

# GEOLOGICAL SCIENCES

ALUMNI NEWSLETTER

NOVEMBER 1999



UNIVERSITY OF MISSOURI-COLUMBIA

# GEOLOGICAL SCIENCES



ALUMNI NEWSLETTER 1999

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Editor: Glen R. Himmelberg  
Composition: Marsha Huckabey

Printing costs of the Newsletter are provided by the  
Geology Development Fund.

On the cover: Florida field trip participants.

## Roster

### Assistant Professors

Cheryl A. Kelley (University of North Carolina, 1993)  
Aquatic geochemistry  
Timothy W. Lyons (Yale University, 1992) Aqueous  
geochemistry  
Kenneth G. MacLeod (University of Washington,  
1992) Paleontology and biogeochemistry  
Chuanlun Zhang (Texas A&M University, 1993)  
Groundwater microbiology

### Associate Professors

Robert L. Bauer (University of Minnesota, 1982)  
Precambrian geology  
Mian Liu (University of Arizona, 1989)  
Geophysics  
Carol M. Wicks (University of Virginia, 1992)  
Hydrogeology

### Professors

Raymond L. Ethington (University of Iowa, 1958)  
Conodont biostratigraphy  
Glen R. Himmelberg (University of Minnesota, 1965)  
Chemical petrology  
Peter I. Nabelek (SUNY Stony Brook, 1983)  
Trace-element geochemistry  
Kevin L. Shelton (Yale University, 1982)  
Economic geology  
Michael B. Underwood (Cornell University, 1983)  
Sedimentology

### Professors Emeriti

Thomas J. Freeman (University of Texas, 1962)  
Carbonate petrology  
William D. Johns (University of Illinois, 1952)  
Clay mineralogy  
Walter D. Keller (University of Missouri, 1933)  
Clay mineralogy  
A.G. Unklesbay (University of Iowa, 1942)  
Paleontology  
George W. Viele (University of Utah, 1960)  
Tectonics

### Staff

Linda Garrison, Administrative Assistant  
Marsha Huckabey, Administrative Associate I  
Carol Nabelek, Research Chemist  
Louis Ross, Senior Electron Microscope Specialist  
John Yang, Senior Research Specialist

### Library

Stephen Stanton, Library Assistant II

### *From our department chair. . .*

Although our department experienced many positive changes during the past year, I am saddened to report that they are all overshadowed by the death of Professor Jim Stitt. Jim died at his home on September 17 following a four-year battle against colon cancer. A memorial to Jim and an announcement of the establishment of the *James H. Stitt Memorial Scholarship* is presented elsewhere in this *Newsletter*.

During the past year there were other significant changes in our faculty. Ken MacLeod, whose background was given in last year's *Newsletter*, joined our faculty in January and, as expected, he immediately began contributing to the intellectual goals of our department. At about the same time, and somewhat unexpectedly, Tom Feeman announced his decision to undertake a phased-retirement. Tom officially retired and was appointed *Emeritus Distinguished Teaching Professor* effective September 1, 1999. Fortunately for our department and MU students, Tom has agreed to continue teaching Principles of Geology and Environmental Geology each year for the next three years. Tom, like Walter Keller before him, has become an icon in Principles of Geology, and it is difficult to imagine a time when Tom will not be teaching that course. Equally surprising, Joe Engeln resigned in August to accept a position with the Missouri Department of Natural Resources as assistant to the director for science and technology. Joe's departure is a loss for our department but we are confident that his presence at DNR will strengthen our association with that agency. Finally, possibly the biggest perturbation to our departmental system was the return of George Viele after spending the past two years in Greece. George is always fun to have around and he keeps all of us from taking ourselves too seriously.

Our faculty continues to excel in both teaching and research. I am pleased to report that Carol Wicks was promoted to associate professor with tenure. We expected nothing less. We take pride in hiring the best and, although the tenure process is highly stressful for the candidate and the standards are high, Carol moved through the process without question. Our department also takes great pride in Tim Lyons who was awarded a prestigious National Science Foundation CAREER Grant. In

the Earth Sciences Division of NSF only one CAREER grant is awarded each year, which places Tim among the elite of young researchers. Other substantial external research grants were awarded this past year to Carol Wicks, Cheryl Kelley, Mian Liu and Mike Underwood. I want to emphasize that this success in research is accompanied by success in teaching. Whether they are teaching Principles of Geology in Keller auditorium or field geology at Camp Branson, our young faculty continue the tradition of excellence.

Our research program continues to expand not only through the efforts of our faculty, but also through the efforts of visiting scientists, postdoctoral fellows and graduate students who come to work with our faculty. We currently have three post-doctoral fellows in our department working with Mian Liu, Kevin Shelton and Tim Lyons, respectively. In addition Peter Nabelek and Chuanlun Zhang will be joined by postdocs later this year, and Mian Liu will be joined by two senior visiting scientists in January. We are especially pleased that we now have 10 students pursuing PhD degrees. I believe this is the largest number of PhD students in our department at any one time. The increase in the number of postdocs and PhD students speaks to the increasing strength and international recognition of our faculty and our program. Our master's program also remains strong, and each year more undergraduates become involved with faculty in research. The research of these young scientists, most of which is presented at national meetings and subsequently published, serves to further enhance our program.

The outlook for our department remains positive, even though there are some conflicting University-wide budgetary issues. We are especially pleased that we have received special enhancement funds to hire a new faculty member. This will bring our faculty to 16, the largest in the history of our department. We will be recruiting a carbonate sedimentologist/geochemist for this position to join us in the fall of 2000. We also are cautiously optimistic of getting a 17<sup>th</sup> faculty member with enhancement funds. At the same time that special enhancement funds are available, the normal budget is being reallocated in order to provide salary increases for faculty and staff. One result of these reallocations is that there will probably be a delay in filling the vacant positions previously held by Joe

Engeln and Jim Stitt. Is this confusing to you? Well it is to us too, but when it is all sorted out our department will be larger and even stronger than it is now.

One of the reasons we continue to receive support from our administration is because of the strong support we receive from you, our alumni. Without your support we could not possibly maintain our excellence and our programmatic growth. Your generosity allows us to provide scholarships for undergraduate and graduate students, helps defray student costs for field trips and research, provides students with partial costs of traveling to meetings to present their research, and provides for publication of our *Newsletter*. Therefore I again want to thank those of you who have contributed to our gift funds. I especially want to acknowledge substantial gifts that we received during the past year from John Spotts, Bett Estill O'Neill, John Marshall, Don Garvin, Ed Williamson, Jack Burst and Scott Raymond.

I also want to take this opportunity to remind you that we are in the process of establishing an endowment in honor of Dr. Walter Keller—the

*Walter D. Keller Opportunity for Excellence Endowment in the Geological Sciences*. We are planning to present Dr. Keller with this endowment at his 100<sup>th</sup> birthday party luncheon on April 8, 2000. Our goal is to raise \$100,000 in honor of Dr. Keller's 100 years but we currently have only about \$40,000 in the fund, substantially short of our goal. If you have not yet given, I hope you will consider doing so. Dr. Keller is extremely excited about this endeavor and is anticipating seeing many of you at his 100<sup>th</sup> birthday party.

I hope you enjoy our 1999 *Newsletter*. Give us some feedback. If there are issues or information you would like to see included, let us know. This year we will also make an effort to place much of the *Newsletter* on our web pages as well (<http://www.missouri.edu/~geolwww>). Finally I hope to see you at AAPG and/or GSA.

Best wishes,



Glen R. Himmelberg  
Chairman and  
E. B. Branson Professor



Cathy Zumsteg demonstrates that thesis research in southeastern Alaska has ancillary rewards.

## In Memoriam – James H. Stitt



James H. Stitt passed away on September 17, 1999, at his home in Columbia following a determined four-year battle with cancer. Jim unselfishly served our department for 31 years as a teacher, a mentor and a cherished friend. He was born December 13, 1939, in Sellersville, Pennsylvania to James Wilson and Dorothy Gladys Jewett Stitt. In 1964 he married Betty Marlene MaGee. They have two daughters, Tanya (Stitt) Heath and Merrilee (Stitt) Barta.

Jim received a bachelor's degree from Rice University in 1961 and master's and doctoral degrees from the University of Texas–Austin in 1964 and 1968, respectively. He joined our faculty in 1968 as an assistant professor and rose through the ranks to professor in 1977. He served as chair of our department from 1977 to 1980 and as director of graduate studies from 1970 to 1977 and again from 1982 to 1999. Jim taught Introduction to Paleontology, Advanced Paleontology, The Age of the Dinosaurs and Principles of Geology. He also taught at Camp Branson in Wyoming, where he served as director in 1977 and 1984. Jim had an international reputation as a leader in the study of trilobite systematics and biostratigraphy of the Upper Cambrian and Lower Ordovician Periods. He, along with his students, published on these subjects with the *Oklahoma Geological Survey* and the *Journal of Paleontology*.

Jim was methodical and thorough in everything he did. Ray Ethington often said, "When Jim Stitt does a research project, it never has to be redone." Glen Himmelberg recalled interviewing young paleontologists at the Geological Society of America, who revered Jim Stitt for his contributions to the understanding of trilobite systematics and biostratigraphy. John Repetski (MA '73, PhD '75) stated that Jim Stitt taught him "that the value of a scientific endeavor is completely dependent on the integrity of the data behind it" and that "all of us know that a Jim Stitt paper can be 'taken to the bank,' and there's the supporting data to prove it." Jim Stitt was one of our best teachers and as John Repetski said, he influenced all students in his classes "as a model of integrity, diligence, friendship and class."

Jim Stitt's characteristic dedication to quality teaching and research, and his good humor, enthusiasm and optimism never wavered during his illness. He was, and remains, an inspiration to us all.

Family and friends have established the *James H. Stitt Memorial Scholarship* fund in honor of Jim. Contributions should be sent to Glen Himmelberg, Chair, 101 Geological Sciences Building, Columbia, MO 65211. Please make checks payable to the University of Missouri, noting "Jim Stitt scholarship" on the memo line.

## Faculty and staff news

*(In their own words)*

### Faculty

**B**ob Bauer spent most of the summer in Wyoming, serving as director of the Branson Field Camp for the first part of the summer, and completing field structural research with his students in the Laramie Range during the latter part of the summer. Melissa Pratt, who worked in the Laramie Range for the previous two summer seasons completed her degree last spring, but there was still a large contingent of students in the field working on the project this summer. Dave Curtis and Ken Tomlin completed their second summer of work for their MS degrees. Andy Downs, who served as one of the project field assistants during the summer of 1998, completed field work for a senior thesis project this past summer. Travis Beaver, a recent graduate of Northwest Missouri State University, and Ben Fruchey, a recent graduate of Central Michigan State University, served as field assistants for Ken and Dave, respectively. Melissa, Bob and Ken as well as Dave and Bob presented parts of the Laramie Range study at the GSA meeting this fall in Denver. Bob also spent another two weeks last fall analyzing 3D textural relationships in garnet porphyroblasts in the Computed Tomography (CT) Laboratory at the University of Texas. CT imaging is a computer-assisted tomographic technique that combines X-ray image slices through solid rock into 3D images that can be used to analyze the 3D fabrics in the rocks. Bob's study uses this technique to image the 3D geometry of spiral quartz inclusion trails that occur in large garnet porphyroblasts in parts of the Laramie Range. Bob continues to maintain an active teaching load in the department where he taught courses in Structural Geology, Continental Tectonics and Field Camp last year.



**R**ay Ethington continued his efforts to understand the distribution of Lower and Middle Ordovician conodonts in central and western United States, hoping eventually to get it right, and that took him back to central Nevada in June. Things were different this year, for hard rains turned the roads and shale outcrops into quagmires, leading him to grumble that this is a heck of a way

to run a desert. A long awaited paper on a conodont genus that has been proposed for global stabilization of the Cambrian-Ordovician boundary was finally published. Likely most readers will not know (or care) that this boundary was unstable until now. The discussion of this matter became pretty tense at times, and the Cambrian/Ordovician Boundary Working Group of the Subcommission on Ordovician Stratigraphy of the IUGS circulated an awful lot of paper before a decision was reached. As someone has said about academic arguments, the reason they are so heated is that so little of substance is at risk. The most exciting events of the year were the discovery of conodonts from near St. Petersburg, Russia, that seem ancestral to conodonts from central Nevada that are important to the definition of the Lower/Middle Ordovician boundary, and of specimens from the lower St. Peter Sandstone of Minnesota that are known elsewhere only from along the Stony Tunguska River in Siberia. Ray is still trying to understand that geographic distribution. Winter semester was spent teaching English as a Foreign Language to the Historical Geology class as the departmental response to the University-mandated requirement of a writing course in each student's major. Although Ray cannot claim total success in this endeavor, he will be trying again next winter.



**T**om Freeman is enjoying being MU's only Distinguished Teaching Professor Emeritus. But even though Tom officially retired last August, he remains very much connected with university activities. He continues to teach some 25 percent of our department's student credit hours (via his auditorium courses in entry-level geology), and plays a growing role in our campus United Way effort. (His involvement with United Way has him in the stream to be chair of our campaign in the year 2001.) Tom was honored by being featured speaker at last May's Kemper Awards dinner, and he has once again been asked to speak at this fall's Honors College commencement reception. He continues to work away at his developing laboratory manual, Environmental Geology, and he herewith makes a special appeal to any of you with case histories that he can mold into interactive lab exercises (i.e., environmental reports long on graphics and short

on narrative) to contact him immediately. On the recreational side of life, Tom and Peggy joined Ray Thomasson and Merrill, along with five other couples, on a raft trip through Grand Canyon last May. The six-day adventure was, in the vernacular of today's students, "totally awesome!"



**Glen Himmelberg's** past year once again was devoted to working with our faculty, staff, students and alumni to enhance our department. The highlight of the year was returning to Camp Branson. In June Glen, with wife Marilyn, joined Bob and Karen Bauer in hosting a tour of our field camp facilities and the local geology for Dean Richard Schwartz and his wife, Judie. Field sites included Derby Dome, South Pass and Svilar's steak house. Glen and Marilyn also attended the AAPG and GSA meetings in San Antonio and Denver, respectively, to renew acquaintances with many alumni at our departmental receptions. Marilyn retired from the university in May, so while in the San Antonio area she and Glen visited Kerrville, which is in the Texas Hill Country, where they are considering relocating when Glen retires. The Hill Country is beautiful and it is blessed in not having winter. On the academic front Glen is teaching a new course titled Rocks and Rock-Forming Minerals: Identification, Occurrence and Origin. This course is designed for our AB majors, geology minors and non-majors. Glen was again fortunate to return to southeastern Alaska for field work. He and graduate student Cathy Zumsteg joined two USGS geologists for continuing studies of the metamorphic rocks of southern Baranof Island. They lived on a 60-foot charter boat and used an outboard skiff to study the shoreline geology along the coast of the island and in the fiords. It was a great time; challenging geology, wonderful friends, a lot of fresh seafood, and even the weather was excellent for most of the time.



**Bill Johns** continued his collaboration with colleagues at the University of Vienna. He and Susanne Gier published two papers on burial diagenesis in the Molasse Basin of Austria. They gave a joint paper this past summer at the Euroclay conference in Krakow, related to their XPS studies. After the Krakow meeting they spent 10 days

examining and comparing data from a new study of sandstone diagenesis in the Vienna Basin. Bill's big news of the year was his marriage on November 6 to Professor Carla Waal, whom some of you may know. She was a professor in the theatre department at MU, an expert on Norwegian theater. On November 20 they will celebrate this occasion with a reception at the Reynolds Alumni Center on campus. If any of you happen to be in town, you're invited to come! Just let him know. Bill looks forward to more adventures this upcoming year!



**Walter D. Keller** is still waiting in his cubby-hole half-office for answers from you smart guys on those questions about why does Earth exist, and is time and space infinite, and so forth. The A.P. Green Company (refractories, industries) of Mexico, Missouri has sold out and its name no longer exists (did Mr. A.P.G. turn over in his grave?). Missouri refractory clays are not what they "uster was" 50 years ago. What will geology be like in Missouri in another 50 years? Has the environment taken over—will Homo be replaced by a smarter Novo? Instead of the "old pefesser" knowing something to teach he is overwhelmingly asking questions about the more things we do not know.



**Cheryl Kelley** has continued to stay busy with both teaching and research. New classes that she taught this past year included Global Water Cycle and Environmental Geology, along with Organic Geochemistry. Research-wise, she made it out to the coast of North Carolina for fieldwork, both last November and again this August, to study aerobic methane oxidation occurring in the water column over organic-rich sediments at Cape Lookout Bight, North Carolina and in the White Oak River Estuary, North Carolina. In August, Kim Hoke, her incoming graduate student, accompanied her. Kim obtained a master's degree here at MU in sedimentology with Mike Underwood, worked at Chevron for a year, and has now decided to continue on for a PhD in biogeochemistry. In addition, an NSF grant was funded with Carol Wicks to look at estrogen transport and fate in karst basins. Cheryl was also involved in getting a proposal into NSF to obtain funding for a new isotope ratio mass spectrometer system for the department that would

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combine a flow-through system (to do compound specific isotopic analyses) with a dual inlet for conventional isotopic analyses.



**M**ian Liu's past year turned out to be the busiest year while on research leave. Collaborative research frequently put him on the road; most of the other times he was trying to catch up with his hard-working students and collaborators. Yuanqing Zhu, a visiting professor from China, was the powerhouse behind the project of mountain building in the Andes that also involves Joe Engeln and Seth Stein from Northwestern University. Youqing Yang, a postdoctoral fellow, has been working with Mian on the Cenozoic deformation of the Tarim basin, a key region for understanding collisional tectonics in western China and a hotspot for petroleum exploration. Working with Albert Cui, a PhD student, and colleagues in China and four other U.S. universities, Mian is trying to understand the large-scale mantle dynamics under Asian continent in response to the India-Asian continental collision. And finally, as warned in last year's newsletter, Mian has been officially "metamorphosed" into a field geologist! Collaboration with Peter Nabelek and Albert Cui on contact metamorphism brought Mian to the Notch Peak in southern Utah. While the rocks were beautiful, the star-glittering night of the desert was intoxicating. Upon returning to Columbia, Mian bought a four-wheel drive SUV, impatiently waiting for next summer to arrive.



**T**im Lyon's past year was filled with lots of exciting news about past and present students. Matt Hurtgen returned to Columbia to defend his thesis in the early fall, which he did with great aplomb, and is now well into PhD studies at Penn State University. Matt cruised through the qualifying exams and has already begun fieldwork in Australia. News from Washington University is also good; Robby Valentine received a very competitive JOI/USSAC graduate fellowship for his doctoral work. Tim had a wonderful visit with Anna Cruse and baby Maia in Cambridge, Massachusetts, during the recent Goldschmidt Conference. Not surprisingly, Anna has a flair for managing the difficult balance between parenthood and her doctoral studies at Woods Hole. Research

excitement includes several NSF-supported Alvin dives in the near future. Reports from friends on the faculty at the University of California-Santa Cruz verify that Mark Clementz had adjusted to the harsh living conditions and, on a serious note, has rapidly emerged as a top student in paleobiology (with a heavy side order of geochemistry). Jim Luepke successfully defended an epic thesis this past spring and is now living in southern Arizona. His enthusiasm and wit are missed every day. Tim and three vans of graduate and undergraduate students headed to south Florida in May. Highlights included three days of snorkeling in Florida Bay and among the modern reef corals along the platform margin, beautiful Pleistocene exposures on the keys and in Miami, a trip through the everglades, and caving in Alabama. Of course, there was also a little time for Key West and South Beach. This trip was made possible through the generous support of the department, and most importantly, Tom Freeman. Postdoc Linda Kah continues to blaze new paths through the Precambrian with abilities widely acknowledged during her recent quest for a permanent faculty position. Linda is looking forward to starting her new job at the University of Tennessee in January. The lab has been a source of copious data generation, with the ICP skillfully driven by Carol Nabelek and with Mona Sirbescu as anion analyst par excellence. Meera Sood, on brief hiatus from her real life as a teacher, along with undergraduates Kim Keel, Eric Grabowski, Burt Thomas and recent addition, Amanda Cavin, cranked on everything else. Tim recently returned from the IUGG Meeting in England where Todd Kennedy, an undergraduate in philosophy and current MSA president, spoke on hypoxia in the Gulf of Mexico. Most impressive is that Todd has accomplished this study with Geology 1 as his only course-related background. The future looks extremely promising with the addition of Mike Formolo last fall and two new students, Anne Gellatly and Cammy Bright, this fall. Mike is well under way with his study of Devonian shales and pyritic lag deposits in western New York. Anne and Cammy join us from the University of Montana and Lake Superior State, respectively. Anne's interests and experience lie with the Precambrian, while Cammy is leaning toward stable isotopic trends within Pennsylvanian conodonts. Finally, Tim is happy to report that teaching the honors section of Principles is every bit the pleasure he thought it would be. The most

recent revelation with a 50-minute discussion—yes, discussion not lecture—on bonding and crystal structure. It's like Christmas in August!



**Ken MacLeod** reports that after driving on bare and dry pavement for four days across three mountain passes on their way from Seattle, he and wife Meera needed four-wheel drive to get up their driveway in Columbia. Happily, the January snow was one of the few obstacles in their move. Meera worked most of the spring and summer in the inorganic geochemistry lab in the department and is now teaching seventh grade science at Smithton Middle School. Ken taught Principles of Geology in the spring, spent a week at field camp in June, and began teaching Introduction to Paleontology this fall. Ken received a Research Board grant to study the distribution of rare earth elements in various phases across different sedimentary facies in cores from the Santa Barbara Basin. He traveled to College Station, Texas, in May to sample the cores. Other research activities continue to focus on paleoceanographic changes during the Late Cretaceous and their relationship to greenhouse climate dynamics. Ken spent several days at the Smithsonian this summer working with Brian Huber on the planktonic foraminiferal responses to isotopically-defined Maastrichtian productivity variations. After using Ocean Drilling (ODP) cores for much of his research, Ken will begin paying back the community as a member of the ODP Scientific Measurements Panel. His three-year term began in September.



**Peter Nabelek** had another good year of teaching and research. Along with several PhD and master's students, he continued his work in the Black Hills and western Utah on igneous and metamorphic problems. He is learning new things about fluid inclusions and fluid flow in contact aureoles from his PhD students, Mona Sirbescu and Albert Cui. Peter is also happy to be co-advising with Bob Bauer a new PhD student, Joe Hill, who came to MU from Peter's alma mater, University of Tennessee. In addition, he is also exploring new approaches to solving petrologic problems, such as doing computer simulations of magma generation with Mian Liu. Associate editor

duties for *American Mineralogist* and *Geology* has also kept him busy. Peter began this fall as director of undergraduate studies in the department. Students come to his office with challenging and unusual problems.



**Kevin Shelton** had a very busy year in 1998-99 focusing on two main projects: (1) Geochemistry and dolomitization of Carboniferous rocks and their relationship to Pb-Zn-Cu ore formation in Ireland and (2) Geochemical studies of Archean greenstone-hosted gold deposits in Yellowknife, NWT and Timmins, Ontario, Canada. Kevin spent a month this summer with researchers at University College-Dublin, visiting Zn-Pb mines and drill core repositories throughout Ireland. Field work was followed by the Bathurst meeting in Cambridge and a series of invited lectures that he presented at the Scottish Universities Research Centre in East Kilbride. While in Ireland, Kevin attended the third round of the Irish Open outside Dublin, where a little-known Spanish golfer named Garcia won. Kevin, PhD student Aaron Johnson and postdoc Ed Van Hees spent a delightful two-week whirlwind trip to the GAC-MAC meeting in Sudbury and mines of the Sudbury-Timmins area in Ontario. In a seven-day period, they visited seven gold mines, one nickel mine, and a number of talc-magnesite properties. It looks as though Kinross Mining may fund a student to work on high-grade gold veins in the Abitibi belt.



**Mike Underwood** spent most of the year attempting to find the perfect balance among teaching, research, service and golf. He took the lead role in the department's successful implementation of a new capstone course—Investigations of Earth Materials—with the assistance of Carol Wicks, Cheryl Kelley and Ed Van Hees. He also taught Oceanography and Sedimentology. Research continued on subduction-related phenomena, especially the influence of clay mineralogy on the behavior of plate-boundary faults. Service duties included the MARGINS Steering Committee and the U.S. Science Advisory Committee. Mike also participated in an international conference (COMPLEX) to establish

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scientific goals for multi-platform ocean drilling post-2003. Presentations included the annual GSA (Toronto) and Cordilleran Section GSA (Berkeley). Golf was injected into a couple of side trips to South Carolina and California, plus the Faculty-Staff League on campus. At home, Gail continued to teach second grade at Grant Elementary. Alexis finished her third year studying child psychology at the University of Minnesota and survived a summer course in combat survival and evasion at the Air Force Academy. Nik graduated from Hickman High School and is now a member of the freshman class at the University of Missouri-Columbia. Unable to find an official major in computer games, Nik will have to settle for the AB in computer sciences.



**C**arol Wicks has received tenure and was promoted to associate professor. It was a good year! Carol taught Geology of Missouri with a field-based laboratory this past spring. The course included a field trip to the St. Francois Mountains with the students in the Igneous and Metamorphic Petrology course. Mike Underwood, Cheryl Kelley and Carol co-taught the Investigations of Earth Materials course last fall. This is a field and laboratory-based course in which the students learn the tools and techniques used in surficial systems. The students also complete an independent research project. Carol also taught Hydrogeology and Advanced Hydrogeology. During the summer, she taught Principles of Geology. Along the lines of research, Carol is continuing the study of Missouri's large spring basins with her colleagues from the Department of Fisheries and Wildlife Sciences. Carol, Cheryl Kelley and Eric Peterson (PhD candidate) have started a new project focusing on the fate and transport of natural estrogens in karstic basins. Carol and Toby Dogwiler (PhD candidate) have begun studying the geomorphology of losing stream reaches with an emphasis on habitat loss. In addition, she continues to serve as associate editor for the journals *Ground Water* and *Water Resources Research*.



**G**eorge Viele and wife Kathleen Slane have returned to Missouri after two years in Ancient Corinth, Greece. While in Greece, George worked with geologists from the University of Patras on the

structure and tectonic history of the Argolid, the part of Greece that includes the ancient citadels of Mycenae and Tirnes among others. For a short time, he even had four Greek geology students as field assistants. He got to know goat herders, farmers and small shopkeepers, friendly people, all of whom seem to have second or third cousins in Chicago. A cultural note—the goat herders now carry cell phones. In the Argolid, George worked on Cretaceous rift valleys and Eocene (?) ophiolite-bearing nappes all happily squished together in thrust sheets and accretionary wedges. Two papers written with the Patras geologists will be forthcoming. He also spent some time identifying minerals in Kathy's pot sherds raising some questions about their provenance, which he and Kathy will address in the future. Greece was not a hardship post. They lived in a villa set in a large grove of olive trees. The house had a balcony overlooking the Gulf of Corinth and for winter reading, chairs before a large fireplace. By the way, olive wood makes wonderful fires, and one even gets used to starting the fire with extra-virgin olive oil. Nevertheless, George is happy to be back. He will miss the fish restaurants and roosters crowing in the morning, but he won't miss the traffic, telephone showers and Greek bureaucrats. His command of the language is still shaky, but he can order a bottle of wine and tell a girl she is pretty. What else is there?



**C**huanlun Zhang found it wonderful to be spoiled with a light teaching load this past year. Chuanlun took this opportunity to set up his lab at full scale and, to warn everybody, invaded the department with little creatures—the microbes. To assure everybody, however, these bugs are harmless and even beautiful when you look at them under a microscope. One unique feature of these bugs is their capability to reduce iron and form magnetic minerals, which have implications for paleomagnetism, cycling of iron and organic matter throughout the earth's history, bioremediation of metal contaminated environments, and perhaps life in extraterrestrial planets such as Mars and Europa. Funds supporting Chuanlun's research include a Research Board grant, Petroleum Research Fund, and the Department of Energy. Qi "Ellen" Ye, a PhD candidate, and John Andres, one of our geology undergraduate majors, have joined him to

work on these projects. In addition, Yiliang Li from China will arrive in October and work on a biogeochemical project. Lise Larsen, from Denmark, will arrive in November and work on a biocomplexity project. Chuanlun thanks Marsha and Linda for helping him through his first year at MU.



**Linda Garrison** has completed her seventh year with the department and still finds the work to be fun and challenging. Every day is different—never boring and always something new to learn. The faculty have many interesting projects in progress, and the undergraduate and graduate students are always a joy to be around. The field course enrollment increased significantly over last year and was fun to work with as well. Time flies when you're having fun! On a more personal side, Linda enjoyed working on some small projects around the home place this past year with husband David (a new carport, tree swing for their granddaughter, etc.). This year Linda planted a large garden (although the drought really slowed down production) and has enjoyed tending to and canning the fresh vegetables. She thinks her produce would probably be worth about \$20 a pound if you had to figure in the labor and other expenses! Oh well, food always tastes better when it's homemade!



**Marsha Huckabey** recently completed her 13th year in the department. She enjoys corresponding via e-mail with many of our alumni. Feel free to contact her if you have questions, need information, or just want to say hi! Keeping busy with development board activities, student recruitment and the general operation of the department has kept her overwhelmed this past year. She'll be arranging a birthday party in honor of Walter Keller's 100th birthday; invitations have already been mailed! At home, Marsha and Rodney kept busy with their children's varied activities. Marsha traveled with oldest son Dustin to the Branson, Missouri, area where their 15-year-old all-star baseball team competed in the state tournament (after placing first in their district) and brought home the third place trophy! Brandon is now in the seventh grade and has begun his first

year of junior high football. Zachary, now 5, began kindergarten and is enjoying it tremendously! My how time flies!



**Lou Ross** was elected president-elect of the Central States Microscopy and Microanalysis Society this past year. Although he was not elected as a director of the Microbeam Analysis Society, Lou was appointed chair of the MAS Membership Services, so if you want to become a member you know whom to contact. In conjunction with the MU Extension Teaching Office, Lou held a three-day SEM short course in May with plans to offer it annually. Jacci, majoring in graphic arts, started her senior year at Truman State University. She was in Florence last spring in a semester abroad program, so dad had to make a trip to Italy to keep an eye on her. Angie graduated from high school and plans to attend cosmetology school. Jeanna, who is in fifth grade, just finished an active summer of camps and vacations in Pennsylvania and Colorado.



**Stephen Stanton** has run the geology library since January 1995. As a student of the history of science and an amateur geologist himself, he has always considered himself very fortunate to find himself in this collection, but even more than that he values the friendships he has made in the geology department. Stephen is trying to branch out and learn something about computers this year, but his real allegiance is to geology. This prospect he finds not a little intimidating because a lot of students here are far ahead of him on both geology and on the use of computers. But he has gained a good grasp of what everyone does here and how to best help people with their research needs, and at this skill he improves every day. And he takes great pride in tailoring this collection to fit the needs of this department. There are few professions where a little knowledge about a lot of things is an asset. The library got through a severe round of budget cuts for journal subscriptions last year with little harm to the utility of the collection. Departmental libraries are increasingly rare, and this one makes the geology department unique. Stephen aspires to keep it that way for years to come.

## NEWS

**John Yang** continued his work this past year at Joplin City, Missouri in collaboration with Stan Casteel, associate professor of veterinary medicine at MU, to study in situ lead immobilization in the contaminated soils. He has been busy analyzing the data generated from the bench and field study. Two manuscripts have been written, and both are currently in peer review. Two presentations were also made at the SSSA annual meeting. His attendance at the group meeting of the RTDF-IINERT research team at Kansas City, with support from an MU Arts and Science Enrichment Award, has led to an additional \$100,000 funding from the EPA and MDNR for continuing his ongoing project. This past summer he attended the Clay Mineral Society meeting at Purdue University; what a fun trip! John enjoyed discussions with colleagues from other fields and learned about a lot of developments in clay research. John taught his normal course in X-Ray Mineralogy during the fall. The operation of the X-Ray Diffraction lab is smooth and productive.



**Linda Kah's** past year has been very busy. Lab work kept her busy collecting the data necessary to finish her postdoctoral work with Tim Lyons. After spending the past two summers in the Canadian Arctic collecting samples, Linda and Tim are now looking at C and S and Sr isotopic values retained in carbonate and evaporite minerals to test the hypothesis that a rise in oxygen in the Earth's atmosphere in the Mesoproterozoic (~1.25 billion years ago) may have been related to the assembly of the supercontinent Rodinia. Linda's manuscripts and job interviews managed to take up the rest of the spring, yet happily these tasks met with success. She is expecting two papers to be in print before the year's end, and in December will be moving to a tenure-track, assistant professor position at the University of Tennessee in Knoxville. Go Vols!



**Ed Van Hees** has been very busy with field work, attending conferences and teaching. Field work took him to gold deposits in the Canadian Northwest Territories in September of

1998 and back to his old haunts in Porcupine Mining Camp of Northern Ontario in early January. The work in Yellowknife is part of an ongoing study with Kevin Shelton and Todd McMenemy into the formation of the Giant Mine. Results from this work was presented at the Geoscience Forum in Yellowknife in November of last year and published in the January issue of *Geology*. The work in northern Ontario involved a small project examining the formation of high-grade veins in the Hoyle Pond Mine. The Geological Association of Canada meeting in Sudbury, Ontario, this past May provided an excellent opportunity to present the results of Ed's work on identifying high-grade gold mineralization in veins using geochemical techniques. The trip also provided an opportunity for Kevin Shelton, Aaron Johnson and him to visit a number of mines in Northeastern Ontario including one of the new nickel mines in Sudbury, several gold mines in the Porcupine Camp and the world class Kidd Creek volcanogenic massive sulfide deposit. A lot of time has been devoted during the past year to teaching or co-teaching the new Earth Materials and Environmental Geology courses.



**Youqing "Richard" Yang's** postdoctoral work is with Mian Liu. In his first six months at MU, he has been working on the Cenozoic deformation of the Tarim basin, NW China. Richard has developed a three-dimensional finite element model to stimulate the flexure deformation of the basin and its relationship with the collisional orogenesis in the surrounding mountains. He is also working with Mian on the geodynamic processes of mountain building and collapsing. After two years of working as a technician in an institute of aeromechanics, he went to study geology and seismology at the Peking University, where he received his BS degree in 1989 and his MS in 1992. Richard obtained his PhD in 1995 from the Geology Institute, State Seismological Bureau of China. His research interests are the mechanism of deformation and fracture in the crust and its applications in tectonophysics, seismology and petroleum geology. Richard uses mathematics and computers as the major tools for his study. He likes MU, partly because the climate here is similar to that of his hometown in midwestern China.

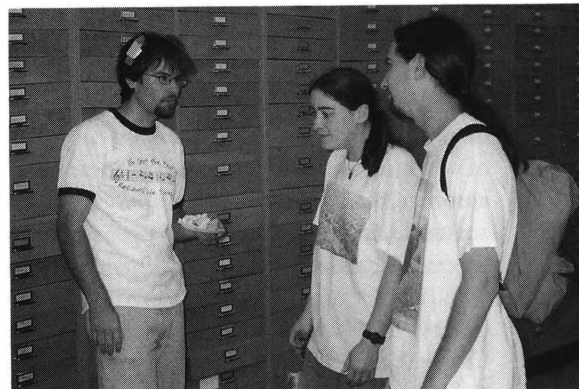
**FACULTY AND STAFF  
ACTIVITIES**

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Marilyn Himmelberg serves Thanksgiving turkey while Cathy Zumsteg, Mona Sirbescu, Kevin Shelton and Katie Cory sample other delights.

Thanksgiving is a family affair. Chuanlun Zhang is joined by his daughters, Johana and Joy, for our celebration.



Burt Thomas explains his recent visit to the student health service to Amanda Cavin and Matt Schuchard.

**FACULTY AND STAFF**  
**KELLER ENDOWMENT**

## Walter D. Keller—100 years of excellence and inspiration

*(Editor's note: All of us have known, and benefited, from our association with Walter D. Keller as a teacher, a mentor and a person. To honor his many contributions we are in the process of establishing a \$100,000 endowment in his name to be presented to him at his 100th birthday celebration next spring. The brief biographical sketch below highlights Keller's humble beginnings, some of his many achievements and, we hope, the spirit of the man.)*

Walter Keller was born on March 13, 1900, in North Kansas City, Missouri. He attended Glenwood Elementary School, which was a one-room country school, and graduated from North Kansas City High School in 1917. Keller began his long association with the University of Missouri when he entered the University as a freshman in 1920. Keller received three degrees in geology from the University of Missouri: an AB in 1925, an MA in 1926, and a PhD in 1933. He also received a BS in ceramic engineering from the Missouri School of Mines in 1930 and an MA in geology from Harvard University in 1932. He will tell you that he can hold his own with engineers and Ivy Leaguers because he is one. Soon after completing his master's degree at MU, Keller became fascinated with clays and clay minerals, an interest which dominated his career.

Keller joined the geology faculty at MU as an instructor in 1926 and as an assistant professor in 1932. He continued on the faculty until his retirement in 1970. Keller is remembered for his style of "teaching the students." Keller preferred interacting with students in small classes. Upon moving into the present geology building in 1965, and teaching in an auditorium that seated more than 300 students, Keller created the "Big Eight." Students were selected



at random at the beginning of each class period to occupy eight seats in the front of the auditorium. Keller directed his teaching to those eight students while the remainder of the class looked on. Many alumni who were in Keller's classes recall the effectiveness of "Keller's Big Eight."

Keller has published more than 200 scientific journal articles and several textbooks. His research and teaching brought him many prestigious awards, including: University of Missouri-Columbia Faculty-Alumni Award and Distinguished Faculty Award; University of

Missouri-Rolla honorary doctor of engineering; University of Missouri-Columbia College of Arts and Science Distinguished Alumnus Award; The Society of Economic Paleontologists and Mineralogists Twenhofel Award; Distinguished Member, Clay Minerals Society; Missouri State House of Representatives Citation; National Association of Geology Teachers Neil Miner Award for Excellence in Teaching; and the Outstanding Educator of America Award. In recognition

of the many contributions Keller made in teaching Principles of Geology to MU students, the auditorium in the Geology Building was named Keller Auditorium in 1981.

There are many stories about Keller's insatiable quest for learning. One story that persists concerns his first registration at MU. A faculty member, noting that Keller was apparently confused with the schedule of courses, asked if he could help. Keller's response was, "I can't find the right class choices to fill every hour of the week." This thirst for knowledge still persists as he enters his 100th year. Although Keller retired from formal teaching and became an emeritus professor in 1970, he continues to come to his office every day where he reads the science literature and poses thought-provoking questions to the faculty and graduate students.

**Walter D. Keller Opportunities for Excellence  
 Endowment in the Geological Sciences  
 Contributors through August 31, 1999**

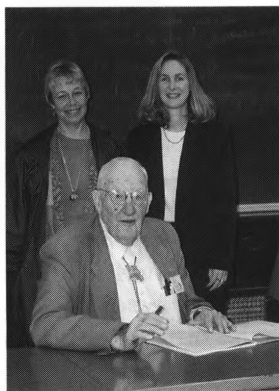
Henry W. Allen  
 Richard and Mona Alonzo  
 Dana Downs Anderson  
 Marvin J. Andresen  
 Constance K. Barsky  
 Michael J. Bernthal  
 Don L. Blackstone  
 Alice M. Blount  
 Diane Boyer  
 James H. Brown, Jr.  
 Rosella L. Bunch  
 Jack D. Burgess  
 Wayne F. Canis  
 George F. Carini  
 Lily Marie Carter  
 Ann D. Clapp  
 Anna M. Cruse  
 Richard De Camara  
 Anthony Dincau  
 Leon S. Ditzell  
 Christine Mann Dyess  
 Farouk El-Baz  
 Jessie B. Ellis  
 Joseph F. Engeln  
 Juliana Fahy  
 Catherine L. Ferree  
 Mrs. Max E. Ferrell  
 Richard A. Fisher  
 Robert L. Foster  
 Richard D. Foxworth  
 Alice C. Fuerst  
 Donald S. Garvin  
 John H. Gatchell  
 Frank D. Gorham, Jr.

Robert B. Hall  
 Geraldine H. Heller  
 John B. Hendren  
 Glen R. Himmelberg  
 Richard D. Hoare  
 F.D. Holland, Jr.  
 Charles M. Hoskin  
 John F. Hubert  
 T.A. Jackson  
 Robert L. Jacobson  
 Hazel C. Jordan  
 William T. Kane  
 Walter D. Keller  
 Mary Jo Kimbrough  
 David T. King, Jr.  
 Ernest P. Knirk  
 Mary Margaret Krinbill  
 Henry H. Krusekopf, Jr.  
 Romaine L. Kupfer  
 Troy J. Laswell  
 C. Frederick Lohrengel II  
 Hugh M. Looney  
 William S. Lowe  
 Earle F. McBride  
 Joan S. McDougal (in memory of  
 Carl W. Swartzlow)  
 Jim P. Miller  
 J. Garrett Minke  
 Doris E. Monroe  
 William J. Neal  
 Mrs. William B. Nowell  
 Richard W. Ojakangas  
 Bett Estill O'Neill  
 Robert M. Orr

Jack M. Oswald  
 Henry L. Ott  
 Daniel J. Patterson  
 Elmer Patterson  
 Robert J. Pauken  
 Jack J. Pennington  
 Harry M. Perry  
 Stephen T. Phillips  
 Ray H. Potts  
 Robert L. Rayl  
 Scott H. Raymond  
 David L. Reinertsen  
 Carl B. Rexroad  
 Jack F. Schindler  
 Mrs. Joseph Schwartz  
 Timothy J. Sheehan  
 Marshall K. Shurnas  
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 Marjorie C. Smith  
 William T. Smith  
 John L. Snyder  
 Walter G. Staley, Jr.  
 Wendy Metcalf Straatmann  
 Hugo F. Thomas  
 Laurence G. Trudell  
 James F. Westcott  
 Katherine T. White  
 Philip A. Williams

**Corporate Giving:**

Hoffmann-LaRoche Foundation  
 USG Foundation  
 USX Foundation, Inc.  
 Vastar Resources, Inc.



Leslie Harman and Wendy Straatmann proudly pose with Walter Keller at our recent development board meeting.

**FACULTY AND STAFF**  
**RESEARCH GRANTS**

## Research grants

*(Awarded this past year)*

### American Chemical Society/Petroleum Research Fund

Chuanlun Zhang \$25,000

### Lockheed Martin Energy Systems (ORNL)

Chuanlun Zhang \$37,002

### MU Research Council

Mian Liu \$3,110  
Carol Wicks \$2,876  
Carol Wicks \$1,903

### National Aeronautics and Space Administration

Mian Liu \$230,000

### National Science Foundation

Tim Lyons \$299,939  
Carol Wicks and Cheryl Kelley \$200,000

### UM Research Board

Cheryl Kelley \$27,520  
Tim Lyons \$39,832  
Ken MacLeod \$34,052  
Michael Underwood \$26,518  
Chuanlun Zhang \$44,000

## Tim Lyons awarded prestigious NSF CAREER grant



The National Science Foundation's CAREER awards represent the foundation's highest honor for junior faculty. The awards support exceptionally promising university faculty who are committed to the integration of research and education. In the Earth Sciences Division of NSF, only one CAREER grant is awarded each year. Tim Lyon's award is for the integration of research in our new initiative in biogeochemistry with our graduate training, and specifically to aid in developing our doctoral program. He has defined a research program to support students in efforts to extrapolate exciting results from ongoing studies of modern anoxic marine basins in order to address

fundamental questions in classic ancient shale sequences, specifically the Pennsylvanian cyclothems of midcontinent North America. Highlighting innovative approaches to isotope chemostratigraphy and the controls of carbon cycling, iron sulfide formation and trace-metal partitioning across well-defined gradients in paleoredox will allow Tim and his students to extend the implications of this study far beyond regional significance. Specific projects include evaluating oxygen isotope relationships in conodont apatite as proxies for variation in ocean temperature and ice volume on glacial-interglacial timescales.

## Good science, good fun in Florida

Heeding Tom Freeman's warning that the water temperature during spring break can still be a bit too cold to sustain prolonged interest in carbonate mud and calcareous algae, as exciting as they may be, the group of 16 graduate and undergraduate students and Tim Lyons delayed their departure to South Florida until classes ended in May. This gave them ample opportunity to design the trip and cover the necessary background in the classroom. Anticipation for the subtropical climate grew, tempered only by little bits of dread about the long drive south.

Fortunately, the monotony of the first day's drive ended with a warm welcome and great meal at the house of Ron Sammon's aunt and uncle in Alabama. Yes, they were willing to feed and house a group of 17. Despite the log jam of bodies strewn across the floor and couches, all were sufficiently rested by morning to feast on a home-cooked breakfast and push south with the Florida Keys on the distant horizon.

Upon arriving in Florida, even Tim was up early the next morning as three vans of would-be snorkelers geared up at the local dive shop and headed to the marina to rent three boats for two days of exploring classic shallow-platform carbonates. Tim's concerns were quickly put to rest with the first rev of the motors and subsequent flipper-footed splash in the water. Students who promised boat experience met or exceeded expectations; fledgling and veteran snorkelers alike resurfaced with mouthpiece-filled smiles upon breaking the smooth, sun-glistening surface of Florida Bay; and the grassy, shallow carbonate mounds and mud flats provided sufficient excitement for even the most skeptical.

Armed with a deep appreciation for limy mud, the organisms that produce it and the grasses that bind it, the group set its sights on the next day's adventures on the ocean side of the Keys. Also on their minds were

hopes of replacing the one very slow boat, or secret plans on how to avoid being stuck in it. A smile still creeps across Tim's face when his mind drifts to the little boat "that barely could" and those poor snorkelers bound to a pace that made "no wake" signs a cruel, moot taunt.

Once a speedier boat was found, Lyons and the group could think of no better way to cap off the perfect day of viewing marine life than by reaffirming their dominance within the food chain. Consumption at the Coral Grill that night was limited only by the rate at which they could carry things from the buffet line to the table. At one point, to maximize the educational opportunity, Mike Formolo was wrestled to the ground so that others might experience the crustaceans.



Day two in the water was as successful as day one. Now seaward of the Keys, a more complete picture of the many chemical, physical and biological settings began to emerge. All that remained in the mosaic of environments was the reef. For many, the chartered reef snorkel was the highlight of the trip. Despite

the substantial threats to the reef community, Pennekamp Coral Reef State Park still affords wonderful viewing of a spectacular ecosystem, including a dazzling rainbow of fish. While on the Keys, the group spent one evening in Key West amongst the jugglers, myriad charlatans, T-shirt shops, sunset worshipers, Jimmy Buffet fans and the slightly incredulous ghost of Hemingway pining for the Sloppy Joes of yesteryear.

Having developed a picture of how the modern environments are distributed and linked, the group set out to explore the steamy outcrops of Pleistocene Key Largo Limestone and Miami Oolite. The group ended that day by wandering among the canals and outcrops of some of Miami's most exclusive neighborhoods while speculating whether the rich and famous cared about the distribution of sandy Pleistocene shoals or, instead, felt concern about the nuts with hammers.

In their effort to experience all that South Florida offers, the group lodged on south Miami Beach where

## FACULTY AND STAFF

### STUDENT TRIP

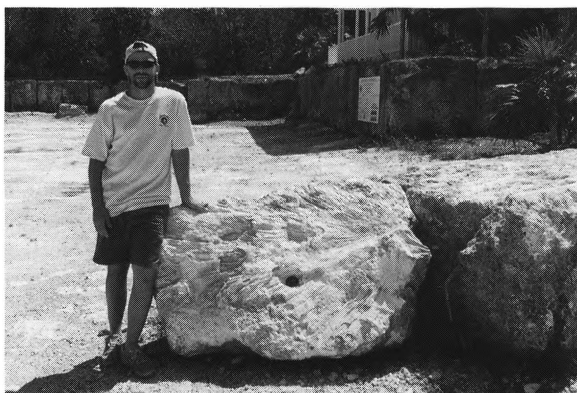
rocking-chair-lined art deco tranquillity has given way to La Vida Loca.

Of course, the surroundings of South Beach fit the geologists like a glove, but there were gators to be seen, and Andy Downs would have to forego his modeling career—at least for now. As the happy 17 packed up the vans and headed off to the Everglades, they couldn't help but notice the glitterati clad in evening black slinking home in what must have been a far-too-bright sunlit morning, resentful of the bright limestone beneath their feet. The group imagined that these creatures of the night didn't want to hear about ooids either.

The drive across Alligator Alley lived up to its billing. There were gators galore surpassed in number only by the mosquitoes awaiting the group on the other end. The camping that night on the gulf edge of the river grass will live in infamy. It was the one night of camping planned without a guidebook, and the "re-

ward" was what can only be described as a *Deliverance* experience. The flora and fauna of the Everglades consumed the group as its canoes sliced through the tea-colored, mangrove-shrouded waters earlier that day. Eric Peterson and Toby Dogwiler have perhaps a slightly less poetic image in mind, tainted by the "ramming incident" and ensuing experiments in canoe instability.

The next day, the early morning heat and mist of dew and bugs inspired the group to get off to an early departure. That night, Ron Sammon's family once again rose to the occasion. This time, all were treated to a beautiful campsite, pizza dinner and terrific crawl through a cave the next morning. The trip was filled with good cheer, good science, good fun and many new experiences for even the most jaded and worldly traveler. All involved are grateful to our alumni and the Tom Freeman Book Royalty fund for the financial support that made costs to the individual students trivial and thus made the trip possible.



Gary Richards serves as scale for the brain coral *Diploria* on Key Largo, Florida.

From left, Kim Keel, Doug Lee, Tim Lyons and Cammy Bright study the Miami oolite in Florida.



## Summer learning at Camp Branson

This summer's camp session included an anchor of tradition, supported by some new faculty members, additions to the curriculum and a mid-session visit from Richard Schwartz, dean of arts and science. Our anchor included a cadre of returning faculty members, including Don Zenger, teaching for his 25<sup>th</sup> summer at the camp, and time-tested mapping projects (Derby Dome continues to provide challenges). New members of the faculty this summer included Ken MacLeod, who joined the MU faculty last winter, and Joe Reese, who teaches at Northwest Missouri State University.

We are always happy to show off our facility and nearby geologic wonders to MU

dignitaries, so we were happy to have Dean Schwartz and his wife, Judie, (on the right in the above photo with Karen and Bob Bauer) visit the camp for a couple of days to get the local tour. Bob and Karen Bauer and Glen and Marilyn Himmelberg served as hosts for the visit, which included trips across Derby Dome and South Pass and dinner in beautiful downtown Hudson. The College of Arts and Science has been very supportive of Camp Branson during its 89-year history, and we appreciated the chance to show Dean Schwartz the camp facilities and setting.

This summer's student population included 32 students (11 women and 21 men) from 14 different schools. In addition to 17 students from Missouri schools, (including eight from MU, three from Southwest Missouri State University, five from Northwest Missouri State University, one from Central Missouri State University and one from Washington University), 15 students attended from seven other states (California, Maryland, Michigan, North Carolina, Ohio, Pennsylvania and Virginia). Some of the other schools represented included the University of Southern California, Virginia



Polytechnic Institute, University of North Carolina, University of Maryland and University of Pittsburgh. Several of the students came to camp with excellent academic records and were awarded field camp scholarships provided by many department alumni who have attended the camp.

Returning faculty included Don Zenger (Pomona College, emeritus), Annie Holmes (Columbia University BioSphere Project), and Tim Lyons (MU) who ran projects in stratigraphy, sedimentation and facies analysis. Bob Bauer and Don continued to run mapping projects on Dallas and Derby Domes, with the help of Joe Reese and Annie Holmes. Peter Nabelek (MU) worked with Bob on the hard-rock mapping and structural analysis projects in the South Pass area, and he also ran a project that introduced the students to shallow seismic analysis.

This year's trip through the geology of northwestern Wyoming ran under excellent weather conditions (no snow or rainouts this year). Dennis Dahms (University of Northern Iowa) presented stops on the Pleistocene glacial history of the region. Mark Anders (Columbia University) returned to add his expertise on the Snake River Plain, the Yellowstone hot spot, and the Heart Mountain detachment. Annie Holmes and Jim Luepke led parts of the trip through Yellowstone, concentrating on the geothermal and hydrologic features of the park. Jim (BS '96, MS '98 and camp caretaker '94-'97) did a great job introducing the students to the biogeochemistry of the Yellowstone thermal features.

This summer we again expanded the hydrogeology-hydrogeochemistry projects. The College of Arts and Science Opportunities for Excellence program supplied funds for five new field chemistry kits that allow us to use smaller group sizes for the exercise. Dallas Rhodes (BS '69) once again organized this project in which the students evaluated the regional water chemistry in the Little Popo Agie river basin. During the project, student groups analyzed a wide variety of water quality characteristics (including

**FIELD CAMP**  
**FIELD COURSE**

nitrate, phosphate, sulfate, pH, CO<sub>2</sub>, dissolved oxygen, salinity and conductivity) at five different sites ranging from the headwaters to the lower reaches of the Little Popo Agie River. This year we were again able to make comparisons with local groundwater chemistry from a series of wells that we installed using a Geoprobe soil auger system. Geoprobe Systems Inc. of Salina, Kansas provided the Geoprobe, and we sincerely thank Wes McCall (MS '85) of the Geoprobe System for his help in making these arrangements. Jim Luepke was the principle operator and instructor of the Geoprobe for the project and was assisted by Melissa Pratt.

We had another good cadre of teaching assistants this summer with Melissa Pratt (MS '99) returning for her fourth year as a TA, Ken Tomlin (MU graduate student) in his second year as a TA, and Todd McMenemy (MS '99, Biosphere Project). Len Payne (MU graduate student) did an excellent job as caretaker at camp and also stayed after camp to complete some additional camp maintenance tasks. Jeff Kilpatrick, who was a student at camp in 1998,

served as the camp chef, and he was ably assisted by Luke Bash.

One of the highlights of camp this year was the honoring of Don Zenger's 25<sup>th</sup> summer teaching at the camp. Bob Bauer presented Don with a plaque and a framed certificate that will hang on the dining hall wall in appreciation of Don's "25 summers of dedicated teaching and service at the Branson Field Laboratory." Don, as one of the world's most avid sugar consumers, was also presented with the camp's first "sweet tooth certificate." The framed certificate, which hangs on the wall by the serving line, serves notice that Don is henceforth entitled to three servings of any dessert served within the dining facilities of the camp. Don also received a cake (shared by all in camp) that was topped by a rock hammer, a Brunton compass and two photographs of Don (all in sugar, of course). Don recently retired from his faculty position at Pomona College, but we are certainly hopeful that Don will continue to add many years to his record of 25 summers teaching at the camp.



**Maggie the dog, Todd McMenemy and Ken Tomlin celebrate winning the 1999 horseshoe tournament at Camp Branson.**

## Degrees

### Master of Science

**Carey S. Costello**

*Geochemical and Fluid Inclusion Studies of the Colomac Gold Mine, Northwest Territories, Canada.*

Adviser: Kevin Shelton

**Lee J. Florea**

*Bench Scale Karst Models.*

Adviser: Carol Wicks

**Matthew T. Hurtgen**

*The Role of H<sub>2</sub>O in Iron Sulfide Transformations: Examples from the Orca Basin and Effingham Inlet.*

Adviser: Timothy Lyons

**James J. Luepke**

*Geochemical Trends in Shales of the Mesoproterozoic Lower Belt Supergroup, Northwestern U.S.: A Marine Model for Evolution of the Western Laurentian Margin.*

Adviser: Timothy Lyons

**Todd A. McMenemy**

*Geochemical Studies of Greenstone-Hosted Gold Deposits of the Giant Mine, N.W.T., Canada.*

Adviser: Kevin Shelton

**Melissa L. Pratt**

*Structural Analysis of Deep-Seated Oroclinal Bending in Archean Basement Rocks along the Eastern Margin of the Central Laramie Mountains, Southeastern Wyoming.*

Adviser: Robert Bauer

**Kimberly D. Saettler**

*Composition, Provenance, and Depositional Patterns of Turbidites and Hemipelagic Muds, Northwestern Cascadia Basin.*

Adviser: Michael Underwood

**Christopher M. Weesner**

*A Study of Vitrinite Reflectance in the Arkoma Basin.*

Adviser: David Houseknecht

### Bachelor of Arts

April A. Welch

### Bachelor of Science



Saupi Abdulla

Timothy L. Bennett II

Bill N. Fry

Harold E. Johnson III

Susan J. Ruse

Jeffrey W. Stroessner

Luke E. Walters

## Undergraduate scholarships

### Richard G. Boyd Scholars

Kathryn Cory

Vernon Van Slyke

### Fred Strothmann Scholars

Amanda Cavin

Eric Grabowski

Aaron Johnson

Randal Thomas

### Field Course Scholars

Melissa Amentt

Kathy Boyer

Amanda Cavin

Michelle Friedberg

Ben Fruchey

Chad Haiar

Randy Homburg

Bonnie Neidholdt

Matthew Schuchard

Luke Walters

### Senior Theses

The following students are preparing a senior thesis:

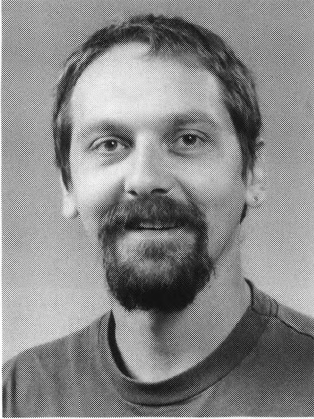
Amanda Cavin

Andrew Downs

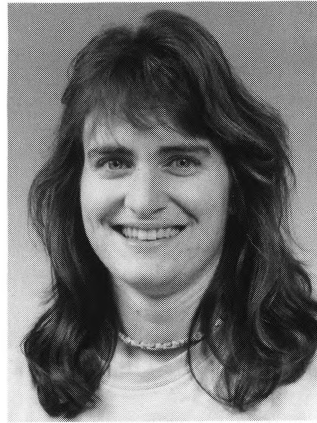
Ronald Sammons

**STUDENTS**  
**SCHOLARSHIPS**

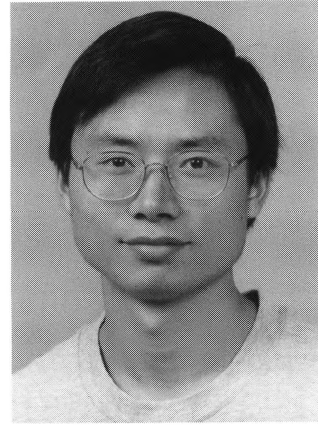
## Graduate scholarships



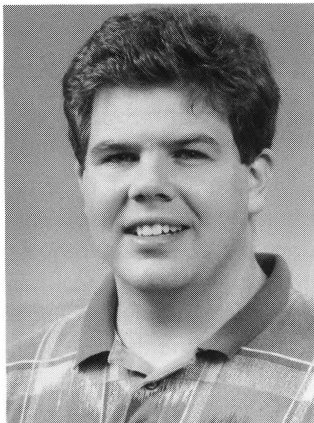
**Aaron Johnson**  
Superior Graduate  
Achievement Award



**Melissa Pratt**  
Donald K. Anderson  
Graduate Teaching Award



**Albert Cui**  
Dan E. McMillen Scholar



**Eric Peterson**  
Huggins Scholar



**Cathy Zumsteg**  
R.E. Peck Scholar

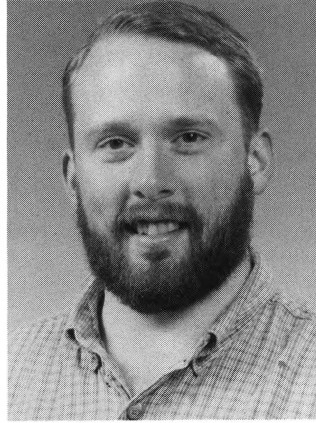


**Mona Sirbescu**  
Fred Strothmann Scholar

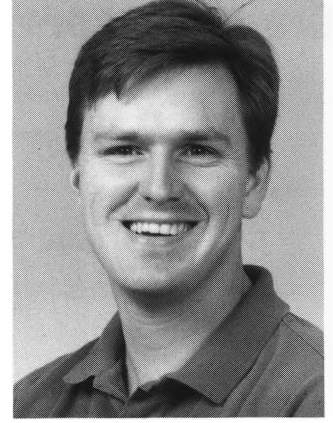
**STUDENTS  
SCHOLARSHIPS**



**Camomilia Bright**  
Walter D. Keller Scholar



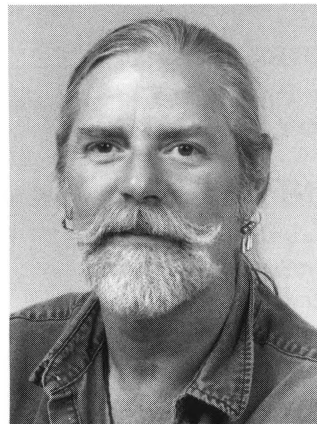
**Toby Dogwiler**  
Walter D. Keller Scholar



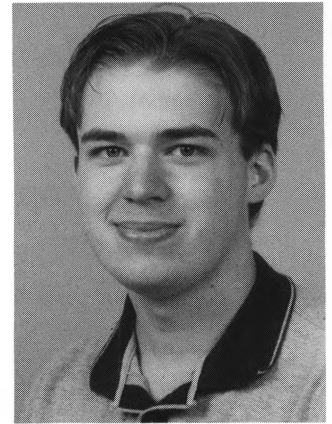
**Joseph Hill**  
Walter D. Keller Scholar



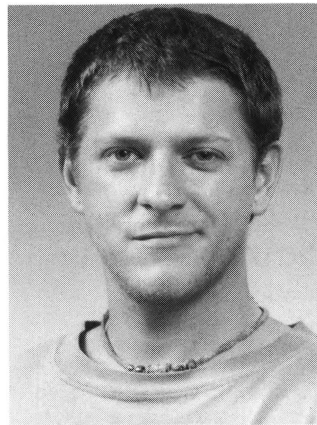
**Kimberly Hoke**  
Walter D. Keller Scholar



**Leonard Payne**  
Walter D. Keller Scholar



**Jason Smith**  
Walter D. Keller Scholar



**Ken Tomlin**  
Walter D. Keller Scholar



## Student publications and abstracts

Nabelek, P.I., and **Bartlett, C.D.**, 1998. Petrologic and geochemical links between the Proterozoic Harney Peak leucogranite, South Dakota, USA, and its source rocks: *Lithos*, v. 45, p. 71-85.

Nabelek, P.I., **Bartlett, C.**, and Glascock, M., 1999. Can trace element distributions in migmatites be used as analogues for granite petrogenesis?: *Physical Chemistry of the Earth (A)*, v. 24, p. 295-298.

**Cavin, A.**, Underwood, M., Fisher, A., and Johnston-Karas, A., 1999. Relations between textural characteristics and physical properties of sediments in northwestern Cascadia Basin, Leg 168 of the Ocean Drilling Program *in* Proceedings of the Ocean Drilling Program, Scientific Results, v. 168: ODP, College Station, TX, in press.

**Cui, X.**, and Liu, M., 1998. Mantle extrusion: A possible link between Indo-Asia collision and eastern China rifting: *EOS, Transactions, AGU*, v. 79, no. 45, p. 795.

Liu, M., **Shen, Y.**, and **Cui, X.**, 1998. Gravitational collapse of Orogens: Numerical results and tectonic implications: *EOS, Transactions, AGU*, v. 79, no. 45, p. 848.

**Curtis, D.J.**, and Bauer, R.L., 1999. Variations in nappe-related fabric orientations during Paleoproterozoic ductile reworking of Archean basement, central Laramie Mountains, southeastern Wyoming: *Geological Society of America, Abstracts with Programs*, v. 31.

**Formolo, M.**, and Lyons, T.W., 1999. A trace element and sulfur isotope study of the Devonian Leicester Pyrite Member, western New York: Implications for the formation and weathering of sedimentary iron sulfides: *Geological Society of America, Abstracts with Programs*, v. 31.

**Gellatly, A.M.**, and Winston, D., 1998. Is molar-tooth calcite in the Helena Formation (Middle Proterozoic Belt Supergroup, Montana) inverted vaterite?: *Geological Society of America, Abstracts with Programs*, v. 30.

**Gellatly, A.M.**, and Winston, D., 1999. Were molar-tooth gas expansion voids in the Helena Formation (Middle Proterozoic Belt Supergroup, Montana) initially filled by vaterite?: *Geological Society of America Rocky Mountain Section Meeting, Abstracts with Programs*, v. 31, no. 4.

Underwood, M., **Hoke, K.**, and **Cavin, A.**, 1998. Turbidite sedimentology near the northwestern edge of Cascadia Basin, Pacific Ocean: *Geological Society of America, Abstracts with Programs*, v. 30, p. A-335.

Underwood, M.B., and **Hoke, K.D.**, 1999. Composition and provenance of turbidite sand and hemipelagic mud in northwestern Cascadia Basin, Leg 168 of the Ocean Drilling Program *in* Proceedings of the Ocean Drilling Program, Scientific Results, v. 168: ODP, College Station, TX, in press.

**Kennedy, T.M.**, and Lyons, T.W., 1999. Hypoxia in the Gulf of Mexico: Political manifestations of scientific ambiguity: *Proceedings, 22<sup>nd</sup> General Assembly, International Union of Geodesy and Geophysics*.

**Kennedy, T.M.**, and Lyons, T.W., 1999. Hypoxia in the Gulf of Mexico: Political solutions as determined by scientific understanding: *15<sup>th</sup> Biennial Conference, Estuarine Research Fed.*

**Johnson, A.W.**, Shelton, K.S., Gregg, J.M., Somerville, I.D., and Wright, W.R., 1999. Fluid inclusion evidence for the presence of multiple fluids in Zn-Pb hosting Carboniferous carbonate rocks in the Irish Midlands: *Initial Findings in* Hagni, R.D., ed., *Studies in Ore Deposits*, UM-Rolla Press, 15 pp.

Wright, W.R., Somerville, I.D., Gregg, J.M., Shelton, K.L., and **Johnson, A.W.**, 1999. Application of regional dolomite cement CL (cathodoluminescence) microstratigraphy to the genesis of Zn-Pb mineralization in Lower Carboniferous rocks, Ireland: Similarities to the southeast Missouri Pb-Zn district? *in* Hagni, R.D., ed., *Studies in Ore Deposits*, UM-Rolla Press, 15 pp.

**Peterson, E.W.**, Davis, R.K., and Orndorff, H.A., 1998. Movement of nitrate through regolith

covered karst, Northwest Arkansas: Geological Society of America, Abstracts with Programs, v. 30, no. 7.

Davis, R.K., Brahana, J.V., Orndorff, H.A., and **Peterson, E.W.**, 1998. Bacteria and nutrients in shallow aquifers of Northwestern Arkansas: Proceedings of the Arkansas Water Resources Center Annual Research Conference, April 1998, University of Arkansas, Fayetteville, Arkansas.

**Peterson, E.W.**, Davis, R.K., and Brahana, J.V., 1999. The Use of Regression Analysis in Predicting Nitrate-Nitrogen Concentrations in Springs of Northwest Arkansas in Sasowsky, I., and Wicks, C., eds., Groundwater flow and contaminant transport in carbonate aquifers: AA Balkema Publishing, in press.

**Pratt, M.L.**, Bauer, R.L., and **Tomlin, K.P.**, 1999. Deep-seated Paleoproterozoic oroclinal bending in Archean basement rocks along the eastern margin of the central Laramie Mountains, southeastern Wyoming: Geological Society of America, Abstracts with Programs, v. 31.

Liu, M., **Shen, Y.**, and Yang, Y., 1999. Gravitational collapse of orogenic crust: A preliminary 3D finite element study: Journal of Geophysical Research, in press.

Nabelek, P., **Sirbescu, M.**, and Liu, M., 1999. The 1.72 Ga Harney Peak Granite: Culmination of the Trans-Hudson orogeny in the Black Hills, South Dakota: Rocky Mountain Geology, in press.

Nabelek, P.I., Liu, M., and **Sirbescu, M.**, 1999. Thermo-rheological, shear-heating model for leucogranite generation, metamorphism, and deformation during the Proterozoic Trans-Hudson

orogeny, Black Hills, South Dakota: Tectonophysics, in press.

**Sirbescu, M.**, Nabelek, P., and Liu, M., 1998. Thermotectonic evolution and crustal anatexis in the Trans-Hudson Proterozoic orogen, Black Hills, South Dakota: Geological Society of America, Abstracts with Programs, v. 30, p. 357.

## Student presentations without abstracts

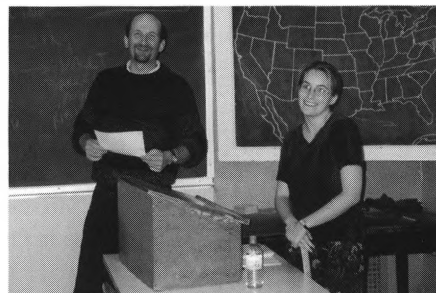
**Eric W. Peterson**, 1998. Evaluation of animal waste on groundwater using Nitrate-Nitrogen, Bacteria, and 17 Beta-Estradiol: Missouri Groundwater Association Fall Meeting, September 1998, Kansas City, MO.

**Eric W. Peterson**, 1999. Simulating nitrate as nitrogen ( $\text{NO}_3\text{-N}$ ) concentrations using stage and specific conductance values in karst springs: Air and Waste Management Association 92nd Annual Meeting, June 1999, St. Louis, MO.

**Eric W. Peterson** and **Toby Dogwiler**, 1999. Water Quality: Perche Creek and Eagle Bluffs Bottom Lands: Missouri Groundwater Association Spring Meeting, April 1999, St. Louis, MO.

## Student research grants

**Eric W. Peterson**  
Geological Society of America \$1,425



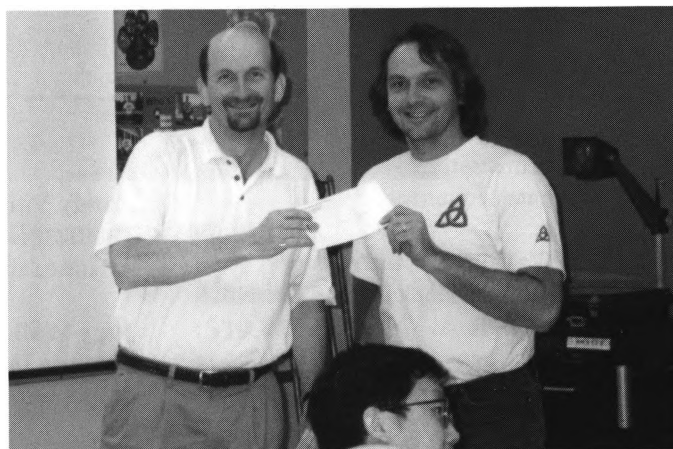
Kevin Shelton introduces Carey Costello prior to her thesis defense presentation to faculty and students.

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**STUDENTS  
AWARDS**

Amanda Cavin accepts the Estwing hammer and holster from Glen Himmelberg. The award is presented to our top undergraduate who will attend Camp Branson the following summer. Susan Ruse, who could not attend the presentation, also was awarded a hammer.

Aaron Johnson receives the 1998-99 Superior Graduate Achievement Award from Kevin Shelton.



Melissa Pratt accepts the 1998-99 Donald K. Anderson Graduate Teaching Award from Kevin Shelton.

## Visiting speakers

A rich and varied program of visiting speakers continues to be funded by our Williamson Family Geology Endowment Fund. Last year's speakers included:

**John Bowers, Civil Engineering, MU**  
Enhanced Soil Vapor Extraction with Radio Frequency Heating.

**John Coates, Southern Illinois University**  
Diverse metabolism and bioremediative potential of Fe(III)-reducing bacteria.

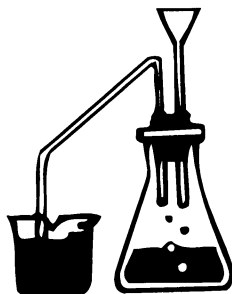
**John Dilles, Oregon State University**  
Magmatic-hydrothermal evolution of the Yerington district: Generation of porphyry copper deposits from calc-alkaline batholiths.

**Carl Drummond, Indiana University/Purdue University, Fort Wayne**  
Evaluating long-term stratigraphic organization in peritidal carbonate sequences.

**Robert Dymek, Washington University**  
Anorthosites and Related Rocks of the Grenville Province, Quebec: Regional Variations and Petrogenetic Implications.

**A.A. (Tony) Ekdale, University of Utah**  
A Paleocologic Message in Viking Runes: Ichnofabric Analysis of Lower Ordovician 'Orthoceras Limestones' in Sweden and Norway.

**Bruce Fouke, University of Illinois, Urbana-Champaign**  
Yellowstone hot spring travertines: A template for interpreting the history of life on early Earth (and Mars?).



**John Hogan, University of Missouri-Rolla**  
Crustal Magma Traps and Magma Driving Pressure: Consequences for Pluton Shape and Level of Emplacement.

**Blythe Hoyle, Iowa State University**  
Effects of spatial heterogeneity and carbon amendment on the biodegradation of atrazine in shallow subsurface sediments.

**Erik Loehr, Civil Engineering, MU**  
Consideration of 3-D Effects for Stability Analysis of Earth Slopes.

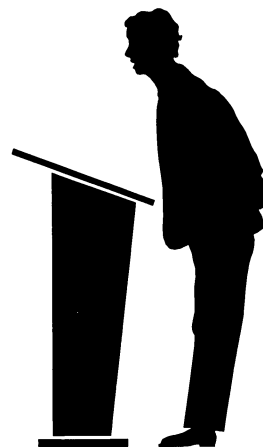
**Matt Saltzman, University of Iowa**  
Parallel changes in carbon cycling, sea level and the marine biota: Evidence from the Upper Cambrian.

**Michael A. Urban, Geography, MU**  
Anthropogenic Alteration of the upper Embarras River, Illinois: Implications for Geomorphology and Environmental Management.

**Randy Van Schmus, University of Kansas**  
The Borborema Province, NE Brazil: from Atlantica to Gondwana via Rodinia?

**Judy Wall, Biochemistry, MU**  
Genetics for Sulfate Reducing Bacteria: Potential for Bioremediation.

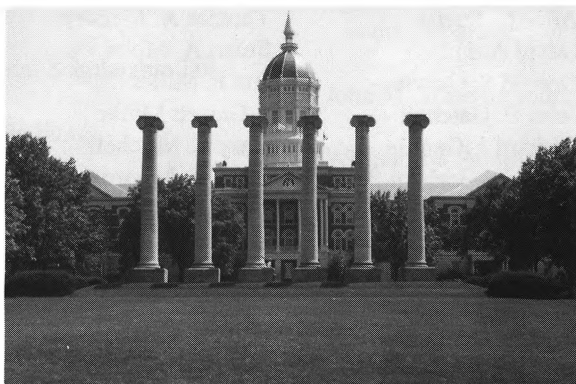
**Rick Wilkin, Pennsylvania State University**  
Pyrite formation near redox transitions: Reaction pathways, textures and bacteria.



**DEVELOPMENT ACTIVITIES**  
**CONTRIBUTIONS**

## Investments in the Future

The Department of Geological Sciences gratefully acknowledges the financial support of alumni and friends who promote the recognition, welfare and progress of the Department of Geological Sciences and the University of Missouri-Columbia. Donors whose cumulative gifts to MU, including corporate matching contributions, total \$10,000 or more are also recognized through the University of Missouri-Columbia Jefferson Club. Effective January 1, 1995, the total required for Jefferson Club membership was increased to \$25,000 cash/pledge or \$50,000 deferred.



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Mr. and Mrs. Fred H. Strothmann

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Mrs. Keith Tuthill  
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Mr. and Mrs. Tom Ware

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John Van Brahana	John H. Gatchell	J. Garrett Minke	Craig A. Stewart
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**DEVELOPMENT ACTIVITIES**  
**ENDOWMENTS**

### **Endowed Scholarship Funds**

Mr. and Mrs. Richard G. Boyd Endowment Fund

John F. Burst Graduate Fellowship  
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Richard P. Frey Memorial Paleontology Fund

Leonard D. Harris Scholarship

Wallace B. Howe Fellowship in  
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Clayton H. Johnson Memorial Scholarship Fund

Walter D. Keller Scholarship Fund

Maurice G. Mehl Memorial Scholarship in  
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James G. Mitchell Memorial Fund in Geology

Ernest J. Palmer Memorial Scholarship

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Scholarship for Geology Students

Raymond E. Peck Undergraduate Scholarship

Edmond A. and Mary L. Raymond Scholarship  
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Carl B. Rexroad Geological Sciences Endowment  
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James H. Stitt Memorial Scholarship Fund

Fred Strothmann Perpetual Geology Scholarship  
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Norman E. Smith Opportunities for Excellence  
in the Department of Geological Sciences

John M. Ware Memorial Geology Endowment Fund

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### **Other Endowed Funds**

E.B. Branson Professorship

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### **Charitable Remainder Trusts**

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### **Annual Funds**

Geology Development Fund

Tom Freeman Book Royalty Fund

### **Bequests**

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## Geology Development Board Membership, 1999

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USGS/University of Arkansas  
Fayetteville, Arkansas

**Richard Bishop**  
Exxon Exploration  
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Triangle Environmental Sci./Engr. Inc.  
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Consulting Geologist  
Oklahoma City, Oklahoma

**John G. Golson**  
KLT Gas Inc. (on leave)  
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Arco  
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Exxon  
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Irving, Texas

**Aaron W. Johnson**  
University of Missouri-Columbia  
Columbia, Missouri



From left, Clay Parsons, John Marshall and Ray Thomasson enthusiastically wait for our spring board meeting to begin.

**DEVELOPMENT ACTIVITIES**  
**BOARD MEMBERS**

## Membership, 1999 (continued)

**D. Andrew Kemmer**  
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Wichita, Kansas

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Louis-Dreyfus Natural Gas Co.  
Oklahoma City, Oklahoma

**Hugh Looney**  
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Houston, Texas

**Cathy L. Zumsteg**  
University of Missouri-Columbia  
Columbia, Missouri



From left Fred Strothmann, Walter Staley, Scott Raymond and Pat Strothmann socialize before our spring development board dinner.

*From our Geology Development Board Chair...*

Dear friends,

This past year has found the board dealing with a lot of bad news. Maybe it's just a function of the times. Maybe it's simply an accumulation of coincidences. Whatever the reason, I feel we need to join the faculty in rebounding and re-energizing our effort as we move into the new millennium.

Most recently, Jim Stitt's battle with cancer was lost. His optimism and cheerful outlook will be missed by all of us. It was both appropriate and gratifying to see the large crowd of friends and family at his memorial service in Columbia. Our hearts go out to his family.

Joe Engeln is also leaving the faculty, but in a much different way. His move to the Missouri Department of Natural Resources takes his positive attitude and strong work ethic away from us. We wish him luck and hope to have periodic input from him in the future.

Board member John Golson is waging a difficult fight against Lou Gehrig's disease. I ask everyone to keep him in your prayers. He would like to hear from us, too. His new e-mail address is [jggolson@aol.com](mailto:jggolson@aol.com).

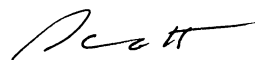
As you know, the oil and gas industry has a fairly large representation on the board. A few of our members have been caught up in the merger mania that has swept that industry. They've had to make significant lifestyle adjustments, as a result. Although this hasn't impacted a large number of members, the underlying current of uncertainty is affecting all of us who live with it daily.

Still, the board is moving ahead with some positive steps. The Planned Giving program recently sent out brochures to alumni to kick off the campaign. Board member Dick Bishop finished a fine term as AAPG president and was instantly replaced by board member Ray Thomasson. Having back-to-back AAPG presidents is quite a coup for our small board, considering the AAPG worldwide membership is around 30,000. Our board increased its size to 26 during the past year, and is still looking for "a few good geologists."

This year, we're going to give a hard look at ideas the board can bring forward to provide tangible, value-added results to the geology department. Right now, the door is open to a wide range of subjects, including new technology implementation, student support, computers, job opportunities for students, and better alignment with faculty objectives.

In contrast to the "hysteria du jour," the board is actually looking forward to Y2K.

Cheers,



Scott Raymond  
Chair, Geology Development Board

## Alumni honors

**Mike Bahorich** (BS '79) received the Virgil Kauffman Gold Medal from the Society of Exploration Geophysicists. Mike is vice president of exploration and production technology at Apache Corporation in Houston, Texas.

**John F. Burst** (PhD '50) has been selected to receive the SME Hal Williams Hardinge Award. Jack will be the recipient of this award for the year 2000. The award is given for outstanding achievement in industrial minerals research, technology, education, and resource development, and in recognition of exceptional service to SME and other professional organizations.

**Carl B. Rexroad** (AB '49, MA '50) was presented the Lifetime Achievement Award by the Professional Geologists of Indiana. Carl is the first recipient of this award.

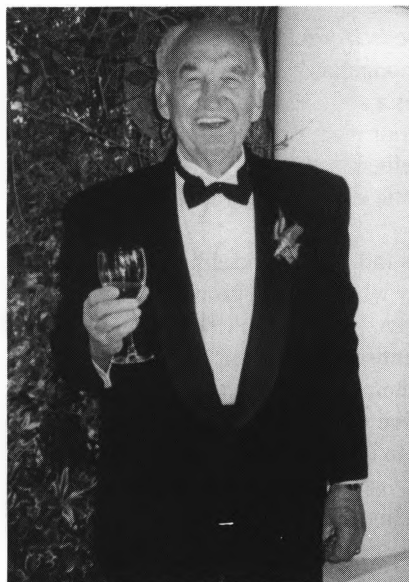
**M. Ray Thomasson** (AB '52, MA '53) assumed the presidency of AAPG in July.

**Jerry Vineyard** (AB '58, MA '63) received the Natural Areas Stewardship Award from the Missouri Department of Natural Resources. Jerry is a charter member of the Missouri Natural Areas Committee. The group consists of members from the Missouri departments of Conservation and Natural Resources, as well as the National Park Service and U.S. Forest Service. The committee's primary goal is to identify, select and protect outstanding examples of Missouri's terrestrial, aquatic and geologic features that make up the state's natural heritage. Many of the 122 natural area nominations reviewed by the Natural Areas Committee reflect Jerry's contributions.

## Alumni Photos



John Gatchell (AB '46, MA '48), center, works in the field with Joe Bays and "Red," the driller.



Joe Jones (AB '39, MA '40) celebrates his son's wedding in May 1998.

## A profile of commitment— Ernest P. Knirk

by Anne Bussman

When Ernie Knirk walked onto the MU campus for the first time in 1962, he never dreamed he would someday be an influential part of the geology department.

With his enthusiasm and loyalty to the University and the department, Knirk, 56, is a valuable part of the Geology Development Board. He has been a member since 1989 and has served two terms as chair. He lives in Oklahoma City with his wife, Karlene. One of their four children attends MU, and the other three graduated from either Louisiana State University or the University of North Texas.

Department Chair Glen Himmelberg credits the development board for the close connection among the department, alumni and students. Knirk is a significant part of that. "He's certainly one of our most enthusiastic board members," Himmelberg says. "He's a very upbeat and optimistic supporter of the department."

Knirk's father introduced him to the basics of geology while he was growing up in Detroit, Michigan. "The class Principles of Geology caught my attention and hooked me," he says. He received his bachelor of science degree in 1965 and then spent five years in the Army. He added a master's degree to his resume in 1970.

During his time as an undergraduate, Knirk participated in Camp Branson, where he had his first experience with the Rocky Mountains and Yellowstone National Park. Knirk says he welcomed the opportunity to make the connection between what he was learning in class and the real world of geology. "We had a good time in the field doing our mapping," he says, "but that eight weeks was too long. It's now six."

He also recalls difficulty in passing the first physics course in which the flunking rate was 50 percent. He had a class with only one other student in it, and Professors Unklesbay, Johnson, Hubert and Freeman all left a lasting impression.

While Knirk was a student, MU's administration sent the geologists a signal of its approval. The department moved into a new building, and many professors with new ideas in geology and computer literacy were hired.



Since he left MU, Knirk has made a career in the field, but not one "that a geology student would think is geology," he says. He uses a variety of skills, from engineering to economics, in his position. Because of his broad knowledge of geology, he is able to "take a myriad of small facts and assemble them into a prospect for oil and gas," Knirk says.

MU helped him develop the ability to reason through problems, and he learned that a good work ethic is necessary to succeed in business. The Army ROTC program provided money and a structured life for him during college. "Exposure to other types of people and the breadth of education also had an impact on the way I saw the world, and how I fit in it," Knirk says.

He has always had a job exploring or developing oil and gas resources. Like many graduates, his first job was in energy exploration. He was hired by Shell Oil Co. And like many members of the development board, he ended up in Oklahoma, a mineral-rich area of the United States, as are Texas and Colorado.

When Knirk left MU, he already felt a strong relationship to the campus and to the geological sciences department. His involvement with the development board allows him to strengthen those ties, help the staff and students, and come back to campus twice a year. Development board members bring news of changes in the industry, which can result in curriculum changes. Members' input

## ALUMNI

## BOARD MEMBER HIGHLIGHT

helped introduce the new areas of pollution control and water quality, which joined the traditional areas of petroleum geology and clay mineralogy.

The board also helps with fund-raisers for scholarships and other needs, which ultimately help attract top geology students and faculty to MU. "The students are better in quality, and the University needs to find a way to help add more support to the key students," Knirk says.

Knirk is happy to see the department's increased focus on the students and their needs. "The good relationships within the department have helped make a more cohesive geologic experience," he says. "There is an excellent faculty and staff."

As a board member, Knirk appreciates the opportunity to be aware of the activity and direction of the department. In addition, he welcomes the chance to

expose the department to happenings in the industry and "perhaps influence the thoughts a little."

Knirk has some advice for current and future geologists. "Stay broadly and technically trained," he says. "Be open to different employment opportunities, and expect change in the job as well as in geologic ideas. Enjoy it!"

Knirk also has a clear sense of humanity's place in the world, and he realizes more geologists will be needed to help explain it: "The earth around us will be a bigger piece of everyone's concern in the future. Geologists have a good understanding of the earth and its processes."

*(Editor's note: Anne Bussman is a free-lance writer for the College of Arts and Science.)*



Ernie Knirk socializes with Beverly and Ev Kastler (BS '70, MA '72) at the MU alumni reception associated with the San Antonio AAPG meeting.

## Alumni news

**Kathleen Abel** (MA '78) is a crisis counselor with Pro-Life Action Ministries in St. Paul, Minnesota.

**Christopher G. Adams** (FC '94, BS '95) is a project geologist with Geotechnical Services Inc. in Kansas City, Missouri.

**Henry W. 'Hank' Allen** (FC '48, AB '48, MA '49) who was an instructor at MU from 1948-50, writes, "Dr. Keller has had a lasting impact on my life and career. The Dr. Walter D. Keller Endowment is a most fitting tribute to him."

**Carlos Alvarez** (FC '93) continues work as a graduate student at the University of Miami.

**Dana Downs Anderson** (MS '86) writes, "Married in June of this year! My husband is Argentine. We hope to make many trips to the Andes and Patagonia to visit his family and friends. Still working at White Sands and enjoying Cenozoic rift features!"

**Doug Babcock** (FC '78, AB '79) writes, "My new life of trucking, gentleman farming and team roping couldn't be better. Hello to all of my old friends and teachers."

**Art Banet** (MA '76) writes, "So, a certain pair of offsprouts made snowboarding look real easy... too easy! But, now I can attest that yes the slopes are high on the hardness scale; yes gravity still works extra specially on those of us who could know better; yes mountains (and other brittle boarders) can and do blind side you. And no, screaming doesn't help; all that animated arm whirling/waving doesn't maintain any semblance of gyroscopic effect; and no, all that fanny wiggling is for naught. Just call me "Crater." Still and all as long as there's Geritol and Advil, me and my board will be on the slopes again. No field work this year, because of the NPR-A lease sale. I've spent lots of hours integrating stuff on the GeoSatan™ workstations. While the economists were sweating and hoping to see \$15 million, some moron who had predicted the sale could make \$100 million was only \$4 million off. No bonus, but a couple of congrats."

**James E. Barkdull** (FC '53, MA '57) reports a move back to Colorado from Ohio to work prospects in the Rockies, fish and ski, and get his family together in one place.

**Rita M. Bauer** (MS '89) writes, "Recently

relocated to the Boston area. Chris and I are having a great time and enjoying the local history, culture, and sites (sights!). Hope all is well with the rest of the breakfast club."

**Jack Berkley** (MA '72) spent 10 weeks last summer as a NASA Summer Research Fellow at Johnson Space Center working on geochemistry of a xenolith in the EETA 79001 Martian meteorite. In March Jack gave a talk on that research to the 30<sup>th</sup> Lunar and Planetary Science Conference in Houston.

**Mike Bernthal** (FC '79, BS '80, MA '82) writes that his brother, Jeff, was appointed anchor of Channel 11 weekend news in March 1999.

**Bill Berthold** (FC '84, BS '85) is president of Frontenac Engineering in St. Louis, Missouri.

**Joseph F. Born, Jr.** (Student '68-'70) reports that he abandoned his previous three-year stint as a consultant for a more promising position with Vintage Petroleum in Tulsa, Oklahoma. Joe writes, "A great company, great work opportunities, and a great city and people—hallelujah!"

**Chris Bouchard** (FC '72, BS '73) writes, "I am now working on the same campus from which I graduated 26 years ago, and love it. My family is doing great, one daughter is at the University of Illinois and the other is a junior in high school."

**William C. "Bill" Bridges** (FC '56, AB '57, MA '58) reports that he is still working in international consulting. Bill resides in Dallas, Texas.

**Don Buchanan** (FC '68, BS '69) writes, "Retired USAF officer finds enjoyment in teaching geology, oceanography and meteorology courses this last decade. I'm halfway through my doctorate in education at the University of Southern California. Fond memories of Camp Branson, and especially of our Geology Club field trips with Tom Freeman." Don is an adjunct faculty member at San Bernardino Valley College.

**Jack D. Burgess** (MA '55) writes, "Work for the small contractors to the oil business has been devastated by low oil prices. Worked full time through March, and now as needed. Hope our workload increases by fall. Keeping busy traveling and with my hobby at woodworking."

**Bob Busch** (FC '67, BS '67) writes, "My new wife (two years in October '99) and I are still acclimating to one another and living in two

places (northern California and “baja” Oregon). She has opened a real estate business (in Oregon) and I am continuing my late-life career in engineering geology. My boys, now 16 1/2 and 14, are doing well and are beginning to talk college. It has been a very successful golf year that included a 200-yard hole in one!”

**Joe Butera** (FC '67, MA '70) writes, “I’ve been general manager of San Jorge, a privately owned Argentine oil and gas company, for the last 2 1/2 years. Kim and I love it here, and professionally, the experience has been rewarding with a number of new discoveries and a consistent drilling program, even through the ‘price crisis’.”

**Jim Cahill** (BA '58) has retired after 36 years with Lubrizol Corporation. Jim resides in Willoughby, Ohio.

**Joe Callison** (FC '53, BA '56) writes, “Retirement is more fun than anything.” Joe retired from the Los Angeles County Department of Public Works where he worked as an engineering geologist.

**Wayne F. Canis** (MA '63, PhD '67) writes, “Greetings one and all. Enjoy hearing from and about Missouri geology grads via the newsletter. Recent focus has been on the ‘new breed’ of hurricanes—Danny, Mitch, Georges and how they might show up in rock record.”

**Cynthia J. Carroll** (MA '83) continues to work on the promotion and demonstration of alternative fuel projects. Cynthia is an energy specialist with the Missouri Department of Natural Resources in Jefferson City.

**Wendell Cochran** (FC '53, AB '53, MA '56) writes, “Here in Seattle (across Elliott Bay from downtown), long-range editing of geological reports continues—now with the aid of the Linux operating system. What a change from the software produced by the prevailing monopoly, never a crash. Otherwise, genealogy, vegetable gardening, Chinese cookery, intensive reading and kicking pigeons. Ad astra per aspera...”

**Lynn Copley** (FC '97, BS '97) works as an environmental specialist/geologist with Environmental Operations in St. Louis, Missouri.

**John R. Crocker** (FC '50, AB '50) writes, “Retirement is a wonderful profession but extremely competitive in the loafing department. Much to do and not for a

competitive price (free).”

**Anna McClure Cruse** (FC '94, BS '94, MS '97) writes, “Maia Siobhan was born January 10, 1999—48 hours after passing my thesis proposal defense. How’s that for timing? Having passed my defense, now an “official” PhD candidate. Hoping to get a chance to stop by this summer. If not, will see everyone at GSA.”

**J. Torrey Curtis** (FC '67) reports a move from Pauls Valley to Weatherford, Oklahoma in June where he is senior pastor for the First United Methodist Church.

**Rick De Camara** (BS '66, MA '68) writes, “I have changed jobs again in the never-ending battle of staying employed. Currently working 3-D seismic offshore Texas.” Rick is a senior geologist with Louis Dreyfus Natural Gas in Houston.

**Tony Dincau** (MS '89) writes, “Snez and I are doing fine in south Louisiana. Our three kids (Alex-7, Amanda-5, Nicole-3) keep us busy. The oil business has been great, however it has its ups and downs to say the least!”

**John G. Elliott** (FC '74, BS '73) writes that his “work in geomorphology continues to take me to beautiful streams and rivers in Colorado. Now, if I could just find time to get out my fly rod....”

**Jessie B. Ellis** (PhD '59) reports that she is still busily enjoying retirement, walking on a nature trail above the canyons which lead to the Pacific and along the shore where most wave erosional and depositional features can be observed. Jessie resides in Laguna Beach, California.

**Jerome Eyer** (FC '59, AB '60, MA '61) writes, “Currently working research in Ukraine (Chernobyl); assisting AAPG editor for next *Giant Oil and Gas Fields of Decade* 1988-2000 (AAPG memoir); helping a community college re-establish its geology program; consulting on prospects in Russia and FSU (oil exploration).”

**Stanley C. Fagerlin** (PhD '80) writes, “With no summer teaching duties this year I spent six weeks in Europe. Enjoyed time in Budapest, Vienna, Salzburg, Copenhagen, Norway (north of the Arctic Circle), western Sweden (meeting distant relatives) and Antwerp (including a day looking at some Oligocene sections). Spent the last week visiting Sue (Gill) Childs and her husband and daughter in Hampshire, England.”

**Craig Faris** (FC '78, BS '79) writes that he is “doing great and living in the Chicago metro area. I left Amoco in the spring of 1999 to start a management consulting group, Green Bear Visions Ltd., specializing in change management, leadership development, executive coaching and generally helping businesses become flexible and adaptive. For the past several years at Amoco, I was a director in its change management function doing just those things. When Amoco and BP merged this year, I used the opportunity to put together a top-notch team and launch my business. I went back to school (while working) a couple of years ago and earned an MBA from Kellogg (where they fed my entrepreneurial leanings) so I was ready to jump. On the personal side, I am spending lots of time traveling for pleasure and just generally enjoying life—life is good! (Oh yeah, call me if you want the story on my company name.)”

**Ted Flanigan** (FC '77, BS '78) resides in Carson City, Nevada and says “Hello everybody!”

**Robert L. Foster** (FC '60, MA '62, PhD '66) reports that he is exploring gold-bearing hot spring systems (Zeno) north of Austin, Nevada. Rob writes, “Keep your powder dry—this may be the one!”

**Richard D. Foxworth** (MA '58) is an attorney with Foxworth, Shepard and Berry in Columbia, Mississippi.

**James R. Frank** (FC '75, BS '76, MA '79) is a staff geologist with Chevron Overseas Petroleum in San Ramon, California. Jim writes, “Moving to a new house in Walnut Creek. Our Jack is now 1. Other than that, no major changes.”

**Rob Freeman** (FC '81, BS '82) writes, “On the professional side I joined Aquila Energy this past year, an affiliate of the company I had been with, and am part of a power plant development and acquisitions group—lots to learn. Nancy and the three boys are great. Of course we're sure proud of all that dad (Tom Freeman) has done for MU (geology) as he announces retirement.”

**Alice Cooper Fuerst** (MA '80) continues to spend most of her time with youth through environmental education in public schools and through Girl Scouts. She also taught another semester of Geology 101 at a community college. Alice resides in Blue Springs, Missouri.

**Dave** (MS '85) and **Sara Fulton** (MS '85) write, “We've moved again! Salt Lake to Madison in '98 and now to Chicago in June '99. We hope to stay put for a while. Sara assists with elementary school teaching and our kids. Eric is 9 and entering fourth grade and Anne is 6 heading for first grade.” Dave works for Montgomery Watson in Addison, Illinois.

**John H. Gatchell** (FC '45, AB '46, MA '48) reports that he is “still looking for oil and gas in the mid continent. All it takes is sound science (and a lot of money).”

**Glenn S. Golson** (FC '75, BS '76) writes, “Hey field camp '75 dudes! Whatever happened to Mike “Wild” Rice? Give me a shout if you're up my way.” Glenn is an environmental engineer with the U.S. Air Force at Whiteman Air Force Base, Missouri.

**James P. Grady** (FC '80, BS '81) writes, “Hooray for the '98 football Tigers! Not since the days of Bradley, Wilder, Winslow, et al...has there been so much to cheer for on autumn Saturdays. I'm still doing engineering geology. We're working on the foundation for the new arena home of our own champions, the Stanley Cup winning Dallas Stars!”

**Richard Hamilton** (FC '53, MA '55) reports that he is still enjoying his position as director of the Children's Circus camp at Berkshire Community College in Pittsfield, Massachusetts and doing volunteer work at Hancock Shaker Village. Richard also has three grandchildren that keep him very busy.

**Lori Hathon** (PhD '92) writes, “Eric and I celebrate our 16th anniversary this year! Louis Michael Hathon is now 1 year old and Sara Jane is 5! How time flies! At least as of this writing I'm still alive in the oil patch. Soon there will just be one large company—Standard Oil of Britain (i.e. BP).”

**Joseph E. Hazel** (FC '54, AB '56, MA '60) writes, “We are creeping up on year 2000. Rather than deal with Y2K computer glitches, I may just retire! Best to all.” Joe is a Professor at Louisiana State University in Baton Rouge.

**Robert Heller** (FC '77, BS '79) reports that “after 13 years in Asia moved back to the United States and am currently located in New Jersey. Working for Saybolt Inc., a division of Core Lab as area manager on the East Coast now on the downstream side of the petroleum business. Family and I enjoyed the move and back to four seasons.”

**Troy L. Holcombe** (FC '62, MA '64) reports that on January 2, 1999, he retired from the federal government after 31 years. Troy now has a research position with the University of Colorado. He writes, "I can continue to do the fun and interesting scientific and professional pursuits, unburdened of government duties. I'm working on a plan to spend the winters somewhere south (Texas?)."

**W. Franklin Hooper** (MA '59) writes that he is "still working but the flights overseas now seem much longer and the business has changed. Looking forward to moving to the ranch in the 'hill country.'"

**Edith Roper Horrell** (FC '78, MA '79) writes, "The years are zipping by and the kids are growing and into more activities. Somehow I don't seem to find much time for fossil collecting anymore. Maybe someday in the future. I run the fifth grade 'Hands On' science program at our school and try to catch up with Bill Mills and Jerry Yunker two to three times a year."

**William C. Hood** (FC '58, AB '59) reports that he is still enjoying retirement in Grand Junction, Colorado where he keeps busy with volunteer work in the area.

**Bradley K. Johnson** (FC '97, BS '97) is working in exploration and quality control for MI Drilling in Greybull, Wyoming.

**Harold "Hal" E. Johnson III** (FC '97, BS '98) writes, "Had I completed what I started in 1980, it would be field camp '83, BS '84. I guess that if you take the correct forks-in-the-road you end up full circle. Also, if I had my way, it would be field camp '83, '84, '85, '86...? On a different note, my wife Ruth and I had our first child, Daniel, in April 1998. Maybe he'll be field camp '19, BS '20...?"

**Art Kasey** (Student '65-'70) writes that he is in his 29<sup>th</sup> year of teaching geology and other geosciences to Fox High School teens in Arnold, Missouri. Art writes, "I still love the challenge. The students really enjoy the new outdoor geoscience student research station."

**Everett Kastler** (FC '69, BS '70, MA '72) writes that he is still waiting for the outcome of the Exxon/Mobil Merger.

**Brian P. Kelly** (FC '86, BS '86, MS '91) writes, "I've been a hydrologist with the USGS since 1991 studying ground water in alluvial systems. Mary Alice and I have three children ages 7, 6

and 3 so we're busy, busy, busy. Drop us a line; we'd love to hear from you."

**Robert M. Kick** (FC '77, BS '78) writes, "I continue to work at The Forrester Group, an environmental consulting firm, in Springfield, Missouri. This year has been very challenging as I've lead several major projects including remediation of the manufactured gas plant in Kirksville, Missouri, and the delineation and removal of over 300 drums of buried wastes from a site just south of St. Louis, and many other projects. From time to time I still miss the oil patch. Laura (age 8) and Daniel (age 5) keep Beth and me very busy, but happy. In only 10 short years, Laura will start college. Please call if you have time in Springfield!"

**David T. King, Jr.** (PhD '80) has started a new course in planetary geology at Auburn University. He writes, "Still teach stratigraphy and various introductory courses. Have to date supervised 13 master's students. Drilling at Wetumpke crater in Alabama last summer yielded impact breccia and shocked quartz. Working now on KT boundary studies in Italy and Spain. Will visit impact craters in South Africa, Namibia and Zimbabwe this summer."

**Ernie Knirk** (BS '65, MA '70) reports that the oil business is still a thrill! He writes, "Karlene and I are enjoying our tour in Oklahoma City which is close to grandkids in Dallas."

**Paul C. Knowlton** (FC '50, AB '52) resides in Covington, Louisiana.

**Larry Knox** (FC '75, MA '76) is now working for Sonat Exploration in Houston, Texas.

**David Korte** (FC '97, BS '98) is a seismic data processor with Western Geophysical in Houston, Texas.

**Romaine L. Kupfer** (MA '49) writes, "Don and I had a very interesting trip to Sicily in March, staying in the hilltop town of Taormina, not far from snow-capped Mount Etna, which was venting great clouds of steam on March 13, Dr. W.D. Keller's 99<sup>th</sup> birthday."

**Troy Laswell** (FC '49, PhD '53) writes, "My time in retirement is spent in honey-do jobs, volunteering with the Natural Resources Conservation Service, arthritis exercise program at the hospital, church duties, Kiwanis—oh, I keep busy—no couch potato."

**James D. Loch** (PhD '92) reports that he attended the eighth International Symposium on the Ordovician System, GSA in Toronto, and the

GSA North-Central section meeting at Champaign-Urbana, Illinois. Jim was tenured and promoted this past summer to associate professor at Central Missouri State University in Warrensburg.

**C. Frederick Lohrengel II** (MA '64) reports a busy year at Southern Utah University converting from quarters to semesters. Fred writes, "I still look forward to going to work each morning. It is easy to understand why Dr. Keller still comes in each day."

**Stuart Maier** (FC '76, BS '76) reports that he is "working salt domes in South Louisiana from Oklahoma City—ain't technology great!"

**Brian Manz** (FC '95, BS '95) writes, "In the past eight months I have finished a master's in civil engineering at Colorado State University, started a new job with Burns & McDonnell in Kansas City, planned a wedding and built a house. Now I am taking a much-needed vacation."

**Melvin Marcher** (MA '54) is still in the business of buying and selling rare and out-of-print books and doing a few book shows in Texas and Arkansas. Melvin attended a USGS (WRD) reunion in Pennsylvania last October and took the opportunity to visit Philadelphia, Gettysburg, Valley Forge and Niagra Falls.

**Cheri Hall Marks** (FC '95, AB '95) reports that she is back at MU advising students on how to finance their education. Cheri is a financial aid adviser at MU where she is "anxiously awaiting to talk to future field campers."

**Dave Martin** (FC '86, BS '86) writes, "We now have three wonderful kids, Ashley (6), Jamie (5) and Drew (almost 2). Drew loves looking at rocks already. My business is doing very well. We have approximately 30 employees." David is CEO of ITIC Inc. in Denver, Colorado.

**Robert C. Mason** (FC '50, AB '51, MA '52) reports that he is still drilling wells in Texas. Robert is president of Mason Exploration Co. in Houston, Texas.

**Keith S. Matlack** (MS '86) continues research and development on vitrification of Hanford tank waste. Other work includes diagenetic changes in fossil shark teeth.

**Earle F. McBride** (FC '54, MA '56) writes, "Research projects the past summer took us to Italy, Switzerland and Hawaii—but it was all work. Sort of."

**Timothy McHargue** (FC '70, BS '71, MA '74) writes that seismic stratigraphy of Angola, China

and Nigeria still keep him busy. Tim presently works as a senior staff geologist for Chevron, but says that he will probably move to the San Francisco area.

**Greg Mehlhose** (FC '93, BS '94) is working at Western Extralite as a programmer/network administrator. Greg writes, "Enjoying life. Recently got engaged to my long-term girlfriend, Shawna. The wedding is sometime in 2000."

**Robert C. Miles** (FC '74, BS '75, MA '77) writes, "After six great years in Egypt, we returned in the summer of 1998 to mergers and layoffs. I made the jump in the spring of 1999 to real estate, which I am loving so far. Family is doing great—our two daughters are a senior and sophomore in high school."

**Jim P. Miller** (FC '57, AB '59, MA '63) writes, "Retired in June from Chevron after almost 36 years. Still learning how not to work for a living. Pretty good job, so far."

**John C. Miller** (FC '65, MA '68) writes, "In about two years I expect to retire. Mary and I already have the travel trailer. However, retirement will be a part-time thing. Will continue to be involved in water resources consulting, particularly in Mexico."

**Gary Minke** (PhD '69) reports that he is staying active in the earth science area. Gary writes, "My newest duty is chairman of the advisory board on the environment of Park County. I am also program chairman of the Park County Symposium. As an active member of the Park County water preservation coalition I also stay current on the groundwater issues."

**Tola B. Moffett** (MA '73) continues to consult. He writes, "Doing lots of landfill work—site evaluations, ground-water monitoring statistics, remedial evaluations. My older son is a junior at the University of Alabama; my younger son is a freshman at the University of Alabama. My daughter is a sophomore in high school. My wife, Gladys, teaches anatomy, advanced biology at local high schools. Best wishes to all!"

**Dennis Murphy** (FC '73, BS '74) writes that he continues his career odyssey, moving late last year from hydrogeologist to manager of data integration and GIS for the Delaware Department of Natural Resources. At home, Dennis keeps busy remodeling their 100 year-old home.

**Russ Murphy** (MS '86) made the transition to Kerr McGee from Exxon in May 1998. Russ writes, "Miss the old friends but love the new company. Keeping busy at home with a new addition to the family, a great dane puppy. All the best to Kevin Shelton, Wes McCall and John Rockhold."

**William J. Neal** (MA '64, PhD '68) writes, "Congratulations to Dr. Keller on yet another milestone, and for continuing to be a role model. And the same to Tom Freeman, too bright and talented to retire completely—geology still needs you!"

**Dennis Ojakangas** (FC '57, MA '58) writes that he "retired eight years ago, but busier than ever! Travel, family care, church activities, gardening, home and mountain cabin maintenance, two-year grand jury stint, golfing and jogging."

**Henry L. "Hank" Ott** (FC '52, AB '53, MA '58) writes, "I think the family has maxed out at eight grandchildren with the birth of Charlie Ott on September 14, 1998. Charlie now has the total responsibility of carrying on the family name for one more generation. How about another Camp Branson reunion in a year or two. The first (last) one was great."

**Eric Page** (FC '89, BS '91) recently relocated to the Houston, Texas area where he still enjoys field work. Eric is an assistant project geologist with URS Greiner Woodward Clyde.

**Elmer Patterson** (FC '48, AB '49, MA '50) resides in Roswell, New Mexico where he keeps busy with clubs and social obligations, and reading geologic publications.

**Robert Pauken** (FC '65, PhD '69) writes, "Awaiting changes associated with the merger with Exxon. Participated in an excellent field trip to Karroo Basin in South Africa to see deep water clastics led by Arnold Baoma last summer."

**Stephen T. Phillips** (FC '78, BS '79, MA '81) reports that he has "moved on after 17 years at Chevron. I am now surrounded by petroleum engineers. They're OK once you get used to their ways. Otherwise leading a stable existence—set a personal record for living under one roof. Continue to appreciate the newsletter and excellent work by faculty and staff."

**George R. Pinkley** (FC '24, AB '26) continues oil and gas consulting as well as oil and gas

research. George resides in San Antonio, Texas.

**Mike Quearry** (FC '74, BS '73, MA '75) writes, "We are blessed with family, friends, church, community, jobs and good health. I work Brazil for Texaco, and Eva is helping her boss get rid of the IRS! We've enjoyed visits with family and friends since the last newsletter. We've also traveled to the Caribbean, Italy and Brazil. God has blessed us richly—we wish the same for you."

**Hal Quinn** (MA '86) writes, "Howdy to everyone at the geology department. Beth and I are living in Huntsville, Alabama. I am working for Intergraph, and Beth is running a travel agency. A special hello to the attendees at the 'Ken Chapman Puppy Picnic.' Beau is 16 now and retired but still 'getting along' fine."

**Scott Raymond** (FC '71, BS '72, MA '74) writes, "Hi everybody. Another year in the oil industry, one year closer to retirement, mergers and layoffs.....the geology department should start offering a course in survivalist training. Hey, it hasn't really been too bad. I'm even becoming more optimistic; being in Colorado certainly helps."

**John Repetski** (FC '69, MA '73, PhD '75) writes, "Sons Rocco (13), Matt (11) and Trey (8) continue trying to find the limits of activities that Donna and I can chauffeur them to and from. Rocco received his first college scholarship (hopefully not his last!), a course of his choice at George Mason University, for scoring above 700 in math on the SAT last spring. He and Trey won trophies in Virginia's '99 scholastic chess tournament. I'm working on four to six USGS projects; one is in the Cambrian-Ordovician of the Missouri Ozarks, to understand the hydrogeologic framework in an area of proposed lead mining. And, coming full circle from early in grad school, I'm joining old office mate Dave Leach on Dave's new project on life cycles of MVT deposits. Donna's gardening is moving away from veggies (too many deer) in favor of more flowers, especially red ones, for the hummingbirds."

**Carl B. Rexroad** (FC '48, AB '49, MA '50) continues work on Pennsylvanian conodonts including ecology and biostratigraphy. Carl writes, "Much more leisure travel than usual including a November trip to Hawaii, a January Caribbean cruise and a May into June trip to Alaska. I had collected all 48 states before high

school. Now I have the later additions.”

**Sharon Rudolph** (FC '76, BS '77) still has her GIS mapping business in Anchorage, Alaska.

**Lloyd Schmaltz** (FC '52, MA '56, PhD '59) writes that he received the Western Michigan University Foundation Bill Brown Award for Exemplary Service and Leadership.

**Eugene “Buddy” Schweig** (FC '74, BS '76) writes, “Eternally with the USGS. The project with the Panama Canal Commission has ended and we are starting some seismic hazard work in Puerto Rico. We are making great headway on a seismic hazard map of Memphis. My oldest kid is entering high school.”

**Timothy Sheehan** (FC '82, BS '82, MS '89) writes, “Kim and I rented a Ryder truck, and hauled three cats, a dog and all of our worldly possessions 2,700 miles from the land of limestone and rivers in Tennessee to the land of volcanoes and beaches in Eugene, Oregon. I'm doing computer science research at the University of Oregon—one of my projects deals with mid-ocean ridge modeling—and Kim is a professor of advertising there. Hello to the hard rockers and to Ellen Menown.”

**Warner “Bud” Sherman** (FC '89, BS '89) writes, “After almost six years with the Department of Natural Resources in Jefferson City and Springfield regional office, I am currently senior project engineer at ESC Consulting in Springfield, Missouri.” Bud is married and has two children (Jesse, 5 and Jody, 4). They operate a registered angus farm in Polk County in their spare time.

**Marshall K. Shurnas** (FC '46, AB '47, MA '49) wants to wish Walter Keller a very happy birthday!

**Sarah Simpson** (FC '96, BS '97) is an editor with *Scientific American* in New York City.

**Steve Sisk** (FC '69, BS '70, MA '72) writes that he is “still working for the EPA in Denver and actively pursuing hobbies—skiing, hiking, backpacking, traveling and mountain climbing. Looking forward to retirement in four years so I can enjoy hobbies fulltime.”

**Neil D. Skilton** (Grad Student '75-'79) writes, “Just for the record, I am working (yes, believe it or not—for all those doubters that never saw me do any at Mizzou) as a consulting geologist with my own company, and recent travels have taken me to Myanmar, Laos, Algeria, Tunisia, Ghana and Gabon. I am currently working for

ARCO in Ecuador, and have mainly concentrated on South America since moving to Costa Rica 17 years ago. I have just finished building a house, and pride of the place is a snooker table in the front room—so whenever Dacre or Steyaert are ready ‘Come on down.’ George, I can still WYA.”

**Maynard Slaughter** (FC '54, MA '57) presently resides in Golden, Colorado where he is a professor emeritus at the Colorado School of Mines.

**Harlan Stark** (AB '51) reports that he is working with video productions, doing some hobby farming and gardening, and a little prospecting.

**John Stewart** (MS '84) is a geologist with BPA Environmental and Engineering in Greensboro, North Carolina.

**Ron Stoufer** (MA '75) and wife Karen began work in March as United Mission to Nepal's director of rural development. Ron writes, “I am helping the Nepali staff finish up the evaluation reports for the rural development project in eastern Nepal that we have been working in for the last four years. It looks like we will be in Nepal at least two more years.”

**Wendy Straatmann** (FC '93, MS '94) has been working the past year on Gulf Coast exploration of overpressured Eocene Wilcox gas sands. Wendy writes, “The stratigraphy and structure of the sands are very complex—how did we ever find hydrocarbons without seismic? Warren and Kate (3) continue to be wonderful. I am sure Kate is a budding geologist as I have discovered her rock (gravel) collection under her bed.”

**M. Ray Thomasson** (FC '49, AB '59, MA '53, PhD '59) writes, “The year was a busy one filled with a lot of AAPG activities as well as AGI activities. I was pleased and surprised to be awarded the first Distinguished Service Award by the University of Wisconsin at the 150<sup>th</sup> anniversary. The oil business continues to struggle but Thomasson Partner Associates is thriving.”

**Michae L. Trout** (FC '67, AB '68, MA '74) writes, “As if being in the petroleum business was not uncertain enough, I decided to go to a country (Indonesia) undergoing political change with a company who shortly after my arrival was put up for sale (unrelated events).” Mike resides in Singapore, Indonesia, where he works for Gulf Indonesia Resources as senior staff geologist.

**Laurence “Larry” Trudell** (FC '52, AB '56) writes, “Since I retired in Glenwood Springs, I

have come to believe this is the best hot springs spa in the country. If you have never tried it, you owe it to yourself to visit the world's largest hot springs pool. It makes 80-year-olds act like kids and cures all pains. The Indians knew its magic."

**George J. Ulmo** (MA '79) writes that he is "hanging on during this oil slump—waiting for the next boom. Best regards to everyone."

**Jerry D. Vineyard** (FC '57, AB '58, MA '63) continues work with the Missouri Department of Natural Resources as the Interstate Rivers Director in Ozark.

**John H. Wall** (PhD '58) writes, "I'm involved in Mesozoic biostratigraphic studies of the Sverdrup Basin (Canadian Arctic Islands) as a contributor to multidisciplinary papers on the geology of the region. Additional activities include (1) research for an impending presentation to the local Petroleum History Society on the early application of micropaleontology to hydrocarbon exploration in the Western Canadian Plains, and (2) ongoing curation of GSC microfossil collections."

**Tom Ware** (FC '47, AB '50, MA '51) recently finished a 9-by-13-foot sculpture of the nine Muses for the Colorado Academy in Denver.

**Roy J. Weidle** (FC '80, BS '80) is a cartographer with NIMA in O'Fallon, Missouri.

**Robert "Bud" Weiser** (FC '57, AB '58, MA '60) reports that he is still living on Lake Norman (north of Charlotte, North Carolina) and running his training and consulting business. Bud writes, "Hanging out at our beach condo at the Isle of Palms (Charleston, South Carolina area) and our mountain home near Mt. Rogers west of Galax, Virginia. Been married 41 years to the gal I met across 'the alley' at MU, had three sons, two daughters and now three grandsons to spoil. Had two interesting business trips early in the year to the Kuala Lumpur, Malaysia, area, via Hong Kong and Singapore, then later to the Philippines and Taiwan. Went around the world each time in opposite directions. Found out that going west to east is much faster, flight time, due to going with the jet streams. Next year you might see me promoting my 'prostate cancer research foundation' due to my now taking hormonal treatment for it. Would appreciate hearing from some of my

former compatriots by e-mailing me at [lubeman@i-america.net](mailto:lubeman@i-america.net)."

**Lee Wilkening** (FC '79, BS '80) is working as a hydrogeologist for Phelps Dodge Mining Co., securing water resources for its operations worldwide. Lee writes, "Crossed paths with Tony Daus (Geomatrix Consultants in Costa Mesa, California) the other day, but have lost track of most everyone else by now. Send info for this department newsletter next year so that we can keep up to date on where you are and what you're doing these days."

**James H. Williams** (FC '51, AB '51, MA '52) reports that he "continues to emphasize the interrelationships between geology, water, surveying, construction on dams, public safety and environmental protection. This includes digitally formatting all this for public use with GIS emphasis and not lose the traditional savvy personal touch."

**Eddie Williamson** (MA '73) retired from Amoco by mutual agreement upon its merger with BP. Ed says that he hasn't decided yet what they're going to do but a possibility is to move back to Missouri. He writes, "It's great discovering that there is life beyond work!"

**Brian Wingbermuehle** (FC '97) is working at the Weldon Spring site remedial action project for uranium and thorium contamination clean-up. Brian is a soil geologist with Trileaf Corp. in St. Louis, Missouri.

**Mark Yanoski** (FC '80, MA '83) writes, "We are still developing Upper Devonian prospects and trying to get a reasonable price for our product when (if) we can sell it. Best of luck to all of you who may be affected by the recent 'merger mania' in the oil and gas/environmental industries."



## In Memoriam

**Max E. Ferrell** (FC '35, BS '36, MS '40) passed away on October 13, 1998, while residing in Littleton, Colorado.

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Ed Van Hees, postdoctoral fellow, takes his lunch to one of our brown-bag seminars.

From left, Diane Boyer, Ellen Ye, Shannon Heard, Cathy Zumsteg, Kim Hoke and Carey Costello share early semester experiences at our fall department reception.





