of a new academic year, the department is on a good footing to have a great year. From this annual report, you will see that we have an active group of students and faculty, and a lot is happening.

Our faculty has undergone some changes. Dhananjay (Tiku) Ravat has joined the faculty as Professor of Geophysics. He brings a highly active and visible program, including development of a new magnetic map of the world, into our department. He will be teaching courses and directing research of graduate students in magnetics and gravity. Two new lecturers have joined the faculty: Kent Ratajeski and Rick Bowersox. They both have outstanding experience, and already are making an impact on our teaching. In part, these additions are in response

to the departures of Paul Howell, an associate professor who specialized in teaching of geology, and of Mike Handke, who was a lecturer. Both have gone into the petroleum industry.

Speaking of the industry, our recent graduates are enjoying the up-turn in employment opportunities. In addition to substantial increases in the petroleum industry, other areas of the geosciences also are on the upswing.

Two sad milestones have been reached with the passing of former faculty members, Lois Campbell and Bill MacQuown. Both were long-time members of the faculty of this department, and both had many friends among their former students. They also continued to be active in the



life of the department for many years after their retirements. In addition, one of our most widely known and recognized alumni, James O. Lewis, Jr., passed away. We miss them all. Please see memorials elsewhere in this publication.

As we develop our academic programs, the department depends more and more on the support of the alumni. Nearly every student who completes a graduate degree has some research activity away from the campus: doing field work, analyzing samples in specialized labs, or working with experts in other universities. The students also attend professional meetings to present papers. These activities require the support of our special funds (the Brown-McFarlan Fund, and the Ferm Fund), which exist only because of the generous contributions from alumni. We thank you all for this essential support, which is so crucial to the quality of the experiences we provide for students.

During the past year, I have enjoyed the opportunity to talk about "The Future of the Geosciences," a discussion that we initiated in the Executive Committee of the Geological Society of America. Now, I believe that it is fair to say that we are at a unique time in the history of humankind with respect to the need for geoscience information, and we have a great opportunity to contribute to solutions of potentially immense problems. Our role and goal as a department is to prepare our students, our future alumni, to take their places in that bright future. With the help of all of our alumni, we are meeting that goal.

William A. Thomas
Department Chair
UK B.S. 1956, M.S. 1957

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Cover Image: Ship Rock (background) is a stop on the field camp regional trip that loops around the four corners area.

Back Cover Image: During field camp, a day-trip to Black Canyon of the Gunnison is an opportunity to take a break from mapping traverses and see some of the spectacular local geology of the Gunnison Country.

In Memory Of

Lois J. Campbell 1923-2004

About five years ago, after Lois moved to Columbus, Ohio, the Department lost contact with her. It is only within the last month, through a fortuitous contact with a nephew who worked at the university briefly, that we learned a little about Lois's circumstances in her last few years. Here is what we learned about her history.

Lois was born on Nov. 16, 1923, in Toledo, Ohio, and finished her Bachelor of Science in geology in 1944 at the University of Michigan. She initially went to Michigan to study archaeology, but she arrived during World War II when all the men were fighting overseas. Due to the absence of men, women were being recruited to study geology. Lois was one of eight women who were convinced to become geologists, later known as the "Petroleum Girls." In 1944, Lois went to work for Humble Oil Company to do field work. However, at the end of the war, all the men came back, and Lois was switched from the field to the lab, which she did not like. So, in 1947, she left the oil industry, did some independent work at home, and began studying for her doctorate in Pleistocene geology under the well-known glacial geologist Richard Goldthwait at Ohio State University. For her dissertation topic, she studied glacial lacustrine sediments from three northeastern Ohio counties and earned her doctorate in 1954. This was at a time when glacial geology and geomorphology were coming into great prominence in the geological community, and the nature and extent of her work were considered to be rather important. At the time, there were very few women in geology, and Lois was in the vanguard of the later move by many more women into the field.

In 1954, she was hired at the University of Kentucky as an instructor and curator by Dr. A.C. McFarlan. Her initial responsibilities included the preparation, identification and cataloging of fossils, teaching an elementary geology course, and working at the Kentucky Geological Survey. However, she soon outgrew the position and, in 1957, she was appointed as an assistant professor. In 1965, she was tenured, and, in 1975, she was appointed associate professor. Although she taught several elementary geology courses, she was best known for her courses in historical geology, paleontology, and landforms, which closely reflected her early interests. For many years where she was Seminar Coordinator, Supervisor of Teaching Assistants and Elementary Labs, and Director of Undergraduate Studies, she had a major influence on the lives and careers of many undergraduates in the department. She served on many university, college and departmental committees, she was president of the UK University Club and was deputy chairperson during Nick Rast's last term as chairman. During this time, she acted as an unofficial curator for the department's specimens and the Hudnall Museum. In fact, after the Department received a small endowment to set up the museum, she almost

single-handedly developed and ran the museum. She was also a member of the Geological Society of America, the American Association of Petroleum Geologists, the Paleontological Society, American Association of University Professors, Phi Beta Kappa, Sigma Xi, and the National Association of Geology Teachers, in which she held several sectional office positions. In 1981, she and Tom Roberts were co-chairs for the Field-Trip Committee of the National GSA meeting in Cincinnati. She also published several papers and guidebooks on paleontology and Pleistocene geology and wrote an introductory lab manual, *Introduction to the Earth*, which was used for many years in departmental geology labs. Many students will remember that Lois was exacting, thorough and conscientious in her teaching, advising and administration; and she expected no less from her students and colleagues. Recently, an AAPG database was donated to the Geology Library in her name by alumnus Jay Henthorne.

Lois retired in 1990 after 36 years of teaching in the department, although she stayed on to teach and curate for another year as a part-time instructor. She remained in Lexington until 1998, and was an active participant in departmental affairs until she moved to Atlanta, Ga., in late 1998. Later, she moved to Columbus, Ohio, where she died in March of 2004, from complications of pneumonia and a heart attack. She is buried with family members in Toledo, Ohio, and is survived by her brother Walter, two nephews, Douglas and Charles, and a niece, Cameron.

James Otis Lewis, Jr. 1922-2006

Beloved husband, father, grandfather and friend passed away peacefully on June 2, 2006. He was born on July 6, 1922 in Owensboro, Ky., to the late James Otis Lewis, Sr. and Mary Shaw Lewis. He attended high school in Fulton, Ky., and graduated from the University of Kentucky with a bachelor's in Mechanical Engineering in 1947 and a master's in Geology in 1949. From 1943 to 1947 he fought in WWII while serving in the U.S. Navy. After graduation in 1949, he moved to Houston, Texas, and worked for Magnolia Petroleum Company and P.R. Rutherford. In 1955, he started his own consulting practice, focusing on geology of the Gulf Coast and southwest Texas. He was devoted to his profession and its associations. He was president of the American Association of Petroleum Geologists (1989-1990), the Houston Geological Society (1968-1969), and the Society of Independent Earth Scientists (1967-1968). He held Honorary Life Memberships in these organizations, received several Distinguished Service Awards, chaired numerous conventions, and remained involved in these organizations' leadership throughout his life. The greatest joys in Jim's life were his wife Gwinn, his family, and sharing his knowledge of geology. He loved west Texas, traveling there often, and his weekend home in Washington County. He was an avid

2007 Degrees

Bachelor of Arts

Elizabeth Almy
Leah Bridges
Josh Dahl
Christy Hulsman
Anne Satterwhite

Bachelor of Science

Wes Buchanan
James Gonyer
Colton Jayne
Maria Marks
Brian O'Dea
Travis Richards
Brian Scott
Collin Anderson

Master of Science

James W. Whitt
Title of Thesis: Geophysical and Geological Investigation of Neotectonic Deformation Along the Caborn and Hovey Lake Faults; Wabash Valley Fault System, Central United States

Tom Reed
Title of Thesis: Suspended Sediment and Pathogen Transport in Two Karst Ground-Water Basins in Woodford County

pilot, handball player and carpenter. He was preceded in death by his wife Gwinn McMahan Lewis and his sister Jane Haynes. He is survived by his sons Blake and his wife Marianne, Emison, Calvin and his wife Louan, Sean and his wife Adrian, and Cannon and his wife Jennifer, his daughters Tara and her husband John Swords, Galin and her husband Steve Morgan, Disa and her husband George Lyon, Beryl and her husband Sam Gibson, and fourteen grandchildren.

William MacQuown 1916-2007

Dr. William C. MacQuown Jr., 91, husband of Marjorie Rees MacQuown and the late Vivian Johnson MacQuown, passed away at his Lexington home on July 24, 2007. A geology professor and faculty emeritus at the University of Kentucky, MacQuown received his master's in 1940 from the University of Rochester and his doctorate from Cornell University in 1943. In the 1940s and '50s he worked for several petroleum companies in the Midwest and Rocky Mountains. After being named chief geologist by Sohio Petroleum, he served at their Oklahoma City headquarters, and later, in Calgary, Alberta. In 1961, MacQuown began teaching as a full professor in the Geology Department at UK. During that time, he helped the U.S. Geological Survey map the geologic features of central and south-central Kentucky. Later, as a researcher and consultant, MacQuown served as president of the Geological Society of Kentucky, and was a member of the AAPG for more than fifty years. In 2003, he was given the Outstanding Educator Award by the AAPG Eastern Section. In addition to his career, Bill MacQuown was an artist and an active member of the central Kentucky art scene for many years. As members of both the Lexington and Winchester Arts Guilds, he and his wife have had their works presented in public exhibits throughout the state. He had been a member of the Rotary, and was a Kentucky Admiral and a U.K. Fellow. He is also survived by his son Larry MacQuown; daughter, Melissa Forsyth; granddaughter, Rebecca MacQuown; son-in-law, Bill Forsyth, and daughter-in-law, Debra MacQuown. Born in Pittsburgh in 1915, Dr. MacQuown was the eldest of four brothers, all of whom survive him: Richard and Frank MacQuown of Pittsburgh, Pa., and Rolfe MacQuown of Wintersville, Ohio.

Sue Rimmer Selected for 2007 AWG Outstanding Educator Award

Lois Yoksoulion
doctorate student

I am pleased to announce that Sue Rimmer was selected by the Association of Women Geoscientists (AWG) to receive the 2007 Outstanding Educator Award. This prestigious award was established in 1988 to honor educators who have played a significant role in the education, support and encouragement of women geoscientists. Awardees are selected on the basis of their contributions as professionals, involvement with professional societies or groups, and/or participation in science education programs in their community. Sue's nomination, initiated by students Rachael Von Mann and Lois Yoksoulion, included letters of recommendation from professional colleagues Harry Rowe, Dave Moecher and Paul Howell, former students Sarah Hawkins and Jennifer Thompson, and current students Julie Floyd, Rachael Von Mann and Lois Yoksoulion.

It is no coincidence that approximately 65 percent of Sue's past and current students are women. As one of the few female faculty members within the department, Sue has served as a positive role model for many female students, graduate and undergraduate alike. Her presence in this department has promoted diversity within the graduate student body by encouraging female undergraduates to not only pursue graduate studies, but to do so at UK. Her enthusiasm for her and her students' work, ideas for challenging and stimulating research and ability to balance her work and family life are just a few reasons why Sue's students find her so appealing.

Although it might seem appropriate to discuss Sue's professional achievements, I would much rather take this opportunity to share what others around the department think of her, as presented in her letters of recommendation for this award:

"There is no faculty member in our department whom I hold in higher esteem for dedication to the academic ideals of disciplinary research, teaching/mentoring, and community building than Sue Rimmer...She has a remarkable working relationship with her students, from fresh undergraduates with little experience working in her lab to doctoral students diving headlong into complex dissertations...Sue is an all-

around academician – cutting-edge researcher, mentor to her graduate students, able community member – and she balances it all with her other lives"

- Paul Howell, former Associate Professor

"As director of Undergraduate Studies, I maintain a keen interest in the quality of undergraduate instruction. I need not worry about Sue giving the students the best they deserve. She is the most conscientious faculty member we have teaching at both instructional levels. I greatly value having her as a colleague..."

- Dave Moecher, Associate Professor and
Director of Undergraduate Studies

"During my time at UK, Sue was a clear model of well-rounded professionalism...As dean and in the department, she aggressively supported the recruiting of female faculty members and female graduate students, and has acted as a mentor to assure the success of both."

-Jennifer A. Thompson, Geologist,
KY Department for Natural Resources, (M.S., 2004)

"Experiencing the guidance and leadership exhibited by an excellent female mentor in the geosciences such as Sue is rare...[The] formula for success that Sue has cultivated in her lab has instilled a sense of teamwork and mutual support in her students for each other. We take this attitude with us to our future places of work, and it continues to add to the strength of our working environment, and will likely do so throughout our careers."

- Sarah Hawkins,
Pioneer Natural Resources, (M.S., 2006)

"Dr. Rimmer was instrumental in my choosing the field of Geology. I am a non-traditional student and mother of three who is currently pursuing a M.S. degree...When I chose to make a drastic career change to Geology, I sought the advice of Dr. Rimmer...She was forthright in explaining the challenges that lay ahead of me, but offered encourage-

ment that my goals could be met. As a result of that one conversation, I made a career change to Geology."

- Julie Floyd, current M.S. student

"She is clear with her expectations, quick to respond when you need help, and even quicker to praise you when you succeed, even if all you did is crush rock samples...Sue believes in what this department can become, as she believes in what her students can become."

- Rachael Von Mann, current master's student

"Dr. Rimmer is hardworking and devoted, yet light-hearted and fun to work with. She is committed to her work, her students and her family. Most importantly, she maintains all of these qualities with the utmost professionalism and integrity in a way that inspires those around her."

- Lois Yoksoulion, current Ph.D. student

Sue Rimmer was honored at the 2007 GSA Annual Meeting AWG Breakfast in Denver, Colo., on Oct. 29. Several attendees spoke in Sue's honor, including her oldest son James Stepusin, who flew in from Indianapolis, Ind., to attend.



UK Geology Field Camp

Dave Moecher

UK Geology Field Camp Director

The spirits of many UK Geology students live on at Cement Creek! Hiking up the 10,000-foot hill centered in Walrod Gulch in the Cement Creek map area [Remember? The one with the excellent section of Sawatch through Leadville resting on the Precambrian?], one comes upon the grove of Aspen trees engraved with the initials or names of UK Geology students. Everywhere one turns, the Aspen bark has the distinctive black scars, mostly initials that are difficult to associate with a particular alumnus, but several names that identify the culprit beyond a shadow of a doubt. The earliest date I could find was 1958. The sheer number of initials is an imposing sight for the current group of students making their first, and probably only trip ever, to the top of the hill. It's an impressive legacy, and an important reminder of generations of students who have toiled at Field Camp over the decades. For a complete set of photos, see www.uky.edu/AS/Geology/Alumni/aspens. Contact me directly (moker@uky.edu) if you recognize your name or initials, and I would be glad to provide a copy of the image.



The Aspen Grove on 10,000-foot Hill, Cement Creek

Faculty Happenings: What's going on?

Alan Fryar
Associate Professor

It's hard to realize that I'm starting my 13th year on faculty at UK. When I arrived in 1995, my sons were both in preschool; now, they're both in high school. This past year was the culmination of a long adventure for my family and me. My wife, Carol Ruthven, resigned from the KGS in summer 2004 to enter a three year Master of Divinity program in the School of Theology at the University of the South in Sewanee, Tenn. Sewanee is located on the Cumberland Plateau about 45 minutes' drive northwest of Chattanooga. Carol and our younger son, Scott, spent the 2004-05 and 2005-06 school years in Sewanee. I took a long-deferred sabbatical leave during fall 2006 and a leave of absence from UK during spring 2007 so our older son Michael and I could join them. I spent the year as a visiting faculty member in the Department of Forestry and Geology at Sewanee. The department is smaller than ours (three faculty each in Forestry and Geology, plus perhaps 50 majors total in Forestry, Geology, and Natural Resources), and the university is much smaller (a liberal-arts college of about 1500 undergraduates, plus about 90 seminary students). During the fall, I caught up on writing some manuscripts and prepared for my spring classes — a topical course in water resources and policy (for departmental and Environmental Studies majors) and an upper-level course in hydrology with a field-based lab. I also gave seminar presentations on water resources and on my work in India with my former student Abhijit Mukherjee. All in all, it was a wonderful experience. I've combined the two courses I taught last spring into a 400-level course I'm teaching this fall at UK. I hope to continue the research collaborations I began in Sewanee. I'm grateful to my colleagues here who covered for me and my colleagues there who made me feel so welcome. My family and I returned to Lexington after Carol's graduation in May. She was ordained a deacon in the Episcopal Diocese of Lexington in June and is on track to be ordained a priest within the next four months.

In my absence, my grad students flourished. Tom Reed defended his master's thesis on suspended sediment and pathogen transport in two karst ground-water basins in Woodford County. He's now working for AMEC in Lexington. James Ward finished his field work on the sources and transport of fecal bacteria in the Blue Hole ground-water basin in Versailles. He gave presentations at the 2006 national EPSCoR meeting in Lexington, the fall 2006 American Geophysical Union meeting in San Francisco, a National Ground Water Association karst conference in Florida, and the 2007 Kentucky Water Resources Annual Symposium. He's cur-

rently writing his dissertation, which he should finish by the end of 2007. Estifanos Haile advanced to Ph.D. candidacy in March. He received grants from the Kentucky Water Resources Research Institute and the Gulf Coast Association of Geological Societies in support of his research on ground-water recharge and chemical evolution in the Wilcox aquifer of the northern Gulf Coastal Plain. Estifanos and I returned to Missouri and Arkansas in late May and early June to finish collecting water samples and to meet with staff from the Arkansas Geological Commission and the USGS. Both James and Estifanos will be giving talks at the GSA Annual Meeting in Denver, as will I.

I'm also happy to have two new master's advisees. Katy Adank, who entered in fall 2006, has developed a thesis project on the occurrence of plant pathogens in reclaimed mine spoil in eastern Kentucky. I'm co-supervising her with Chris Barton in Forestry. Ganesh Tripathi started this fall after completing BSc and MSc degrees from Tribhuvan University in Nepal and working for the Nepal Department of Mines and Geology. I anticipate he will work with me, our geophysicists, and KGS staff to delineate karst conduits using multiple geophysical techniques.



Estifanos Haile with the utility manager and the mayor of Elaine, Ark.

New Faculty

Kent Ratajeski

I am delighted to join the UK Department of Earth and Environmental Sciences as a lecturer this year. This fall I am teaching GLY 110 (Environmental Geology), GLY 220 (Physical Geology), GLY 230 (Field Methods) and GLY 570 (Graduate seminar). I love sharing my enthusiasm for geology with my students!



My academic background includes degrees from New Mexico Tech (B.S., Geology), the University of Maryland at College Park (M.S., Geology), and the University of North Carolina at Chapel Hill (Ph.D., Geology). These degree programs included various research projects in central New Mexico, the Basin and Range of central Nevada, and the Sierra Nevada batholith of east-central California, focusing on the field geology, petrology, and geochronology of granitic rocks. More recent research activities have included collaboration with researchers at UNC and the University of Utah on an investigation of sheeted (episodic) emplacement of the Half Dome Granodiorite in the Tuolumne Intrusive Suite in Yosemite National Park, a geochronological study of the Elberton Granite in northeastern Georgia, and development of web-based learning modules for undergraduate instruction in mineralogy, crystallography and petrology while a postdoc at Montana State University.

My teaching experience has involved short-term positions at Calvin College (Michigan), Northern Arizona University, Bates College (Maine), the Wheaton College (Illinois) Science Station in the Black Hills of South Dakota, the College of William and Mary (Virginia), Montana State University, and the University of West Georgia.

My other interests in life are music (piano and church choir), running, and outdoor exploration (hiking, camping, and backpacking).

Dhananjay Ravat

Hello all! I have joined the department of Earth and Environmental Sciences as a professor beginning this fall. I am a geophysicist and have been teaching and researching for the past 16 years in the areas of gravity, magnetics, tectonics, environmental geophysics, global geophysics using satellite observations and planetary geology/geophysics.

In the last few years, I have been involved with a number of exciting projects in these areas funded by NASA and USGS. One of the most interesting projects, and several years in the making, was the preparation of the first edition of the world digital magnetic anomaly map, published during the International Union of Geodesists and Geophysicists' (IUGG) meeting this July in Italy by the Commission on the Geologic Map of the World (CGMW) and UNESCO.

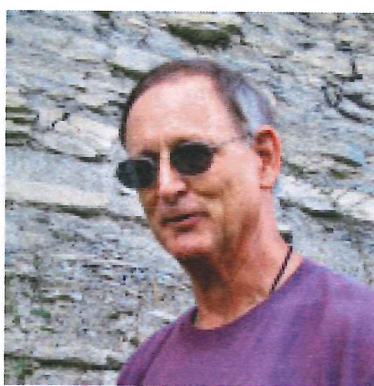
I am very excited about joining the department during a time when the university is rapidly expanding and striving to become one of the top echelon of the universities in the country. We are looking forward to attracting more new faculty and students in the coming years and strengthening the department by expanding our areas of expertise.



New Faculty

Rick Bowersox

I joined the Earth and Environmental Sciences faculty as a lecturer this fall, after previously visiting positions at Bloomsburg University of Pennsylvania (2006-2007) and the University of Tennessee (2005-2006). While I gained some familiarity with the Valley and Ridge Province in these previous positions, the Bluegrass Region is new and I am looking forward to the opportunity to learn about this geologic province.



I came to UK with a relatively short career in university teaching and a long career in the petroleum industry in Bakersfield, Calif. I earned my bachelor's (1973) and master's (1974) from San Diego State University, Calif., and went to work in the petroleum industry in 1975. I spent ten years working for major oil companies as a staff development geologist, supervisor and department manager, then moved to an independent producer in the fall of 1985. When the independent producer liquidated in 1990, I joined with two of the corporate vice presidents and two engineers in a new independent producing company partnership. After we liquidated our business in 1998, I entered the doctoral program in geology at the University of South Florida, Tampa, in 1999, and completed my degree in 2006.

My research has focused on changes in nearshore paleoenvironments during periods of global climate variability. I have been working on interpreting the record of the Pliocene San Joaquin basin of central California where I have a familiarity with the surface and subsurface geology from my petroleum industry background. The Pliocene is an excellent model for what the Earth's environment can be during a period of global warming and thus a model of what our modern environment may become during the current phase of global climate change. The San Joaquin Basin was a marginal sea during the Pliocene, connected to the northeast Pacific through a long, narrow strait, and was subject to loss of this connection due to global sea level changes as well as regional tectonism associated with the San Andreas Fault. Because timing is everything when discussing environments, I first developed

a chronostratigraphy for the San Joaquin Basin, then determined relative sea level changes which led to a basin subsidence model. Putting all of these puzzle pieces together with San Joaquin Basin fossil record, paleoclimate fluctuations become evident, along with their affects on the nearshore marine environments. So, what does all of this suggest about our modern environment? Tough times are coming for the native communities of organisms in near-shore waters.

Beyond my research, I enjoy teaching and sharing my experiences and research with students. EES has a great program and I look forward to the teaching opportunities. This fall I am teaching Geology for Elementary Teachers, Natural Resources, Field Geology, and a graduate seminar in teaching. This is a good mix of courses: With a daughter in third grade, I have a vested interest in elementary school teachers with a firm background in Earth science; I spent about 25 years in a natural resource industry, so I have a background of experience to draw from; and my research and professional career were both field-based.

Solute, Particle and Bacterial Transport

Study of a Karst Groundwater Basin Inner Bluegrass Region, Ky.

James Ward
Ph. D. Candidate

Karst terrain is the primary source of groundwater across the Bluegrass Region of Kentucky, providing flow to numerous springs and wells used for drinking water in a variety of locations ranging from rural to urban. The mobility of microorganisms in karst aquifers is a topic of public health concern, because contact with these organisms can occasionally cause serious illness. Therefore, information on the transport and fate of microorganisms in these systems is in great demand. Techniques of solute tracer tests in karst watersheds have been well established, but determining movement of bacterial pathogens in karst is more challenging. Over the past two years (June 2006 – July 2007), three tracer tests were conducted under various flow conditions within the Blue Hole Spring karst groundwater basin in Woodford County. Blue Hole Spring (traditionally referred to as Trough Spring) drains downtown Versailles along with

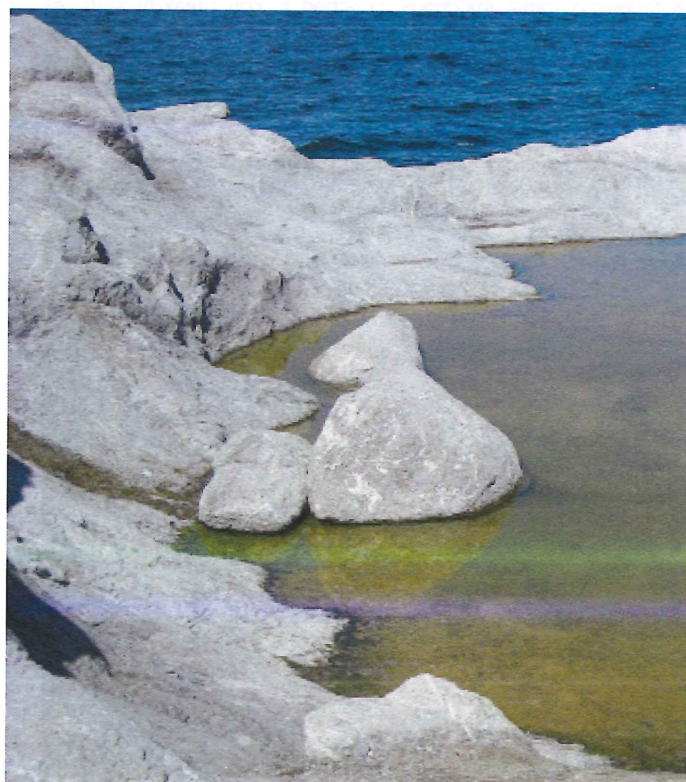
outlying farm lands. Tracers were injected into the subsurface via a piezometer ~ 500 meters upgradient of Blue Hole Spring. The tracers consisted of solutes — (rhodamine WT (RWT) fluorescent dye and bromide (Br-) — particles used to mimic microbial transport (1- μ m fluorescent latex microspheres) and microorganisms (wild type *E. coli* originally isolated from the spring and enriched in 15N). For all three tracer tests, breakthrough curves were smooth for the solutes, but jagged for the microspheres. Subsequent storm-flow pulses resuspended microspheres that had settled out up to ~ 350 hours following initial injections. Enriched *E. coli* breakthrough results are pending. Results from this research study have been influential in understanding transport of microorganisms within karst systems and could aid in establishing updated drinking-water standards, with respect to microorganisms, in Kentucky.



Newfoundland Summer

John Allen
Doctoral Candidate

John Allen standing atop the Table Mountain ophiolite massif, Gros Morne National Park, Newfoundland. The rounded peak in the background is Gros Morne, which is the second tallest peak in Newfoundland.

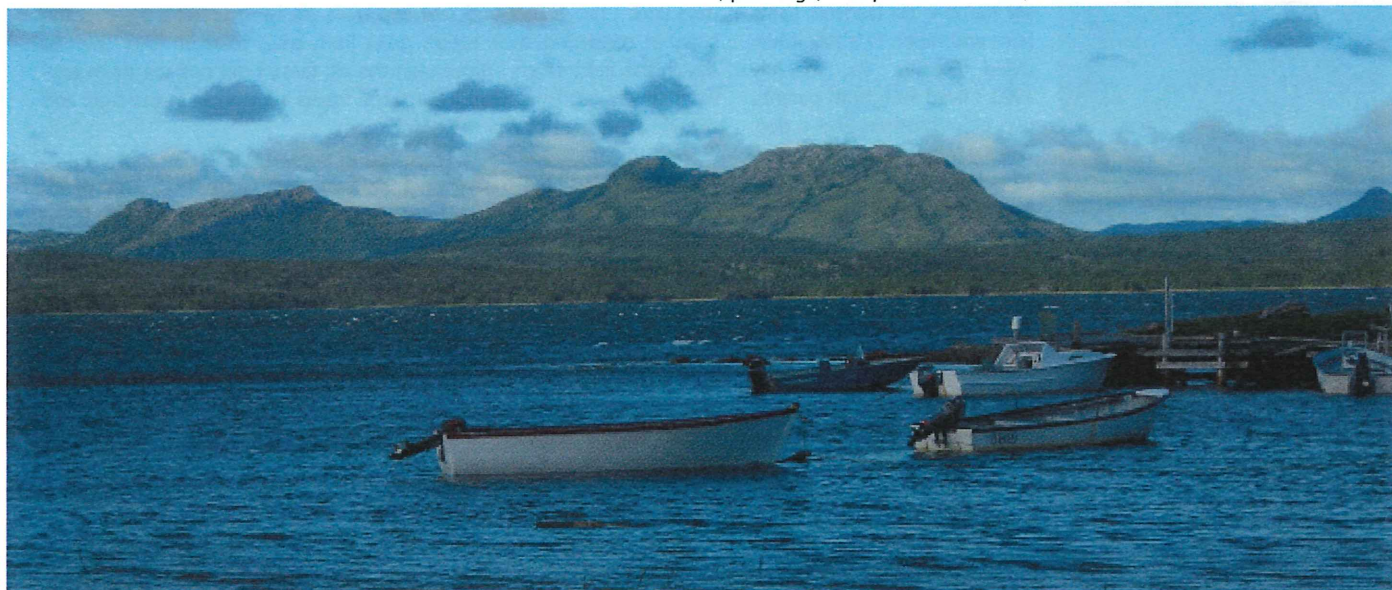


One of the greatest aspects of graduate work at the University of Kentucky is the opportunity to work collaboratively on exciting projects in locations the world over. Between the months of May and August of this year, I had the distinct privilege of working in western Newfoundland in collaboration with the Geological Survey of Canada and Parks Canada. The fieldwork that I completed this summer constitutes a part of my dissertation topic, which focuses on the early Paleozoic Laurentian rift in the Canadian Appalachians.

My study area included much of the coastal region of western Newfoundland between Stephenville and St. Anthony, including the scenic Gros Morne National Park, a UNESCO World Heritage Site. I spent all of May and June mapping structural and stratigraphic relationships within the Early Cambrian siliclastic and carbonate shelf exposed around Stephenville and Port au Port peninsula, as well as examining relationships within coeval deep water slope facies preserved further inland around Humber Arm and the town of Corner Brook. During July and most of August, I was on the Great Northern Peninsula examining autochthonous Early Cambrian shelf deposits that rest directly on one billion-year-old crystalline basement exposed in the Long Range Mountains.

Life in Newfoundland was also an exciting departure from the norm. The wide, unpopulated regions in western Newfoundland and its overall smaller population result in community and social atmospheres that contrast sharply with what we are accustomed to in Kentucky. Newfoundland has a population of approximately 500,000 Canadian citizens. While the largest town on the west

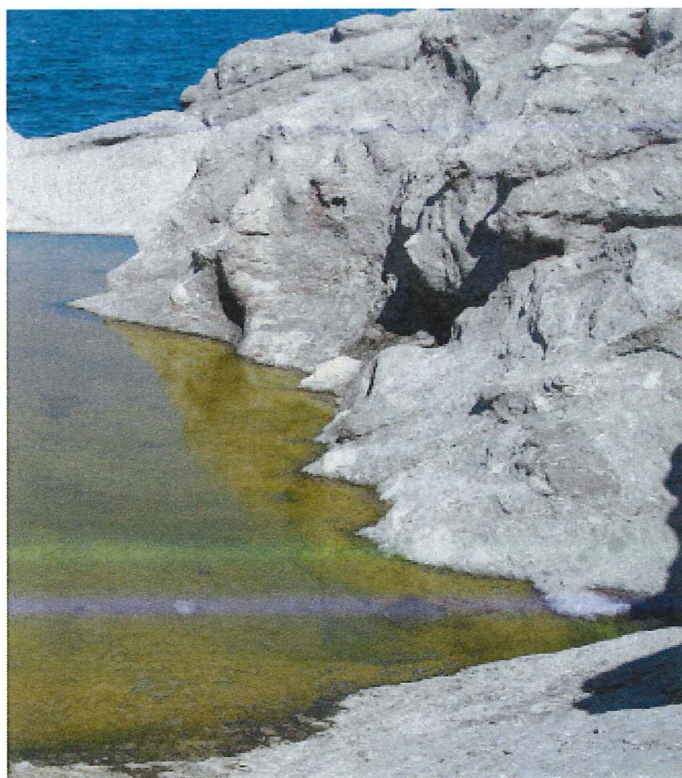
Photo of Canada Bay around the town of Roddickton, Newfoundland. Mountains in the background are locally referred to as the 'Sleeping Giant'.
(split image) Tidal pool at Cow Head, western Newfoundland.



coast, Corner Brook, has a population of 20,000 residents, most towns have average populations of about 1,000 residents. On most parts of the Northern Peninsula, the population density of moose ($12/\text{km}^2$) is actually greater than that of people! The major industries are fishing, agriculture and lumber, and most coastal towns in rural regions of the Northern Peninsula are only accessible by ferry. Almost all Newfoundlanders are extremely friendly and delight in chatting with visitors, or CFA's (Come From Away's) as they refer to us, about local history, geography and just about anything else that time allows.

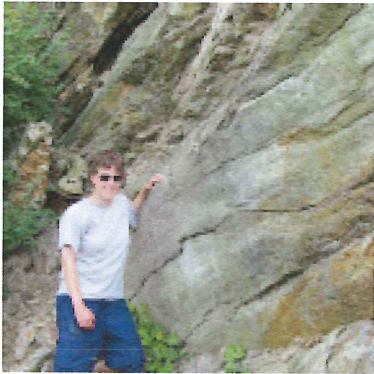
In all, I had a great time experiencing the geology of western Newfoundland and interacting with locals. Furthermore, the research that I completed this summer will enhance our understanding of the early Paleozoic evolution of the Appalachian mountain belt in Canada. Through my summer work, I was able to establish working contacts between UK and Geological Survey of Canada, which will benefit both institutions. None of this work would have been possible, however, without the aid and support of the university and the Department of Earth and Environmental Sciences.

John Allen is a doctoral candidate in the Department of Earth and Environmental Sciences who has been with the department since the spring of 2006. His current advisor is Dr. William A. Thomas (Department Chair). He came to UK with a bachelor's degree in geology from Furman University and a master's in structural geology from North Carolina State University.



Tales of Bedford, Pa.

Liz Dodson
M.S. Candidate



My name is Liz Dodson. I was born and raised in a little town called Greeley, Pa., in July 1983. I lived with both parents, two older brothers and a dog. Directly after graduating high school in 2002, I started college at the University of Pittsburgh at Johnstown, where I completed my geology degree. I started at the University of Kentucky in August 2006, working with Dr. Thomas.

This summer, I completed the field mapping portion of my thesis for the Everett West 7.5-minute quadrangle in Pennsylvania. This area has an interesting question of the kinematic relationships with a transverse zone in a thrust belt. I also had a field assistant, who is working towards her undergraduate degree at the same college where I received mine. I spent three months in the town of Bedford, where I rented an apartment. Old Bedford Village and Fort Bedford are two museums in town that describe life in this pre-Revolutionary War town. Old Bedford Village is a living museum of life in the 18th and 19th centuries, and is located along the Juniata River. Fort Bedford, located downstream of Old Bedford Village, is a museum about Bedford as a Fort during the French and Indian War. Many of the houses throughout my field area are period houses, and now have modern additions to the old structures.

Once outside of town, I was either on a forested ridge or in farm country. Parking my car was the biggest issue. For a ridge adventure, I would need to leave my car on a farmer's property for the day. Many farmers did not understand why I wanted to walk up 1,000-foot elevation change, and I would politely explain myself while the farmer looked at me as though I had rocks in my head.



One interesting location in the farm country was the elk farm. The first time I drove past, I noticed an incredibly high fence surrounding a large field. The fence had a sign on it stating: "Elk Country: Illegal to spotlight or shoot elk inside closed fence." I thought the farmer was making a joke as to why he had such a large fence, because I did not see any animals in the field. A few

days later, I drove past and saw two male elk lying under a tree. As the summer continued, their antlers grew from small to enormous. The last day in the field, when I drove past the elk farm, I did not see them anywhere. I was left to wonder if someone found a loophole in the sign, and obtained quite a trophy for their living room.

The Juniata River ran through the southern part of my field area, which gave me a great excuse to go kayaking. One weekend in June, my Mom arrived with the two kayaks. I was told I could put kayaks in at the Fort Bedford museum park, but when we arrived at the park, loaded with kayaks, we discovered a hidden sign telling us no kayaks or canoes allowed. After talking with some locals, we were able to put the kayaks in about two miles downstream from Fort Bedford, with my car at the take out point about ten miles down the river. The Juniata River has no rapids in the section we were on, but there were many shallow areas where we had to walk. There were three sections of the river where we could see the formations exposed on the river bottom. Other than the outcrops covered by water, we found one outcrop, but this turned out to be important for the project.

The people of Bedford County were helpful to me, and my project. They allowed me to enter their property, and to leave my car in their driveways. They usually told me where to find good "outcroppings," which almost always turned out to be a pile of rubble. Overall, I had a good summer mapping, and thank those who funded the departmental grants.

Alumni News

Rodney K. Rymer (M.S. 1982)

Recently moved to LaFayette, La., to become an exploration geologist in deepwater for Stone Energy.

Ken Stollenwerk (M.S. 1974)

Shortly after graduating from UK, I married Kathy Lubner and together we moved to Denver. I received a doctorate in geology from the University of Colorado in 1980. That same year I joined the U.S. Geological Survey as a geochemist in their Water Resources Division. My area of expertise is the study of heavy metal contamination in groundwater. In 2003, I co-edited the book "Arsenic in Groundwater, Geochemistry and Occurrence." Projects I am working on include: Arsenic contamination in Bangladesh and Nevada; Chromium contamination in California; and Phosphate contamination on Cape Cod.

William A. Thomas (B.S. 1956, M.S. 1957)

How I spent my summer?

1954 – field camp at Cement Creek

1955 – field camp at Cement Creek, again

1956 – ditto

2007 – field work in Newfoundland with John Allen (doctorate on the Cambrian rifted margin of Laurentia), field work in Pennsylvania with Liz Dodson (master's on transverse faults in the Appalachian thrust belt), and in Lexington, working with graduate students – Matt Surles (doctorate on Appalachian thrust belt beneath the Coastal Plain in western Alabama and Mississippi – yes, I know, no outcrop; interesting wells and seismic), Brian Cook (doctorate on an abrupt bend in the Appalachian thrust belt in Georgia), Carrie Kidd (master's on Floyd Shale in the Black Warrior basin), John Hickman (doctorate on basement faults from New Madrid to the Rome trough), Mike Solis (master's on Appalachian thrust belt in Alabama). And just for fun, Rachel and I took our Boy Camp of five grandsons (a lot like a van on the way to field camp) to Abraham Lincoln and Mark Twain sites between Lexington and Hannibal, Mo. All priceless!

Alumni Advisory Board Update

In the past year, the UK Geology Alumni Advisory Board has continued its efforts to involve and engage our alumni through various events and development projects. With the encouragement and help of the UK College of Arts and Sciences Office of Development and Dean Steven Hoch, the board has been able to plan several alumni events throughout the year. We have also seen some new faces on the alumni board and some exciting involvement by alumni in planning their own regional alumni events.

The Board had its annual meeting this past June at UK, and many new and old faces were in attendance. Brent Owens and Nancye Dawers have rotated off the board and new members Jay Henthorne, Rod Met-

calf, and Tom Spalding have joined the team. Steve Sullivan, Karen Thompson and Sarah Mardon have been reappointed to the board and Elizabeth Haynes was reappointed as board chair. David Moecher has agreed to remain as faculty representative to the board. A sincere word of thanks goes to those alumni who have rotated off and to the alumni and faculty who are continuing to serve, and a hello and welcome to those alumni who have joined us for the next few years.

The main goals for the Alumni Advisory Board for the coming year are three-fold: 1) to continue our efforts to encourage alumni (including alumni board members) to provide support for the Department of Earth and Environmental Sciences and current students, either through participation in alumni or department events and/or by providing monetary support; 2) to provide the means for alumni to meet and see old friends and to honor those alumni whose achievements have contributed in a significant way toward the geological sciences and/or to the UK Department of Earth and Environmental Sciences; 3) and to continue to develop and foster a mutually beneficial relationship with the university and College of Arts and Sciences.

With these thoughts in mind, the annual UK Geology Alumni reception was held at the Geological Society of America Annual Meeting for 2007. This year, the meeting was in Denver, Colo., and the reception was on Oct. 29. Other events planned for the coming year include a reception at AAPG in San Antonio in spring of 2008, and local events in Colorado and Texas.

In addition, alumnus Ken Neavel scheduled a fall alumni event for the weekend of October 19- 21, 2007. Ken planned and initiated the event, sponsored by the department and UK College of Arts and Sciences Office of Development, which included a Thursday seminar, Friday dinner, afternoon at Keeneland and UK football on Saturday. Way to go, Ken!

The 2007 Distinguished Alumni Award has been awarded to Alma Hale Paty (M.S., 1984) for her outstanding achievements as a geoscientist, as a representative of the geological community in national and regional government relations, and her continued service to the Department of Earth and Environmental Sciences. Alma was honored during the Fall Alumni Weekend in October.

The UK Department of Earth and Environmental Sciences, Geology Alumni Advisory Board, and College of Arts and Sciences hope that you will enjoy the events planned for you for 2007/2008 and encourage you to stop by and visit if you can. As always, suggestions, comments, and offers of assistance are always welcome and encouraged.

Have a safe and prosperous year,
Elizabeth A. Haynes (M.S., 2000)
Chairman, UK Geology Alumni Advisory Board

Departmental Awards

Departmental Awards to Students

Pirtle Graduate Fellowships

John Allen
Katy Adank
Cora Anderson
Brian Cook
Ken Macpherson
Rachael Von Mann

Ferm Research Awards

Travel
Brian Cook
Neil Russell
Research
John Allen
Brian Cook
Liz Dodson
Carrie Kidd

Brown-McFarlan Awards

Research
Estifanos Haile
Rachael Von Mann
Lois Yoksoulion
Travel
Shannon Daugherty
Julie Floyd
Sarah Mardon
Matt Massey
Neil Russell
James Ward
James Whitt

Pirtle Undergraduate Scholarships

Outstanding Senior
Jessica Rosenberg
Daniel Hedges

Rice Tuition Scholarships

Undergraduate
Nathen Hendren
Allison Richardson
Bryan Roberts

Tarr Awards

Undergraduate
Elizabeth Almy

Hudnall Field Camp Scholarship

Undergraduate
Leah Bridges
Scott Frazier
James Gonyer
Daniel Hedges
Nathan Hendren
Christy Hulsman
Bryan Loudon
Anthony Paschall
Travis Richards
Kevin Rosenberg
Neil Russell
Brandon Samples
Anne Satterwhite
Brian Scott

Outside Department Awards

Kentucky Section of American Institute of Professional Geologists Scholarship

Brian Scott (Undergraduate)

Geology research presentations at the Kentucky Academy of Sciences, Morehead State University

Eric Anderson, First Place
(Graduate Student Category)
Neil Russell, First Place
(Undergraduate Category)
Nathan Landrum, Second Place
(Undergraduate Category)

Geological Society of America Research Grants

John Allen (Graduate)
Brian Cook (Graduate)
Rachael Von Mann (Graduate)

The Society for Organic Petrology, Annual Meeting, Victoria, British Columbia

Sarah Hawkins (M.S. 2006)
Best Student Paper Award
Lois Yoksoulion (Graduate)
Best Student Poster Award
Lois Yoksoulion (Spackman Award)
(Graduate Student Research Award)

American Association of Petroleum Geologists Grants-in-Aid

Rachael Von Mann (Graduate)

Departmental Awards



Sarah Hawkins (left) and Lois Yoksoulain (right) accept their Best Paper and Best Poster Awards from Dr. MaryAnn Malinconico (center) at the 2007 Annual TSOP Meeting.

Two Students Win Awards at TSOP

A clean sweep for UK! At this year's Annual Meeting of The Society for Organic Petrology (TSOP), two of our students (one now an alumna) won awards for their research presentations. Sarah Hawkins (M.S., 2006) won the Best Paper Award for her presentation entitled "Fossil Charcoal in Devonian-Mississippian Shales: Implications for the Expansion of Land Plants, Paleoatmospheric Oxygen Levels, and Organic-Rich Black Shale Accumulation." Sarah, who now is a Geologist working for Pioneer Natural Resources in Denver, Colo., worked under the direction of Dr. Sue Rimmer. Meanwhile, Lois Yoksoulain won Best Poster Award for her poster "Petrography and Geochemistry of Contact Metamorphosed Coals of the Illinois and South Sumatra Basins: Implications for the Release of C¹²-enriched Methane." Lois is in the second year of her Ph.D. program at UK and is also working with Dr. Sue Rimmer.



Suzanne J. Russell (left) presents the 2007 Spackman Award to Lois Yoksoulain (right) at the 2007 Annual Meeting of the Society for Organic Petrology, August 2007, Victoria, British Columbia, Canada.

Trifecta!

Lois Yoksoulain wins TSOP Spackman Award, UK's 3rd year in a row

Lois Yoksoulain (Ph.D. candidate) was selected by The Society for Organic Petrology (TSOP) as the winner of the 2007 Spackman Award for her proposal, "Petrography and Geochemistry of Contact metamorphosed Coals: Implications for the Release of C¹²-enriched Methane." The Spackman Award attracts graduate student applications from universities around the world, and provides \$1,000 to be used toward research expenses. Candidates are also encouraged to present their research at a TSOP meeting, with next year's meeting held in Oviedo, Spain. Lois, who is working under the direction of Sue Rimmer, presented

some of her preliminary results in August 2007 at the TSOP meeting in Victoria, British Columbia, and will be presenting a poster at the national GSA meeting in Denver this October. This is the third year in a row that a student from UK has won this prestigious award. Rachael von Mann (M.S. candidate) was the 2006 recipient and Sarah Hawkins (M.S., 2006) was the 2005 recipient, both of whom work or worked with Rimmer.

Rast-Holbrook Seminar Series

Fall 2006

August

- Professor Paul Howell, University of Kentucky, Department of Earth and Environmental Sciences: "Global Carbon: Not Enough Here, Too Much There, What can We Really do about it?"

September

- Dr. Steve Greb, University of Kentucky, Kentucky Geological Survey: "Wetlands Through Time: Evolution of Wetland Types, Function and Importance in Earth History."
- Mr. Dan Jarvie, Humble Petroleum: "Geochemical Assessment of Unconventional Shale Gas Plays."
- Professor Roy VanArsdale, University of Memphis, Department of Earth Sciences: "The Geology of the New Madrid Seismic Zone."

October

- Mr. Jim Pear (UK '80), Chevron Deep-water Exploration: "The Deepwater Gulf of Mexico: Evolution of a World Class Hydrocarbon Province."
- Professor Greg Springer, Ohio University, Department of Geology: "Forecasting the Effects of Global Warming on Stream Dynamics: Insights from the Holocene."

November

- Ms. Jill Gregory, Exxon Mobil Corporation: "Skill Sets and Career Development for the Petroleum Industry."
- Professor Doug Crowe, University of Georgia, Department of Geology: "Basalts, Bugs, and Bears: Integrating Geology and Microbiology – the NSF Kamchatka Microbial Observatory."

- Professor Sue Rimmer, University of Kentucky, Department of Earth and Environmental Sciences: "Fossil Charcoal in Devonian Marine Shales: An Indicator of Expanding Terrestrial Ecosystems, Fire, and Atmospheric Change."

- Professor Thomas Guensberg, Rock Valley College Illinois: "Paleontology"

December

- Professor Thomas Stachel, University of Alberta, Department of Earth and Atmospheric Sciences: "Diamonds – Windows into Earth's Mantle."

Spring 2007

January

- Professor Molly Miller, Vanderbilt University, Department of Earth and Environmental Sciences: "Highly Productive Polar Forests: Permian, Antarctica."

- Professor Andrew Scott, Royal Holloway, University of London, Department of Geology: "The Burning Issue: Fire-Shaping our Past and Future World."

- Dr. Michael Hudec, American Association of Petroleum Geologists Distinguished Lecturer: "Evolution of Suprasalt Minibasins in the Deepwater Gulf of Mexico."

February

- Professor James Coogan, Western State College of Colorado, Department of Natural and Environmental Science: "Geometric and Kinematic Evolution of the Type Sevier Fold Thrust Belt of central Utah with Implications for the Sevier Desert Detachment Controversy and Remaining Hydrocarbon Potential."

Graduate Students

- Matthew Surles, University of Kentucky, Department of Earth and Environmental Sciences: "Effects of Basement Structures and Ouachita Thrust Belt Structures on the Appalachian Thrust Belt in Mississippi."

- Matthew Massey, University of Kentucky, Department of Earth and Environmental Sciences: "Oblique Convergence, Indentation, and Extrusion: the Alternative Alpine Analog for Alleghanian Orogenesis in Southern New England."

- Professor Allen Dennis, University of South Carolina-Aiken, Department of Biology and Geology: "Wenlock-Ludlow Post-Accretionary Terrane Dispersal in the Central Appalachians."

March

- Professor John Rakovan, Miami University, Department of Geology: "Environmental Mineralogy of Apatite: Crystal Chemistry of Uranium and Thorium in the Apatite Structure."

Graduate Students

- John Allen, University of Kentucky, Department of Earth and Environmental Sciences: "Structure and Kinematics of the Gold Hill fault zone; Waxhaw, North Carolina."

- James Ward, University of Kentucky, Department of Earth and Environmental Sciences: "Determining Transport Properties of Solute and Particle Tracers under Various Flow Conditions in a Karst Groundwater Basin."

April

- Professor Elizabeth McClellan, University of Tennessee – Martin, Department of Geology, Geography, and Physics: "From Whence the Mountains? Petrological Evidence for the Origin of Suspect and Exotic Terranes in the Central Scandinavian Caledonides."

- Professor Arnie Miller, University of Cincinnati, Department of Geology: "The Study of Phanerozoic Diversity Trends: Past Accomplishments and Future Challenges."

- Professor Chuck Kluth, Colorado School of Mines, Department of Geology and Geological Engineering: "A New Look at Old Friends: A Revision of the Interpretation of the Ancestral Rocky Mountains, Colorado."

- Professor Kurt Panter, Bowling Green State University, Department of Geology: "Volcanoes on a Frozen Continent: A Geochemical View of the Origin of Late Cenozoic Volcanoes in Antarctica."

Frank Ettensohn receives A.I. Levorsen Award

At this year's annual meeting of the Eastern Section of AAPG in Lexington, KY, Professor Frank Ettensohn received the A.I. Levorsen Award for the best paper presented at the 2006 Eastern Sectional Meeting in Buffalo, NY. The paper was entitled, "Black-Shale Source Rocks as Indicators of Paleozoic History in the Appalachian Foreland Basin," and was a summary of much of Dr. Ettensohn's latest work on the influence of tectonics on Devonian black-shale deposition in the Appalachian Basin and elsewhere.



Opportunities for Giving

Brown-McFarlan Fund

Provides research grants for graduate students to support thesis/dissertation research and for undergraduate students to support senior thesis and independent research. The research grants directly cover the students' expenses for specific parts of their research. In addition, this fund supports students to travel to professional meetings to present the results of their research. The fund enables us to bring in speakers for the annual McFarlan lecture and the annual Brown lecture.

The Brown-McFarlan Fund (see above) and the Ferm Fund (see below) are the only departmental funds available to directly support student research. As the cost of research rises, we are more and more dependent on these funds. The faculty are actively bringing in grant funds to support student participation in research; however, not all students have research projects that fit within the objectives of grant-supported research.

J. C. Ferm Graduate Research Fund

Provides research grants for graduate students who are conducting field-based research, and provides travel funds for those students to present the results of their research at professional meetings.

Rast-Holbrook Fund

Provides most of the support for the departmental seminar series, a weekly seminar featuring visiting speakers from academia and industry, our own faculty, and graduate students.

Haynes Field-Trip Support Fund

Supports student travel on departmental field trips.

Glenn Rice Memorial Fund

Provides scholarships for undergraduate students.

Geology Support Fund

Provides support for a variety of programs for our current students.

Geology Development Fund

Provides support for a variety of programs for our current students.

Earth and Environmental Sciences

Endowed Professorship

An endowed fund to support a professorship when the fund reaches an appropriate level.

Wallace Hagan Scholarship Fund

An endowed fund that will provide an undergraduate scholarship when the fund reaches an appropriate level.

GEOFund

An endowed fund that will provide for long-range department goals when it reaches an appropriate level.

College of Arts & Sciences

Earth & Environmental Sciences

Department
Contribution

Name _____

Degree(s) _____

Class Year(s) _____

Current Address _____

E-Mail Address _____

Support Opportunities...

I would like to support the UK Department of Earth & Environmental Sciences with a contribution of \$_____. Please indicate where you would like your contribution to be designated:

Brown-McFarlan Fund _____
Supports student research and travel to present papers and the annual McFarlan Lecture.

Geology Support Fund _____
Supports programs for students.

Glenn Rice Memorial Fund _____
Supports undergraduate scholarships.

Haynes Field-Trip Support Fund _____
Supports student travel on field trips.

J. C. Ferm Graduate Research Fund _____
Graduate student support for field-related research.

Rast-Holbrook Fund _____
Supports Department Seminar program.

GEOFund _____
Will support general Departmental needs.

Wallace Hagan Scholarship Fund _____
Will support undergraduate scholarships.

Mail to:
Staff Support
Dept. of Earth & Environmental Sciences
101 Slone Building
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College of Arts & Sciences

Earth & Environmental Sciences

Alumni News

| | |
|-----------------------|---|
| Name _____ | We are concerned with maintaining the accuracy of our Alumni Directory, which also is the mailing list for the newsletter. We are aware that some addresses are out of date. If you have any directory information, please send it to us. We will greatly appreciate your help. |
| Degree(s) _____ | |
| Class Year(s) _____ | |
| Current Address _____ | The Department of Earth and Environmental Sciences is working on a new project, an e-mail database for the newsletter. |
| _____ | |
| _____ | |
| E-Mail Address _____ | Please send your e-mail address to: rastut00@email.uky.edu or the address below. |

Stay Connected...

Please provide a brief statement of what you are doing and/or any recent changes.

We will include your news in an upcoming edition of the Earth & Environmental Sciences Newsletter. Updating your mailing and email addresses enables us to communicate with you through future newsletters and other correspondence to Earth & Environmental Sciences alumni.

Mail to:
Staff Support
Dept. of Earth & Environmental Sciences
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ExxonMobil Foundation
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(Chevron Texaco matching)
Helen S. & James E. Fout
(Ashland Inc. Foundation matching)
Monroe Hall
Jo C. Napier
J. Hunt Perkins
Ken Smith
(Chevron matching)

J.C. Ferm Graduate Research Fund

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Stephen Greb

Rast-Holbrook Fund

Charles E. Holbrook
(Chevron Texaco Company matching)
Susan Rimmer

Haynes Field Trip Fund

Elizabeth A. Haynes

Glenn Rice Fund

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Boone Graduate Fellowship Fund

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(ExxonMobil Education Foundation matching)
Matthew A. Gregory

James S. Hudnall Scholarship

Patricia A. Anderson



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