

ROUND UP
1999

Department of Geological Sciences
University of Kentucky

LETTER FROM THE CHAIRMAN

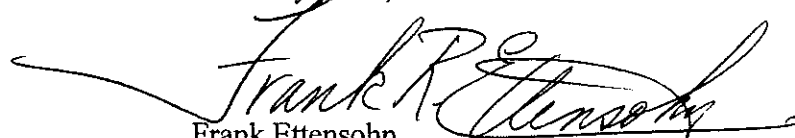
Dear Friends of the Department,

Once again on behalf of the Department, I would like to extend greetings to all the members of our geologic community. This semester, the Department is in the process of preparing a self study in anticipation of an upcoming five-year review. I think we are all aware that the Department is changing and growing, and as we prepare that study, I would like to share with you some of the highlights apparent during that process, which suggest that we are changing and growing in appropriate directions. In the area of research and graduate education, 70 percent of our faculty are now funded, and Department has garnered more than \$600,000 in external funds, our highest amount ever. This funding is partially responsible for our largest ever group of active graduate students, including 11 Ph.D. and 22 M.S. candidates. These students together with our undergraduates presented a total of 19 papers at regional and national meetings last year, while the faculty presented a total of 37 papers in the same period. Moreover, some of the faculty have been invited to present their work at conferences around the world, including England, Germany, Egypt, South Africa, Canada, and Norway. Faculty also continue to hold editorships on the boards of three prestigious journals, and one faculty member even presented testimony in front of a Congressional committee.

In the area of undergraduate education, ten undergraduate degrees were awarded last year, our highest number in some years, and our new undergraduate curriculum has been fully implemented. In fact, the demand for the new lower level courses has been so high that we lack adequate faculty and teaching assistants to meet all the required sections, and some of our adjuncts have eagerly helped us to pick up the excess load. In addition, our Special Title Series Professor, Paul Howell, was tenured last year, and we brought on board three new adjunct professors.

These accomplishments do suggest a tremendous amount of progress in the Department, but if the Department is to attain its fullest potential in meeting changing societal, State, and University needs, we must have increased support from the University, and the faculty must be willing to move beyond their traditional fields of expertise and be willing to seek collaborative ventures in all sorts of nontraditional venues. Some of this is already happening as we bring on new faculty members and replace retirees. In fact, at the end of this academic year John Ferm and Ron Street will retire, and we have College support in replacing them over the next two years with new faculty who are willing to be innovative and collaborative beyond the traditional realms of geology. Of course, as alumni(ae) and friends of the Department, you can also play important roles as our advocates to the administration and as supporters in terms of ideas and student aid (see pages 20-21). However it is that you choose to support the Department, we do look forward to hearing from you.

Sincerely yours,



Frank Ettensohn
Professor and Chair

DIRECTORY

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Frank R. Ettensohn

John Kiefer
Gerald Weisenfluh
David Wunsch

Professor

Richard I. Barnhisel*
John C. Ferm (deceased 11/16/99)
Nicholas Rast
William A. Thomas

Technical Staff

James A. McHugh

Associate Professor

Paul D. Howell
David P. Moecher
Kieran O'Hara
Susan M. Rimmer
Ron L. Street

Administrative Staff

Debra A. Smith
Mary S. Johnson

Assistant Professor

Alan E. Fryar
Slawomir M. Tulaczyk

Emeriti

William R. Brown
Lois J. Campbell
William J. Dennen
Irving Fisher
Donald C. Haney
William C. MacQuown
Bruce R. Moore
Thomas G. Roberts
Lyle V.A. Sendlein
John Thraikill

Adjunct Faculty

Donald Chesnut, Jr.
James C. Cobb
James S. Dinger
James A. Drahovzal
Cortland Eble
Stephen Fisher
Uschi Graham
Stephen Greb
James C. Hower

* Joint with Agronomy

**ADVISORY BOARD
DEPARTMENT OF GEOLOGICAL SCIENCES**

Chairperson: New Chairperson is needed.

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Lock Raven 301
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Box 5044
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ANNOUNCEMENTS

2000 ALUMNI WEEKEND

The UK Alumni Office has announced a 50th Anniversary Reunion for the Class of 1950, and that will be held April 14-16, 2000.

Both the Department Alumni Weekend and the Class of 1950 Reunion will have scheduled activities, which we will coordinate insofar as possible. We will send a detailed announcement of Alumni Weekend, along with information about the Class of 1950 Reunion. By scheduling these events on the same weekend, we hope that members of the UK Geology Class of 1950 will attend both events.

Geological Sciences Alumni Weekend has been set for April 13-15, 2000. Mark your calendars!

E-MAIL ADDRESSES

The alumni directory now includes e-mail addresses. Please send yours if it is not in the directory.

CO-OP PROGRAM

The co-op program (matching students with summer and/or part-time jobs) needs help to identify available jobs, and the requirements for staffing them. A similar search for qualified and interested students is underway in the department. Contacts for the program are:

for the Advisory Board

Stephen B. Sullivan
4610 Deepwood Ct.
Louisville, KY 40241
Telephone 502-587-2641

for the Department

To be appointed
101 Slone Building
Lexington, KY 40506-0053
Telephone: 606-257-3758

If you know of a job opportunity (or a possibility of one), please contact Steve or the Department. We hope to provide some meaningful work experience for our students, and to provide employers with some enthusiastic young geoscientists as temporary workers. The potential for mutual recognition of future full-time opportunities is also present.

DEPARTMENT NEWS

GEOLOGICAL SCIENCES ALUMNI WEEKEND AT UK

1999 Alumni Weekend

Those who signed in for the 1999 Annual Alumni Weekend and participated in some of its functions included:

Steve Wood	Walter Johnson
Ann Watson	Dave Kreeger
Elizabeth Haynes	Sunil Mehta
Steven Jusczyk	Dave Campbell
Karen Exton	Mike Cleary
Frank Ettensohn	Kieran O'Hara
William A. Thomas	Matt Gregory
Jill Krukoski	Jim Cobb
Shane Schmidt	Seth A. Berman
Steve McDowell	Slawek Tulaczyk
David Moecher	Rick Xedos
Jim Drahovzal	Jeffrey Hall
Walter Johnson	John Kiefer
German Bayona	Steve Stanley
C. Douglas R. Graham	Nicholas Rast
Jack Wilhoit II	

The 1999 McFarlan Lecture, "Secular Oscillations in the Mineralogy of Dominant Carbonate-Secreting Organisms Driven by Tectonically Forced Shifts in Seawater Chemistry," was given by Dr. Steven Stanley, Department of Earth and Planetary Sciences, The Johns Hopkins University.

The weekend program included a field trip on Friday afternoon: Ordovician paleontology led by Frank Ettensohn. The annual picnic was held at the Kentucky Horse Park on Friday evening.

Alan Fryar organized the annual Geological Sciences Alumni Symposium program which included the following presentations:

Analysis of aquifer test data at selected locations in the Eastern Kentucky Coal Field, Robert Andrews, Graduate Student, Department of Geological Sciences

Subsurface characterization of a new clastic, gas-producing unit at the base of the Mississippian Big Lime in southeastern Kentucky and northeastern Tennessee. Matthew Vest, Graduate Student, Department of Geological Sciences

Geology of the Battle of Perryville, Richard Xedos and Matthew Gregory, Undergraduate Students, Department of Geological Sciences

Stratigraphic relationships of Cretaceous and Paleogene deposits, and their tectonic implications; central Peloncillo Mountains, Hidalgo County, southwestern New Mexico, German Bayona, Graduate Student, Department of Geological Sciences.

Cool stuff to image in pseudotachylite using the electron microprobe and scanning electronic microscope, Michael Cleary, Undergraduate Student, Department of Geological Sciences.

This year's program again combined our annual Department Awards Program with our annual Alumni Banquet. Thanks to contributions from alumni, student attendance at the banquet was high, and the awards program was an enthusiastic climax to the Alumni Weekend. The significant awards to students were impressive and the list begins on page 10 in the *Round Up*. In addition, some less-than-serious but traditional awards provided lighter, humorous moments.

The next Alumni Weekend has been set for April 13-15, 2000. Mark your calendars.

Debra Smith

Debra Smith, who has been our Departmental Administrative Assistant for the last eight years, has left the Department for a higher level position in the larger Department of Psychology (no, we didn't drive her crazy). When Debra arrived eight years ago, she found much of the Department's financial and administrative records in disarray. She has been largely responsible for reorganizing those records, developing new procedures and rigorously maintaining those records and files so much so in fact that our office has at times been a model for other College departments. In the process, she won an Outstanding Staff Award. We are certainly grateful for what she has done, and wish her well in her new position, where she will be doing for them what she has done for us. Debra has continued to work part time for us until her replacement arrives on November 8.

Mary Sue Johnson

We wish to thank Mary Sue Johnson, our Staff Associate, who has done double duty for the last six weeks while we were seeking Debra's replacement. It's been a long six weeks for Mary Sue, but she has done very well, and we all look forward to Debra's replacement.

Replacement for Debra A. Smith

Pamela K. Stephens, formerly in the Department of Education and Counseling Psychology in the College of Education, will take the position vacated by Debra Smith last month. Pam has worked at the University for the last three years and has many of the same skills and attitudes as does Debra. Before coming to the University, she worked as a business manager for a local church for five years, and she has been and continues to be a personnel staff NCO in the U.S. Army Reserve. She is also no stranger to geology as her brother, Brian Baker, received his two degrees in the Department. In short, Pam is excited to be joining us and we are glad to have her with us because she brings with her some of the same diligent, aggressive, and proactive qualities that were apparent in her predecessor.

AWARDS AND HONORS

James Cobb, Adjunct faculty from the Kentucky Geological Survey, was named the Survey's new Director and State Geologist.

Cortland Eble, Adjunct faculty from the Kentucky Geological Survey was named a Fellow of the Geological Society of America in honor of his promotion of the science of geology through his professional endeavors and contributions to the society.

John C. Ferm, Department of Geological Sciences, University of Kentucky, Distinguished Service Award in special recognition of contributions to the advancement of coal geology and for his dedication to students of the earth sciences—presented by Dr. Donald C. Haney, State Geologist and Director, May 14, 1999.

Paul Howell, Department of Geological Sciences, University of Kentucky, promoted to Associate Professor, and for a second year, was named a National Association of Geosciences Teachers (NAGT) Distinguished Lecturer, and received one of the College's Top Teacher Awards.

James Hower, Adjunct faculty from the Center for Applied Energy Research was named editor-in-chief for the *International Journal of Coal Geology*. Dr. Hower was also promoted to the rank Full Adjunct Professor, one of the very few adjuncts in the entire University with this rank.

William MacQuown, emeritus faculty member in the Department of Geological Sciences, was presented an honorary membership in the Eastern Section of the American Association of Petroleum Geologists (Columbus, Ohio) for distinguished service.

William Thomas, Department of Geological Sciences, University of Kentucky, was asked to testify in support of EDMAP in front of a Congressional Committee.

ALUMNI NEWS

William (Drew) Andrews, B.S. 1993, M.S. 1997
Currently employed in the Coal and Minerals Section of the Kentucky Geological Survey.

Allan Axon, M.S. 1987, Ph.D. 1992
I have left the North Carolina Geological Survey to take another job in the Department of Environment and Natural Resources. I will be geographic information systems (GIS) administrator for the department. Amy (Evans) is program manager of North Carolina's Injection Well Program in the same department.

Bob Baird, B.S. 1979, M.S. 1981
I've been running my own environmental consulting business, aptly named, Environmental Consulting, Inc., since 1995, primarily concentrating on assessment for real estate transactions. I am running for a third, three-year term on our county Henricopolis Soil & Water Conservation District Board, and was appointed in 1996 by the then governor, George Allen, as a member of the Virginia Board for Geology, which certifies professional geologists in the state.

In my "spare time," I became interested in day trading from a friend, Craig McBurney, who was

doing day trading and who went on to found a distance-learning trading training firm. Seeing a great need for proper education and instruction, we collaborated on a book about this, *Electronic Day Trading to Win*, published in July, 1999, by John Wiley & Sons. Although the crumbling Wall Street brokerage establishment is screaming about being left behind in the dust, the disintermediation process afforded by the advent of the Internet makes inevitable the move online and electronic trading, and their timely demise. We have also created a new cartoon series, *Bokersaurus*, the first regular cartoon series to poke fun at the staid and stuffy world of investing and the stock market. Our websites are www.bokersaurus.com and LearnTradingOnline.net. Several *Bokersaurus* cartoons are in the book.

My wife, Martha, and I have one married daughter, Kym, who is the proud new (February 1999) mother of daughter, Hannah! Our son, Robby, will graduate from high school in 2000, and is an aspiring classical composer and concert pianist.

Nancye Dawers, B.S. 1984

After three years in Britain, I am soon to move back to the United States. I'm currently looking for an academic job. In the meantime, I plan to finish off some papers and do some fieldwork in Owen's Valley in California.

Timothy D. Elam, M.S. 1981

I continue to work for Chevron as a petroleum geologist in Bakersfield, California. I work closely with Production Engineering and Operations at Cymric Field, a heavy-oil steam drive field in the San Joaquin Valley.

On weekends, I go from being a paid geologist to being an unpaid one. I continue to spend lots of time as a board member of the Buena Vista Museum of Natural History. Our big event for the year was bringing Dr. Robert Bakker, the dinosaur enthusiast, to Bakersfield for two presentations. Since the beginning of the museum three years ago, I have been responsible for securing and presenting displays of rocks and minerals, petrified wood and plant fossils, invertebrate fossils, and California geology. Fossils from the Mississippian and Pennsylvanian of eastern Kentucky and Ordovician of central Kentucky are prominently on display. Love those I-64 roadcuts! Also, I continue to be involved with science education in the Bakersfield City School District. My wife, Pat, continues to be involved with many functions at our church. Here's to the U.K. Geology

faculty, which 20 years ago, nourished my geologic interests. Geology continues to be my vocation and avocation.

Elesawi K. Esawi, Ph.D. 1998

I accepted a job at Alice Lloyd College, a small private college in eastern Kentucky. I am teaching physical geology, physical science, and a computer class. I told them I could also teach a camel-riding course, but that is not offered this semester.

R.E. Farmer, B.S. 1948

Surviving and coping at a level higher than I had expected. Still book collecting. Anyone know where I can find volume I of Hedin's *Central Asia and Tibet*?

Russell J. Ford, B.S. 1949, M.S. 1950

I currently operate R.J. Ford, Inc., a petroleum production company. I spend my free time traveling and fishing.

Robert J. Gibson, B.S.

Playing golf regularly, active in stock market. Taking a class in oil painting. Living a bachelor's life since the death (12/10/97) of my very beloved wife, Gladys Morton Wilson, 1929 graduate of U.K. with a major in mathematics. She was a very intelligent gal. Retired in 1973 as Vice President of Marketing, Louisville Cement Company of Speed' Logansport, Indiana. 1973-1986 operated as Gibson Enterprises marketing mining equipment in the United States and Canada.

Jeff Ginn, B.S. 1993

I am currently the environmental coordinator for United Parcel Services in Louisville, Kentucky. Late in 1998, my wife and I welcomed our second child, Brittany, to the family. We also have a three year old son, Jeffery.

William G. Haag, B.S. 1932, M.S. 1933

Have been retired since 1978. Emeritus alumni professor in anthropology, Louisiana State University. Went from assistant professor and curator of museum of Anthropology at the University of Kentucky (1937-1949) to University of Mississippi (1949-1952) to Louisiana State University in 1952. Ph.D. in Anthrozoology (anthropology and zoology), 1948 from University of Michigan. Field archaeologist with TVA (1934-1937). Second marriage in 1983. Live on ox-bow lake, False River.

Monroe Hall, B.S. 1956, M.S. 1961

Moved to Indianapolis in August. I should have moved here years ago. Not too many rocks to beat on, but a super city. Am enjoying retirement. I recommend it to everyone.

Lee Higgins, M.S. 1986

The joys of being a husband and a father keep me extremely busy. In the meantime, I am fortunate to have been able to travel and see lots of geology from the jungles of Papua New Guinea to sub-Saharan Africa. I have had the opportunity to work as an explorationist for Mobil and ARCO International and for myself as owner of Chelsea Energy, Inc. (named after my youngest daughter). The thrill of discovery is what keeps me in the exploration business, although I know well the disappointment of dry holes.

Charles E. Holbrook, B.S. 1962, M.S. 1964

Retired from Chevron mid-1996 after 32 years—the last 3 ½ in Jakarta, Indonesia. Settled in Pinehurst, North Carolina. Teach Physical and Environmental Geology alternate semesters through Campbell University. Manage my own investment portfolio, travel, play golf and spend time with the grandchildren.

James H. Hough, B.S. 1953, M.S. 1958

Retired after 35 years in my own business. Lots of fishing in my own lake in southeast Indiana and in the Michigan Upper Peninsula on Little Lake and Lake Superior.

Timothy L. Howard, B. S. 1995

Currently I am a design and development engineer at the Topy Corporation.

Gary W. Jacobs, M.S. 1983, Ph.D. 1986

I am still working for Chevron but have transferred to the Middle East. I live and work in a small country named Qatar. I am an exploration geologist.

Kevin Kohles, M.S. 1985

Still with Geological Data Services (GDS) in Dallas. Building subsurface stratigraphic data bases from basin-wide sequence stratigraphy and reservoir studies, recently in the San Juan, Williston, and Delaware Basins. Sheri and I are active in church and kids' school. Ben (9) and Jenna (6) are in third grade and kindergarten. Life in suburbia is good but hectic. We hope to make it back to visit U.K. soon.

Gregory K. Maynor, B.S. 1981, M.S. 1984

I am working as a project manager/senior geologist for CDM Federal in San Diego, California. We are working on CERCLA site investigations for the United States Navy.

Phil M. Miles, B.S. 1938, M.S. 1941

Semi-retired—still maintain an office at 422 Codell Drive, Lexington, Kentucky 40509 to keep up with investments in oil and gas properties, equities mutual funds, etc. Still fly airplanes, instruct a bit, and play golf in suitable weather (+50 degrees Fahrenheit). Right now I'm on Will Durant's *History of Civilization, Vol. IV*. This is quite a trek (not the right work but conveys the idea).

Angela Moore, M.S. 1994

John Whittler (M.S. 1993) and I were married in April, 1998. I am pursuing my Ph.D. in civil engineering at the University of California, Davis. I am working on redox controls and effects upon TCE degradation in groundwater environments. John is going back to school after serving his time in the consulting world...he is studying computer engineering at Sacramento State.

P. Gregg Mudd, B.S. 1984, M.S. 1993

I've been employed in the environmental consulting business in the central Florida area for the last ten years. I just completed a two-year stint as president of the University of Kentucky central Florida alumni club. My wife, Angie, and I are celebrating the birth of our first child, Logan. He is growing stronger daily and should be able to hold a rock hammer in the near future. We wish well to you and yours.

David Oldham, B.S. 1982, M.S. 1987

I plan to teach physical science in high school.

Wendell H. Overcash, B.S. 1977

Attorney for Natural Resources and Environmental Protection Cabinet; litigation of environmental enforcement cases and general legal services. Kentucky Registered Professional Geologist #339.

Alma Hale Paty, M.S. 1984

Am still founder and president of A Capitol Resource, a D.C.-based consulting firm specializing in mineral-resource issues and education. Am working with the American Geological Institute on various projects, including Earth Science Week. Also have done work for the American Coal Council and the Gold Institute.

Don Prater, B.S. 1993

Coal explorations manager for Addington Enterprises, Inc. It's been an exciting year at work. We have gone from 10th to the 4th largest coal producer in America! Also, I got married July 17th to Marci Hicks, also of Ashland.

Peter E. Price, B.S. 1969, M.S. 1978

I am retired from Marathon Oil Company in 1994 to become a partner in Earth Information Systems Corp., a remote sensing/GIS group. Last year I activated my old company, Terra View and am happily pursuing gold, base metals, hydrocarbons, and pipelines around the world. I recently completed phase I of a minerals project requiring satellite imagery, a nation-wide minerals GIS, and several months "on the ground." Rain forest geology is a great challenge in West Africa.

Henry M. Rutledge, B.S. 1956, M.S. 1958

We are retired and living in Laneway Village which is about 15 miles west of Austin, Texas. The big event of 1998 for us was that we became grandparents to triplets. They live close and we are drafted into service quite frequently. In spite of these duties, we do travel frequently. The highlight trip for 1998 was the Norway mail boat trip from northeasternmost Norway to Bergen. The scenery was spectacular.

Edward M. Self, B.S. 1950

I've been struggling with medical problems, but continuing to pay about three rounds of golf per week (scores remain rather poor!!). Our four children scattered a bit to Houston, San Diego, Sacramento, and Singapore (had a nice visit there in mid-1998). We have four grandsons. Enjoying Florida retirement except in mid-summer when it's too hot.

Walker L. Shearer, B.S. 1936

I was retired from Dow Chemical Company, Midland, Michigan, in February, 1977, after 25 years of service.

Morris G. Stout, B.S. 1959

Retired from the Tennessee Valley Authority-Central Materials Engineering, Calibrations and Standards Laboratory in Chattanooga, Tennessee. Currently doing a little consulting and a lot of fishing.

Dennis R. Swager, B.S. 1977, M.S. 1978

We are still in the oil business! 1998 was a tough year for oil-only producers in the Illinois Basin. My

operating company, Team Energy LLC, continues to grow with acquisition of old producing properties which we enhance and develop by reservoir characterization resulting in deeper-pool, developmental and step-out drilling; waterflood development, expansion and re-engineering as well as updating operations and management. Our first well was drilled in 1993 at 30 BOPD, and with several leases shut-in due to low prices we are producing about 970 BOPD at year-end 1998. We have two "research" projects working currently; co-generation of electricity on a small scale and joint development of hydrocarbon remote sensing with Bruce Moore. Very good to hear of the evolution of the Department of U.K. especially the emphasis on the co-op program. Catherine and our daughters, Emily (13 yrs) and Melissa (8 yrs) are well. All are great U.K. basketball fans and Emily plans to attend U.K.

Matthew Varney, B.S. 1995

After graduating, I was employed by the State of Kentucky, Division of Waste Management. I worked with Contaminated Underground Storage Tank Facilities. I spent three years there and learned a lot about government, regulations, and people in general. I spent a large portion of my time pursuing non-geologic activities at work. For instance, I helped design and implement our agency's web page. I also worked on other information technology projects including a document management/imaging project. I am currently employed by Plan Graphics in Frankfort, Kentucky. It is a GIS consulting and implementation company. I am a senior research analyst and spend most of my time creating custom GIS applications for our clients.

Thomas R. Webb, B.S. 1983

I am currently employed by the city of Lexington as Environmental Manager for the Division of Environmental and Emergency Management. Primary duties include responding to releases of hazardous materials, regulation of underground storage tanks, and supervising restoration of the environment.

Chris White, B.S. 1997

I work for an environmental consulting firm called Handex of Indiana. We work with Amoco, Marathon, Mobil, etc. and recently a super fund site. Handex takes care of regulatory compliance reporting and does the sampling, drilling and well installation, UST pulls, and build and install remedial systems. It is an international company and always in search of new

people to fill job openings.

Todd Zuiderhoek, B.S. 1986

I am currently the Environmental/Health and Safety Coordinator at Custom Tool and Manufacturing Company. The majority of my work responsibility is directed at OSHA requirements and monitoring OSHA regulation changes. I am also involved in containing any spills of leaks and overseeing haz/non-haz waste disposal. I have been married for 3.25 years and have a seven month old son.

Patricia Wonderly, B.S. 1979, M.S. 1982

Vice President and Assistant General Counsel for I.H.S. Group and General Counsel and Secretary Petroleum Information for Dwights L.L.C.

GSA MEETING

Those signing "the book" for the 1998 Geological Sciences of America meeting in Toronto, Canada, were:

William A. Thomas	Rachel Thomas
Jill Kruskoski	Brent Owens
Elizabeth Haynes	Matt Gregory
Nick Garland	Mark Kulp
David Wunsch	Dena Wunsch

IN MEMORIAM

This year the department received word of the passing of the following alumni. We are saddened by the loss of these friends, and we extend our sincere sympathy to their families.

Albert E. Pettit, Spring, 1998

Austin P. Leavell Jr.

William P. Ringo

John C. Ferm

Long-time member of the Department, John Ferm, passed away on November 16 apparently due to complications arising from earlier hip surgery. During John's 47-year career, he worked for the U.S. Geological Survey and taught at Louisiana State University, University of South Carolina, and the University of Kentucky. John was well known for his coal research, especially for his core-logging manuals; he was the recipient of several awards for his work in the field. In his later years in the Department he became very interested in educating future teachers about geology and spent much time developing teaching materials for them. Some of his most important contributions in the field, however, came

from the inspiration he provided others in challenging conventional wisdom. Many graduate students also benefited from his sage advice on their thesis research, whether it was coal-related or not. His contributions to the Department were major and continued right up to the time of his surgery. Memorial contributions may be made to the John C. Ferm Memorial Graduate Student Fund.

Frank Derbyshire

We also want to note that Frank Derbyshire, Director of the Center for Applied Energy Research (CAER) passed away suddenly in the late summer after a short illness. Although Frank was an engineer and not one of our adjuncts, he encouraged collaboration between CAER staff and our faculty and students. He will certainly be missed by all who knew him.

STUDENT NEWS

1998-1999 DEGREES AWARDED

Bachelor of Science

Robert Blair	Michael Cleary
Shane Newsome	Matthew Gregory
Daniel O'Connor	Susan King
Christian Wallover	David Kreeger
Jill Krukoski	Tina White
Jack Wilhoit II	Richard Xedos

Master of Science

David L. Butler, 1999 M.S., Assessment of TCE biodegradation potential in wetland soils, McCracken County, Kentucky.
Advisor: Alan E. Fryar

Gregory B. Graham, 1999, M.S., Geometry and kinematics of two juxtaposed lateral ramps, southern Appalachian thrust belt in northeastern Alabama.
Advisor: William A. Thomas

GRADUATE STUDENT RESEARCH

Aaron R. Baldwin (B.S., East Carolina)
M.S. thesis: Structural intersection in the Appalachian thrust belt in northwestern Georgia. Supported by

USGS EDMAP.

Advisor: William A. Thomas

Christopher Berg (B.S., Cincinnati)

M.S. thesis: Effect of deformation on oxygen isotopic systematics in polymetamorphic rocks.

Advisor: David Moecher

Margaret C. Brewer (B.S., Hunter; M.S., Kentucky)

Ph.D. dissertation: The Bessemer transverse zone in Alabama, structure and stratigraphy.

Supported by USGS EDMAP.

Advisor: William A. Thomas

David Campbell, (B.S., Morehead)

M.S. thesis: Tidal facies of the Pennsylvanian Lee Formation in southeastern Kentucky.

Advisor: Paul Howell

Tony L. Cooley (B.S., Washington [St. Louis])

Ph.D. dissertation: Characterization of the macropore system and water movement through soils and soil/rock interface over a shallow karst conduit system.

Advisor: Lyle V.A. Sendlein

Karen Exton (B.S., Eastern New Mexico)

M.S. thesis: Ground-water flow in the Ledbetter Creek watershed, Calloway County, Kentucky.

Advisor: Alan E. Fryar

E. Lee Gatterdam (B.S., Furman)

M.S. thesis: Reactions of trichloroethene with pyrite.

Advisor: Alan E. Fryar

Alan Gentry, (B.S., Louisville)

M.S. thesis: Application of RISK PRO to UST sites in Kentucky.

Advisor: Lyle V.A. Sendlein

Reuben Gillispie (B.S., Marietta)

M.S. thesis: Increased resolution of the ground-water basin boundary of Royal Springs, a karst water-supply aquifer in Scott and Fayette Counties, Kentucky.

Advisors: James S. Dinger and Alan E. Fryar

Elizabeth Haynes (B.A., Centre)

M.S. thesis: Crystallization temperatures of carbonatites based on oxygen isotope fractionations.

Advisor: David Moecher

Peter Idstein, (B.S., Eastern Illinois, M.S., Eastern Kentucky)

Ph.D. dissertation: Investigation of current and alternative groundwater sampling methods for contaminants moving in a karst flow system.

Advisor: Ralph Ewers (Eastern Kentucky University)

Helen (Lisa) Jewell (B.S., Georgia)

M.S. thesis: Cane Run Bed, Lexington Limestone: Possible Seismite.

Advisor: Frank R. Etensohn

Walter Johnson (B.S., Louisville)

M.S. thesis: Stratigraphy of the Ste. Genevieve-Girken contact in western Kentucky.

Advisors: Frank R. Etensohn and Nicholas Rast

Steven Juscuk (B.S., Queens; M.S., Texas Christian)

Ph.D. dissertation: How do the late Paleozoic structures within the Southern Oklahoma aulacogen relate to the late Paleozoic structures of the Ouachita-Marathon orogenic belt? Supported by the Southeastern Section of the Geological Society of America research grant.

Advisor: William A. Thomas

Julie Kasl (B.A., Depauw)

M.S. thesis: Origin of the Devil's Hollow Member, Lexington Limestone.

Advisor: Frank R. Etensohn

Mark A. Kulp (B.S., Juniata; M.S., Kentucky)

Ph.D. dissertation: Isostatic contributions to subsidence and uplift in the northern Gulf coast.

Advisor: Paul D. Howell

Danita LaSage (B.S., Eastern Kentucky; M.S., Alaska—Anchorage)

Ph.D. dissertation: Natural attenuation along a first-order stream receiving contaminated ground-water discharge.

Advisors: Alan E. Fryar and Susan M. Rimmer

Charles Mason (B.S., Morehead, M.S., George Washington)

Ph.D. dissertation: Ammonite biostratigraphy of the Lower-Middle Mississippian Borden Formation.

Advisor: Frank R. Etensohn

Jonathan McIntyre (B.S., Kentucky)

M.S. thesis: Quaternary deformation along the northwestern edge of the Mississippi Valley Graben and its implications with respect to the northeastern terminus of the New Madrid seismic zone.

Advisor: Ron Street

Sunil Mehta (B.Sc., Jodhpur; M.Sc., Poona; M.S., Northeast Louisiana)

Ph.D. dissertation: Cross-formational discharge and flow of basinal brine within the Ogallala aquifer, Southern High Plains, Texas. Supported by AAPG, S.E. GSA, and the McFarlan Fund

Advisors: Alan E. Fryar and William A. Thomas

Jeremy Middleton (B.S., William and Mary)

M.S. Thesis: Genesis and filling of a foreland marine flooding zone: stratigraphic and architecture of the Pennsylvanian Magoffin Member, eastern Kentucky.

Advisor: Paul D. Howell

Wm. Jay Sims (B.S., Arkansas-Little Rock; M.S., Kentucky)

Ph.D. dissertation: The geometry and kinematics of the Pennsylvanian-Permian central Colorado trough. Supported by Colorado Scientific Society, G.S.A., and N.S.F.

Advisor: William A. Thomas

V. Marie Sullivan (B.S., Juniata)

M.S. thesis: Physical and chemical comparison of uncompacted coal mine soil to forest soils; eastern Kentucky.

Advisor: Paul Howell

Christofer J. Sweat (B.S., Kentucky)

M.S. thesis: The role of organic carbon in natural attenuation of a trichloroethene-contaminated aquifer system, Paducah, Kentucky..

Supported by the Kentucky Water Resources Research Institute

Advisor: Alan E. Fryar

Matthew Vest (B.S., Morehead State)

M.S. thesis: Subsurface characterization of a new clastic, gas-producing unit at the base of the Mississippian Big Lime in southeastern Kentucky and northeastern Tennessee.

Advisor: Frank R. Etensohn

Anna E. Watson (B.S., Kentucky)

M.S. thesis: Stratigraphy and depositional environments of the Pennington Formation, southeastern Kentucky.

Advisor: Frank R. Etensohn

NEW GRADUATE STUDENTS

German Bayona (M.S., New Mexico)
Christopher Berg (B.S., Cincinnati)
Marion Bougamont (M.S., Joseph Fourier, France)
Chuming Chen (Nanjing., China)
Archana Chowdhury (Ma. Tech; Dr. H.S. Gour Sauga,
India)
Brian Cook (B.S., North Carolina, Chapel Hill)
Karen Exton (B.S., Eastern New Mexico)
Brent Garry (B.S., William & Mary)
Lee Gatterdam (B.S., Furman)
Julie Kasl (B.A., Depauw)
Steve McDowell (B.S., Kentucky)
Stefan Vogel (M.S., Albert Ludwig, Germany)
Tina White (B.A., Berea, B.S., Kentucky)

TEACHING ASSISTANTS

Archana Chowdhury	Lisa Jewell
Brian Cook	Julie Kasl
Karen Exton	Brent Garry
Lee Gatterdam	Elizabeth Haynes
Danita LaSage	Steve McDowell
Sunil Mehta	Tina White

RESEARCH ASSISTANTS AND FELLOWS

German Bayona
Christopher Berg
Seth Berman
Margaret Brewer
Steven Juszczuk
Steven Wood

STUDENT AWARDS

Geological Society of America Research Grant

Elizabeth Haynes
Danita LaSage

Graduate School Research Grants

Karen Exton
Jessica Wichtowski

Graduate School Commonwealth Research Award

Sunil Mehta

Hudnall Scholarships

Michael Ashcraft
William Brab
Tara Campbell
Michael Cleary
Jeff Crevier
Sara Hawkins

Andrea Holbrook
Jason Merlo
Kristin Toth
Tina White

McFarlan Fund

German Bayona
Seth Berman
Margaret Brewer
Elizabeth Haynes
Steve Juszczuk
Steve McDowell
Jessica Wichtowski
Steve Wood
Richard Xedos

Pirtle Fellowship

Christopher Berg
Danita LaSage
Sunil Mehta

Tarr Award (Sigma Gamma Epsilon) - outstanding graduating senior

Jill Krukoski
Jack Wilhoit

Pirtle Award - outstanding junior showing promise in geology

John Cook

Student Internships

B. Nicholas Garland, Museum of Natural History,
Smithsonian Institution
Tanaporn Sakulpitakphon, U.K. Center for Applied
Energy Research
Christian Wallover, U.K. Center for Applied Energy
Research

STUDENT PRESENTATIONS

Margaret C. Brewer and William A. Thomas:
Late Precambrian two-phase rifting of southeastern
Laurentia, Geological Society of America Abstracts
with Programs, v. 30, no. 7, p.A-124, Geological
Society of America Annual Meeting, Toronto,
Ontario, 1998.

Gregory B. Graham and William A. Thomas:
Internal geometry of lateral ramps, Appalachian
thrust belt, Geological Society of America Annual
Meeting, Toronto, Canada, 1998.

Elizabeth A. Haynes: Petrogenesis of metamorphosed Grenville carbonatites, Ontario, Geological Society of America Annual Meeting, Toronto, Canada, 1998.

Mark Kulp: Assessing the accuracy of Holocene subsidence rates in southern Louisiana as indicated by radiocarbon-dated peats, Geological Society of America Annual Meeting, Toronto, Canada, 1998.

Sunil Mehta: Controls on regional-scale salinization of the Ogallala aquifer, Southern High Plains, Texas: Geological Society of America Annual Meeting, Toronto, Canada,, 1998.

FACULTY NEWS

Frank R. Ettensohn

Perhaps the highlight of my activities last year was an invitation to present two papers on ancient deltas at a conference in Cairo, Egypt. Not only did I get a chance to look at some of the archaeological remains around Cairo, but we also examined the geology around Cairo and looked at the ongoing destruction of the Nile Delta and some of the measures being put in place to halt its erosion by the Mediterranean Sea. Ever since the Aswan High Dam was built, the rate of delta destruction by the Mediterranean has far outpaced any delta progradation, because the dam has halted most sediment input to the delta.

Once again, I received grant monies in the summer to help in the further education of in-service, middle-school teachers in various areas of earth science. During the three-week workshop, we traveled throughout the state relating geology, physiography, and environmental issues. As a result of last year's program, two Kentucky Educational Television (KET) modules in the earth sciences were filmed for teacher development, and another module based on this year's program is in the development phase for the coming year. Countless teachers and students will view these KET modules on their TV's at home and in school.

Finally, Nick Rast and I continue to work on our seismite research, and at this point have one master's level student involved in the research. Our proposal to put out a *GSA Special Paper on Seismites* was accepted and we have approximately 15 papers committed from

authors around the world.

John C. Ferm

During the spring semester of year 1998-1999 Dr. Ferm was on leave while preparing a core book for the north island of New Zealand. The coal-bearing rocks are of Tertiary age and not well consolidated. In addition, there are potential sources of roof problems. The coal, however, is very thick and the plan includes leaving ten feet of top coal to help support the roof.

Upon returning to Kentucky, he found himself caught up in the program to improve the quality of courses in geology for elementary teachers. With the help of Frank Ettensohn, rock specimens and kodachromes were added to the New Mexico exercise.

Similarly, Walter Johnson, Masters student, supplied more specimens and kodachromes for the Middlesboro, Kentucky, and Ohio exercises, and led the field trip for this class. Finally, some old friends from Louisiana were able to provide kodachromes of the rivers and delta. Because students are not accustomed to reading topographic maps, this supplementary material was of great help.

After completing the above project, he began to plan for the Fall semester. This included incorporating the new material into the course plan and enhancing the laboratory work. This proved to be quite successful. In addition, there are plans to incorporate more new material to enhance the value for this course.

Alan E. Fryar

As I start my fifth year at UK, I'm finally getting the hang of being a faculty member. My appointment is now 100% in the Department of Geological Sciences, rather than divided between the department and the Kentucky Water Resources Research Institute. However, my students and I are still working with the state on environmental problems around the Paducah Gaseous Diffusion Plant (PGDP). David Butler and Nadège Etienne (a Plant and Soil Science student whom I cosupervised) completed M.S. theses on biodegradation of trichloroethene (TCE) in wetland soils and Cretaceous sediments, which bound the contaminated aquifer at PGDP. (Surprisingly, intrinsic biodegradation of TCE appears to be slow to non-existent.) David now works for the state Division of Waste Management. Chris Sweat is completing studies of TCE sorption to the same soils and sediments, while Lee Gatterdam, a new M.S. student, will take up studies of TCE reactions with pyrite. Danita LaSage continues to examine the fate of contaminants along a creek in the

West Kentucky Wildlife Management Area, downstream of PGDP. Contaminant concentrations in the stream are limited by dilution and probably by volatilization of TCE.

While research at PGDP sails on, other projects are ending and beginning. Sunil Mehta is completing his study of salinization of the Ogallala aquifer beneath the Southern High Plains. Working with a borehole-geophysics crew from USGS last fall, Sunil documented that salinity increases with depth in some areas. Numerical modeling of ground-water flow and solute transport indicates natural, upward flow from underlying Permian evaporites. These results agree with our previous geochemical findings and with results of other, concurrent studies in the Canadian River valley. Aided by a course release last spring, I am completing modeling of hydrochemical evolution during ground-water recharge and flow in Sunil's study area. Karen Exton (another new M.S. student) and I are starting to work with faculty at Murray State on a study of seepage fluxes and nutrient cycling in an embayment along Kentucky Lake.

In my spare time, I still teach courses in hydrogeology and environmental geology. With the able assistance of colleagues in the department (especially students) and KGS, I also continue to organize the Geological Sciences seminar series. Talks are at 4 PM most Thursdays during the school year in 102 Mining and Minerals (the KGS building). We provide refreshments at 3:30 PM. The seminar schedule and other useful information are on our Web site (www.uky.edu/ArtsSciences/Geology). Please join us!

Paul D. Howell

The new undergraduate curriculum is slowly working into a great fit with our faculty and students. Much of my work the past year has revolved around getting the new introductory Environmental Geology (GLY 110) course to flow smoothly -- no easy job with its 10 sections, 2 faculty and 5 teaching assistants. The demand for this and the other new lower level courses is already quite high and we hope this yields a further increase in overall undergraduate course enrollments and in our number of majors. Each semester several students in GLY 110 express interest in becoming geology majors and venture into the next level, our GLY 220 Physical Geology course.

My second year as a Distinguished Lecturer for the National Association of Geoscience Teachers has been very instructive. These visits to other campuses

help frame many of my ideas for improving our geoscience teaching. I am convening a double session at the GSA annual meeting in Denver on "Teaching Science By Example" -- consistently using real data from real science problems in classroom exercises (rather than contrived examples) to help students learn "Science", as opposed to learning "about" Science. It's not an easy approach to teaching, and I welcome any and all ideas from our alums for good case studies to turn into classroom exercises! I'm also looking forward to putting some of this approach into practice with our new GLY 223 course to be offered this summer for the first time -- Frank and I will co-teach "Introduction to Geology in the Rocky Mountains", a six-hour, field-based course taught in Gunnison Colorado for non-majors and pre-majors. We hope to offer this course every other year, alternating with our regular "Field Camp" course taught in the same area.

David P. Moecher

I feel like a tour guide, having run three field trips since mid-May. We first headed north at the end of the spring '99 semester (GLY 480/782) on a traverse across the Grenville Province to Sudbury, Ontario. Highlights of the trip include: collecting finger-sized apatite from skarns in the Bancroft area; a traverse across the Sudbury structure guided by Mike Cosco of the Ontario Geological Survey; shattercones as big as a christmas tree on the south flank of the Sudbury structure; and hanging over the edge of the Niagara Escarpment staring 150' down at the clear blue frigid water of Lake Huron. The field trip was partly underwritten by an anonymous donation from a friend of the Department [Thanks!]

At the end of June we headed off to Colorado for the latest installment of UK Geology Field Camp. This time I taught the course on my own, having been handed the instructor's baton (whip?) by Frank Eddensohn. Aside from the usual projects around Almont, Jack's Cabin, and Cement Creek, we mapped in the Precambrian metamorphic and igneous rocks in the area just southwest of Gunnison; that was interesting! We made many of the usual stops on the regional field trip (Colorado Nat. Mon., Arches, Goosenecks of the San Juan River). New stops included a guided trip to Ship Rock by Steve Semken of Dine' College (formerly Navajo Community College) and a couple of his students: Joe Blackhorse and Lucita. We discussed the Navajo world view and the significance of Ship Rock to the Navajo people. That too was interesting! The other highlight was a

hike onto the Great Sand Dunes which started out in the sun but ended in a 60 mph gale. We really got a lesson in the eolian transport of sand! I'm still digging sand out of my ears. See the Department web page (<http://www.uky.edu/ArtsSciences/Geology>), click on Undergraduate Studies, and go to the item on GLY 323 (Field Camp) to see some photographs of the latest group of field camp alums in action.

This fall we returned to the Blue Ridge for the annual GLY 461 (Ign. & Meta. Petrol.) field trip. Highlights of this trip included a trip to the top of Mt. Mitchell on a clear morning, and collecting *real* eclogite in western North Carolina. Whew-I need a break!

Speaking of graduate students...Elizabeth Haynes is working on an M.S. thesis project determining the crystallization temperatures of carbonatites using stable oxygen isotopes. She has had to travel to the University of Wisconsin to perform the analyses, will be going to GSA in Denver to present her research, and may go to France for an international conference. It's a tough life being a graduate student! Chris Berg is a new graduate student from the University of Cincinnati who will be working on stable isotope systematics in metamorphic rocks. He only gets to go to New England and New Mexico. *c'est la vie!*

Kieran O'Hara

I continue as coordinator of Graduate Studies and report that our graduate program is vibrant and growing in size and quality. The Graduate School awarded research support to fourteen of our students last year, and this year we have one of the highest number of Research Assistantships in many years. Last semester we finally submitted a new graduate curriculum to the Graduate School and this will revitalize our graduate course offerings hopefully in the near future.

On the research front, NSF has continued funding of our frictional melting project, and over the past year I sampled for frictionally melted rocks in Arizona and Maine (in winter and summer, respectively of course). I am on the lookout for a Research Assistant starting next semester who is interested in geochemical processes during frictional melting and earthquakes. The goal is to evaluate the role of water during seismic rupture. This Fall I am teaching two new undergraduate courses (one being team taught with Dave Moecher) as we implement the new undergraduate curriculum.

Nicholas Rast

Dr. Rast, in 1998-1999, scientifically moved into the Grenville geology of Canada and its relationship to the formation of the Mid-Proterozoic supercontinent Rodinia starting with a two-week field trip in central Ontario. This is intended as a preliminary to the anticipated expansion of the research project next year.

At the same time, the "seismite" project is at present continued together with Dr. F.R. Etensohn and preparations are made for publication of proceedings of a theme session at the Geological Society of America as a Special Paper due for print in 2000. The initial session, though held on the last day of the Geological Society Meeting in Toronto, was well-attended and provoked a lengthy and interesting discussion. The session was organized by Drs. Etensohn and Rast.

In the spring of 1999, Dr. Rast has been invited to participate in two symposia: 1.) on the Carolina Terrane, and 2.) on Appalachian eclogites, held at the meeting of the Geological Society of America in Athens (Georgia).

Ron L. Street

During the past year, the students and I have continued to collect SH- and P-wave seismic reflection and refraction data in the Upper Mississippi Embayment. The objectives of the studies are aimed at mapping the shear-wave velocities of the post-Paleozoic soils for the purpose of defining dynamic site properties during an earthquake, and to continue our efforts to delineate neotectonic faulting in the northeastern segment of the New Madrid seismic zone. In addition to the conventional acquisition of seismic data with seismic hammers and our old, but extremely useful vacuum-assisted weighted drop, we have increasingly made use of our SH-/P-wave Vibroseis unit and a borrowed GPR unit.

The Kentucky Seismic and Strong-Motion Network is in the process of being refurbished and upgraded, thanks to the help of Dr. John Kiefer of the KGS and Mike Lynch of the Kentucky Emergency Management in obtaining a FEMA grant. We have been able to replace most of our aging strong-motion instruments and seismometers, as well as the old, but still functioning, 286 MHz A/D acquisition system. In addition, we are in the process of expanding the digital seismic network to more carefully study a recently discovered trend of seismicity from Columbus to West Paducah, Kentucky. It has been suggested by some, that this trend of seismicity represents a northeastward extension of the New Madrid seismic zone. This is not

a position I agreed with, but until shown otherwise, it has the potential of having a major impact on the economic development of western Kentucky.

William A. Thomas

In my first year back from sabbatical, I concentrated on teaching GLY220, a new course in physical geology designed for our new curriculum. GLY 220 is the introductory course for geoscience majors, and it also serves as the introductory geology course for students in civil and mining engineering, landscape architecture, natural resources conservation and management, and science education. It is also available as a science elective for students in other majors, but GLY 220 assumes a good background in basic science and math. Working with Sunil Mehta (two semesters) and Steve Wood (spring semester) as Teaching Assistants, we designed a new set of lab exercises to emphasize observations and interpretations in a problem-solving approach. The lecture and laboratory work was closely coordinated; careful planning allowed us to introduce some problems in the lecture class and follow that with lab examples in the same week. The course was challenging to teach, but it was a pleasure working with students who came into physical geology with a basic science background and with a professional interest in the subject.

My research activity during the year followed the data collecting of the sabbatical year, primarily involving Appalachian thrust-belt structure and the rifting and collision history of the Argentine Precordillera. German Bayona, as a new Ph.D. student, quickly became involved in the preparation of balanced restorable structural cross sections of the Appalachian thrust belt in Alabama in Georgia. Maggie Brewer continued her dissertation research with U.S.G.S. support for a winter field season of mapping a complex lateral ramp at Bessemer, Alabama. Greg Graham completed his M.S. thesis, also with U.S.G.S. support on another complex lateral ramp northwest of Jacksonville, Alabama. This overall project, which is also supported by the Petroleum Research Fund, is designed to use the internal geometry of lateral ramps, along with matching of footwall and hanging-wall cutoffs at lateral ramps, as a key to translation direction in thrust belts. Lateral ramps concentrate fractures, thereby enhancing permeability, an observation that is relevant to both groundwater and petroleum. Steve Juszczuk has continued work on his Ph.D. dissertation on the curvature of the Ouachita thrust belt and the

interaction of the Ouachita thin-skinned thrust belt with the Arbuckle basement structures. My work on the Argentine Precordillera has continued in collaboration with Ricardo Astini of the Universidad Nacional de Cordoba.

The National Geologic Mapping Act, which supports geologic mapping projects through the U.S.G.S., was up for reauthorization in Congress this year, and although several students have been supported here through the U.S.G.S. EDMAP program, I didn't think the reauthorization would affect me. But it did. I was called to present testimony on behalf of the mapping act (including the EDMAP component) to the Subcommittee on Energy and Mineral Resources of the U. S. House of Representatives. It was a friendly hearing, chaired by Rep. Jim Gibbons (R-NV), who has B.S. and M.S. degrees in geology. It is challenging to explain the many practical uses of geologic maps in a House committee hearing, and it was reassuring to know that one of them was a geologist. My presentation included a display of the completed EDMAP project by Greg Graham, who may be the only UK M.S. graduate to have a thesis map presented to Congress!

Slawomir M. Tulaczyk

It is hard to believe that already one year has passed since I have joined the Department and that I am writing my second contribution to *Round Up*. It was a very good and busy year for me. Everybody at the department has been very kind and helpful in my transition to faculty life. Thank you all. I am especially grateful to Dave Kreeger and Jill Krukoski who have worked for me diligently as undergraduate research assistants during the last academic year. Their help has made it possible for my research to advance in spite of a heavy time commitment that was required to prepare and teach my new courses. Both Dave and Jill have already moved on to do better and bigger things in grad schools somewhere else. Good luck to you both. In the meantime, I have used some of the data generated by them in my presentations that were given at different meetings, including the XV-th International Congress of INQUA in Durban, South Africa. Things are also going well with publishing my research (papers in *Journal of Geophysical Research*, *GSA Special Papers*, and *Quaternary Science Reviews*) and raising funding from the NSF (Office of Polar Programs and Geology and Paleontology Program) and local sources (U.Kentucky and KWRRRI). However, the main reason why I am looking forward to the future are the

new graduate students who have joined our Department to work with me. Milos Bavec, Marion Bougamont, Archana Chowdhury, Chuming Chen, and Stefan Vogel are the new students and I am very excited about the perspective of working with them. Next year I will tell you about the great advances that these guys will make in their research. But now, it is time to go back to work. Otherwise, there will be little to write about in my next *Round Up* contribution.

ADJUNCT FACULTY.

James Cobb

Dr. James C. Cobb assumed the position of State Geologist and Director of the Kentucky Geological Survey in October 1999. He was previously the Assistant State Geologist for Research for the past 10 years. He replaces Donald C. Haney who occupied this position for the past 21 years. Dr. Cobb previously worked at the Illinois State Geological Survey and was a consultant in the Middle East before coming to the Kentucky Geological Survey in 1980. His research interests include coal geology, sedimentology, geochemistry, and digital geologic mapping. Dr. Cobb serves on the U.S. Geological Survey Energy Program Council, the Kentucky Board of Registration for Professional Geologists, he is active in GSA and AAPG, he is a member of the Association of American State Geologists, and the Kentucky Society of Professional Geologists

James A. Drahovzal

I continue to provide research leadership for the Geologic Mapping and Hydrocarbon Section at the Kentucky Geological Survey (KGS). One of the Survey projects, the Rome Trough Consortium, is examining the geology and natural-gas potential of this Cambrian graben in eastern Kentucky and parts of Ohio and West Virginia. The Survey's digital geologic mapping effort continues to grow and we have now digitized more than 200 7.5-minute geologic quadrangles and compiled several 1:100,000-scale geologic maps. We continue to work with the Kentucky Transportation Center and the Kentucky Transportation Cabinet who will be applying digital geology to highway planning and design in the Commonwealth.

Personally, I have continued to conduct research on the Cambrian and Precambrian rift basins of the eastern Midcontinent and the mapping of Precambrian basement. Most of this work has been

done utilizing newly available reflection-seismic data for Kentucky and adjacent states. Working in conjunction with a research team from academia, government, and industry, my earlier recognition of a thrust-belt tectonic features in the Middle Proterozoic rocks of the eastern Midcontinent has been decisively confirmed by some newly available industry data for southern Indiana. Definition of the Hoosier thrust belt will be presented at the Fall 1999 Eastern Section AAPG meeting.

As an adjunct associate professor in the department, I am currently team teaching a southern Illinois Basin neotectonics course with Ron Street. During the year, I participated on the committees of four M.S. and three Ph.D. candidates. Their research topics include goniatite biostratigraphy, high-resolution seismic reflection studies, geologic mapping, structural geology, and stratigraphy. Tina White, a new Master's candidate working with me, is planning a reflection seismic and GIS thesis on the Cambrian part of the Rome Trough. A recent Ph. D. student from the department, Xin-Yue Yang, is working with me again this year as a post-doctoral fellow in the area of digital geologic mapping. During the year four of the Department's undergraduate students and three of its graduate students have held student appointments with the Geologic Mapping and Hydrocarbon Section at KGS. I continue to work on the Coosa Deformed Belt project in the Alabama Appalachians with Dr. William Thomas.

Becky, my wife, and I continue to enjoy living in the Bluegrass and being a part of Department activities

Steve Greb

Hello, to my fellow alums out there. I'm still working at the Kentucky Geological Survey but am also an adjunct with the Department. This fall I'm teaching GLY 130, the Dinosaurs and Disasters class, which allows me to indulge in the concepts that got me started in geology when I was kid. It's a huge class (150 students), but fun. My research interests at KGS include coal-mining geology, coal-field depositional systems, Carboniferous basin analysis, and sedimentology. A summary of Carboniferous basin analysis research that Don Chesnut, Cortland Eble, and I presented at last fall's combined GSA/GSC meeting in Toronto, won the best talk award for the Coal Division. Another paper, summarizing syndepositional structural influences on the Hazard No. 8 coal with Gerry Weisenfluh, won

the Ralph I. Miller Memorial Award from the American Association of Petroleum Geologists. Equally rewarding has been working with K-12 educators. I stayed on as the Kentucky representative to the Southeastern GSA education outreach committee, work with the southeastern section of AAPG's education outreach committee, and continue to chair the KGS outreach committee. This summer we participated in several teacher workshops, acted in an advisory capacity in Kentucky's science-core-content process, hosted a summercamp-earth-science week for middle school children, and made numerous additions to the web-based Earth Science Education Network (<http://www.uky.edu/KGS>).

James Hower

I am an adjunct member of the geology faculty with my primary work conducted in the Waste Management Group at the Center for Applied Energy Research. With cooperation of the Kentucky Geological Survey and the U.S. Geological Survey, I maintain active research in the petrology and geochemistry of coals. Much of the research conducted at the CAER is directed towards the utilization of coal and products derived from coal.

Recent research has focused on the mercury content of fly ash carbons. A Geological Sciences undergraduate student, Tanaporn "Goe" Sakulpitakphon, is working with us on the Hg research. Other research is conducted in cooperation with many of the coal-burning utilities in the eastern United States.

AAPG Studies in Geology 45, the *Atlas of Coal Geology*, was published last year in compact disk format. I was a co-editor of the volume and the lead author on the coal petrology half of the cd. I am currently the editor-in-chief of the *International Journal of Coal Geology*.

David Wunsch

This past year I was on professional leave from the University so I could serve as the American Geological Institute's (AGI) Congressional Science Fellow. I worked for the U.S. House of Representatives' Subcommittee on Energy and Mineral Resources. It was a wonderful and fulfilling experience. I had the opportunity to work on legislation related to the reauthorization of the National Geologic Mapping Reauthorization Act (H.R. 1528), and the Methane Hydrate Research and Development Act (H.R. 1753), both of which were

passed out of committee. My Subcommittee also had congressional oversight of several geoscience-related agencies, such as the U.S. Geological Survey, the Minerals Management Service, and the Bureau of Land Management. I also had the opportunity to undertake several fact-finding trips to hardrock mines throughout the western U.S. and Alaska in response to the Department of Interior's proposed "3809" mining regulations.

As I write this passage for the *Round Up*, we are in the middle of Earth Science Week. One of my last efforts as a Science Fellow is the preparation of the statement that Subcommittee Chair Rep. Barbara Cubin will enter into the Congressional Record this week in recognition of Earth Science Week. As a final note to my fellowship experience, AGI will sponsor me for a speaking tour around the U.S. where I will visit universities and present my experiences and insights working as a science advisor for the Congress.

Although my duties as a congressional staffer were demanding, I did manage to get one paper published entitled, *Predicting ground-water movement in large mine spoil areas in the Appalachian Plateau* in the International Journal of Coal Geology. As part of my Fellowship requirements, I also published three articles in *Geotimes* related to my experiences on Capitol Hill. I also made a presentation to the Geological Society of Washington on my hydrochemical facies model for the dissected, Appalachian Plateau.

While living in the Washington DC area, I continued to manage my KGS projects and students thesis via long distance, thanks to the wonders of fax machines, scanners, and email. I have been managing the research program and data collection at the Star Fire mine and a ground-water exploration program in the eastern coal field. This year I will provide technical assistance for Kentucky's federal facilities oversight of the cleanup and monitoring at the Paducah Gaseous Diffusion Plant.

Currently I am directing two graduate students here in the department, and sit on the committees of two who are completing M.S. degrees at other universities. UK graduate student Kari Wirth is working toward the completion of a thesis on inorganic aragonite precipitation from ground-water fed springs at the Star Fire coal mine. Robert Andrews, who is also a hydrogeologist at KGS, is working on the hydrogeological framework and its relationship to the pumping-test response of high-yield water wells in the Eastern Kentucky Coal Field. Jessica Barone, a

graduate student at Ball State University in Indiana, is performing chemical leaching studies and mineralogical analyses to determine the source of magnesium-rich ground water at the Star Fire mine. Glenn Dunno, a graduate student at Northern Arizona University, successfully defended his thesis on the remote sensing analysis of the Eastern Kentucky Coal Field to identify geologically significant lineaments. His thesis is an integral part of the ground water exploration project currently being conducted by KGS. The day after his defense, I accompanied him and several of his rock-climbing buddies on a thrilling hike into the Grand Canyon, which was my first visit.

This semester I am once again teaching Low-Temperature Geochemistry for the Department. After a year in DC, I am looking forward to refocusing on the research components of my KGS projects, with a concerted effort to translate some of the geologic problems I encounter into undergraduate student research projects and theses.

EMERITUS FACULTY

Lois J. Campbell

When I jotted down an account of my goings and comings a year ago, I reported that I would be moving to Atlanta, where I could be closer to family.

Well, I've been here almost a year now and know a small corner of this big city. I passed a sign the other day that said the population of Atlanta was 3,256,789. Wait a minute—3,256,791.

St. Anne's Terrace is an apartment complex for about 100 "senior citizens." I've managed to get involved in the residents' organization and am slated to be recording secretary next year. I try to keep in shape with exercise classes and now I'm also learning Tai Chi.

My travels have been very limited this year. I did drive through Lexington once in early spring and enjoyed a visit with Diana and Nicholas Rast before going on to Columbus, Ohio. Local trips?? Well, I guess you could call two brief trips to the hospital that. The Christmas travels will, as usual, take me to my brother's on Hilton Head Island and then by plane to my Ohio roots for the New Year.

If any of you find yourself in Atlanta or going through, I would like to hear from you. My telephone number is 404-237-5384. In the Atlanta metro area, area codes have to be used for local calls.

William MacQuown

My professional activity has been limited to local

professional meetings and attendance at the monthly geological luncheon at the Springs Hotel, Lexington, Kentucky. My wife, Marge, and I continue our interest in watercolor painting with participation in three exhibitions in 1999.

Charles A. Ratté

We are fine and have been busy this past year moving from Vermont to Martha's Vineyard, Massachusetts. All of this at the request of our children (much to our surprise and delight) so that the whole family is now together in one place. We purchased a 100 year old house and spent nine months having it completely renovated. We are now settled inside for the most part, and have started doing the landscaping. We have planted three redbud trees to help keep Kentucky foremost in our minds. They are thriving and we can't wait until spring to see the first of their color.

My writing has been, of necessity, put on the back burner. I expect to get back at "The Story of Vermont Geology" for the lay audience this fall. In the meantime, I have taken up the dubious role of "substitute" teacher in the local schools. My duties have ranged from golf coach (please don't laugh) to cooking class. I'm actually having a ball, it's COOL as the kids say these days. However, I must say that I prefer working with college-level students, who, even though you may question it many days, are significantly more mature.

Lyle Sendlein

This past year has been my first year of full retirement. My wife, Louise, and I live in the Florida Keys and enjoy the beautiful island environment provided by the Atlantic Ocean and the Florida Bay and the friendships developed in the small community in which we live. My wife completed her third year as the volunteer manager of the gift shop for our local hospital. I helped her by keeping the books and doing the heavy work of moving stock and display racks. She designed the gift shop for our new hospital and helped get it set up for business.

I spend my time on small consulting jobs, conversing with many of my friends via e-mail and telephone, playing with my sail boat, helping my wife with her orchid garden, riding my bike, studying Tai Chi, and taking care of my 90-year-old father. I have also been following the many activities to clean up the near shore waters around the Keys. Too much polluted water is being discharged into the near shore waters by faulty treatment plants, septic systems, and

cess pits. There is a massive effort to provide sanitary sewers to keys residents and businesses to reduce the amount of polluted water moving to ocean and bay waters.

As part of one of my consulting projects I visited a site in Pennsylvania and had an opportunity to see rocks higher than five feet above sea level and look down some wells. My wife and I took a trip to Lexington to visit my son and his family and enjoyed our two grandsons. While there, I attended the meeting at the new KGS Core Building and had a chance to visit with many old friends. We also made short monthly trips to Boca Raton to visit my oldest son and his family. It is a joy to visit them and play with our granddaughter. We are also happy that our youngest son has chosen to live and work in the Keys. We enjoy his company.

We have a new challenge to face because I have been diagnosed with a low grade lymphoma cancer which is not curable but highly treatable. I am undergoing chemotherapy and am optimistic that the treatment will give us some time to continue enjoying retirement and our family.

<p style="text-align: center;">FACULTY RESEARCH SUPPORT</p>
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Kentucky Council on Post-Secondary Education

Teacher professional development in the earth and space sciences for core-content assessment in high school science, central Kentucky.

Frank R. Ettensohn

Kentucky Council on Post-Secondary Education

A Kentucky-wide environmental approach to middle school professional development in the sciences, central Kentucky.

Frank R. Ettensohn

Kentucky Science & Technology Council INC

Standards-based university course for preservice elementary teachers (cost shared with the Office of Undergraduate Studies).

John C. Ferm

Kentucky Dept. for Environmental Protection.

Laboratory investigations of abiotic attenuation of trichloroethene by soils and sediments

Alan Fryar

Kentucky Department for Environmental Protection

Natural attenuation of TCE and Tc-99 during seepage to and flow within Little Bayou Creek

Alan Fryar

U.K. Office of Vice Chancellor for Research and Graduate Studies

Experimental and mathematical modeling of trichloroethene sorption to the and diffusion in basalt.

Alan E. Fryar

U.S. Geological Survey

Natural attenuation of trichloroethene in wetland soils and paleowetland sediments.

Alan E. Fryar

National Science Foundation Petrology and Geochemistry

Oxygen isotope systematics in polymetamorphic rocks: The effects of multiple periods of deformation and mineral growth

David Moecher

Kentucky Water Resources Research Institute/DOE

A proposal to acquire SH-wave seismic reflection and refraction data in the area of the northeast trending contaminate plume at the Paducah Gaseous Diffusion Plant. **Ron Street**

U.S. Geological Survey

Dynamic site periods in the northern Mississippi Embayment area of western Kentucky and southeastern Missouri.

Ron L. Street

U.S. Geological Survey

Shear-wave velocities of the post-Paleozoic sediments in the Memphis, Tennessee, Metropolitan area.

Ron L. Street

U.S. Geological Survey

High-resolution P- and SH-wave seismic reflection investigations of the Reelfoot and Kentucky Bend Scarps in the New Madrid Seismic Zone.

Ron L. Street

National Science Foundation

The Argentine Precordillera, when and how was it

transferred from Laurentia to Gondwana?
William A. Thomas

Petroleum Research Fund of the American Chemical Society

Chemistry and kinematics of lateral ramps in thrust belts: Keys to translation direction and three-dimensional balancing.

William A. Thomas

U.S. Geological Survey, EDMAP

U.S. Geological mapping in the Appalachian thrust belt in northeast Alabama.

William A. Thomas

U.S. Geological Survey EDMAP

Geologic mapping in the Bessemer transverse zone, Appalachian thrust belt, Alabama.

William A. Thomas

Center for Computational Sciences, University of Kentucky

Is the Ross ice Shelf disintegrating?

Slawek Tulaczyk

Kentucky Water Resources Research Institute

Paleoenvironmental and paleoclimatic records in spring tuffa from Kentucky.

Slawek Tulaczyk

National Science Foundation Antarctic Glaciology Program (subcontract for the NSF Project) A finite-element model of basal water generated by melting an ice-sheet model.

Slawek Tulaczyk

National Science Foundation

Control of ice-till interactions on evolution and stability of ice streams and ice sheets.

Slawek Tulaczyk with D.R. MacAyeal of U. of Chicago as co-PI.

National Science Foundation Geology and Paleontology Program

Subglacial deforming beds as erosive and sedimentary agents: and experimental study of particle comminution and rock erosion.

Slawek Tulaczyk

REPRESENTATIVE PUBLICATIONS

This list provides examples of faculty and student publications; a complete list is available on request.

Faculty - Bold

Students – *italics*

Berman, S.A., Street, R., McDowell, G.S., and Harris, J., 1999, Results of a seismic and GPR investigation over the eastern and western edges of Sikeston Ridge, near New Madrid, Missouri, abs., Seismological Research Letters, in press.

Etienne, N., Coyne, M.S., *Butler, D., and Fryar, A., 1998, Characterization of paleowetland, sediments for TCE biodegradation: Agronomy Abstracts, Annual Meeting, p. 339.*

Drahovzal, J.A., and Harris, D.C., 1998, The East Continent Rift Basin: Its age and genesis [abs.]: American Association of Petroleum Geologists, v. 82, no. 9, p. 1766-1767.

Drahovzal, J.A. and Harris, D.C., 1999, New evidence for the genesis of the rocks of the East Continent Rift Basin [abs.]: Geological Society of America, 1999 Abstracts with Programs, v. 31, no. 5, p. A13.

Eble, C.F., Greb, S.F., Williams, D.A., and Hower, J.C., 1999, Observations on the palynology, petrography, and geochemistry of the Western Kentucky No. 4 coal bed: International Journal of Coal Geology, v. 39, p. 121-139.

Harris, D.C., and Drahovzal, J.A., 1999, The Rome Trough: Cambrian extension in eastern Kentucky [abs.]: Geological Society of America, 1999 Abstracts with Programs, v. 31, no. 2, p. A21.

Ettensohn, F.R., 1998, The Mississippian section at Pound Gap: A tectono-stratigraphic overview, in Eble, C.F., Greb, S.F., and Dever, G.R., Jr., eds., Geology of Pound Gap Roadcut, Letcher County, Kentucky, 1998 Annual Field Conference of the Kentucky Society of Professional Geologists: Kentucky Society of Professional Geologists, Lexington, p. 13-23.

- Ettensohn, F.R.**, 1999, Flexural controls on Paleozoic delta complexes in compressional regimes: Examples from the Appalachian Basin, U.S.A.: Book of Abstracts, First International Symposium on the Deltas, Mansoura University, Cairo, Egypt, p. 28-29.
- Ettensohn, F.R., Greb, S.F., Chesnut, D.R., Jr., Harris, D.C., Dever, G.R., Jr., Mason, C.E., Howell, P.D., Eble, C.F., Caudill, M.R., Houck, K., and Watson, A.E.**, 1999, Mississippian stratigraphy, depositional environments, and tectonic framework of the central Appalachian basin, eastern Kentucky, U.S.A.: Programme with Abstracts, XIV International Congress on Carboniferous-Permian, Calgary, University of Calgary, p. 36.
- Fryar, A.E.**, and Schwartz, F.W., 1998, Hydraulic-conductivity reduction, reaction-front propagation, and preferential flow within a model reactive barrier: *Journal of Contaminant Hydrology*, v. 32, p. 333-351.
- Fryar, A.E.**, and Wallin, E.J., 1998, Spatial and temporal variability in seepage between contaminated aquifer and tributaries of the Ohio River in western Kentucky: *Geological Society of America Abstracts with Programs*, v. 30, no. 7, p. A-23.
- Fryar, A.E., Butler, D.L., Etieene, N., Sweat, C.J., and Coyne, M.S.**, 1999, Seepage to Metropolis Lake and implications for contaminant fate, in *Kentucky Water Resources Annual Symposium Proceedings*: Lexington, Kentucky Water Resources Research Institute, pp. 5-6.
- Greb, S.F.**, and Popp, J.T., 1999, Mining geology of the Pond Creek seam, Pikeville Formation, Middle Pennsylvanian, in part of Eastern Kentucky Coal Field: *International Journal of Coal Geology*, v. 41, p. 25-50.
- Greb, S.F., Eble, C.F., and Hower, J.C.**, 1999, Depositional history of the Fire Clay coal bed (Late Duckmantian), eastern Kentucky, USA: *International Journal of Coal Geology*, v. 40, p. 255-280.
- Greb, S.F.**, and Archer, A.W., 1998, Annual sedimentation cycles in rhythmites of Carboniferous tidal channels, in *Tidalites—Processes and Products*: Society of Economic Paleontologists and Mineralogists, Special Publication 61, p. 75-83.
- Howell, P.D.** and vander Pluijm, 1999, Structural sequences and styles of subsidence in the Michigan Basin: *Geological Society of America Bulletin*, v. 111, pp. 974-991.
- Hower, J.C., Ruppert, L.F., and Eble, C.F.**, 1999, Lanthanide, Yttrium, and Zirconium anomalies in the Fire Clay coal bed, Eastern Kentucky: *International Journal of Coal Geology*, v. 39, p. 141-153.
- Padgett, P.L., Rimmer, S.M., Ferm, J.C., Hower, J.C., Eble, C.F., and Mastalerz, M.**, 1999, Sulfur variability and petrology of the Lower Block coal member (Pennsylvanian) in southwest Indiana: *International Journal of Coal Geology*, v. 39, p. 97-120.
- Hower, J.C.**, and Lloyd, W.G., 1999, Petrographic observations of Gieseler semi-cokes from high volatile bituminous coals: *Fuel*, v. 78, p. 445-451.
- Langston, C., McIntyre, J., Street, R., Harris**, 1998, Investigation of the shallow subsurface near the Paducah Gaseous Diffusion Plant using SH-wave seismic methods, Expanded Abstracts, 68th International Meeting of the Society of Exploration Geophysicists, Vol. 1, 878-880.
- McDowell, G.S., Street, R., Berman, S.A., Woolery, E.**, 1999, Quaternary deformation along the Wolf Island fault zone in southeastern Missouri, *abs.*, *Seismological Research Letters*, in press.
- McIntyre, J., Langston, C., and Street, R.**, 1998, Quaternary deformation along the northwestern edge of the Mississippi Valley graben and its implications with respect to the northeastern terminus of the New Madrid Seismic Zone, 41st Annual Meeting of the Association of Engineering Geologists, Program with Abstracts, p. 110.
- Mehta, S.**, and **Fryar, A.E.**, 1998, Controls on regional-scale salinization of the Ogallala aquifer, Southern High Plains, Texas: *Geological Society of American Abstracts with Programs*, v. 30, no. 7, p. A-22.
- Moecher, D.P., Haynes, E.A., Anderson, E.D., Cook, C.A.**, 1998, Petrogenesis of metamorphosed Grenville carbonatites, Ontario, *Geol. Soc. Am. Abst. Progs.*, v. 30, p. 25.

Moecher, D.P., Sharp, Z.D., 1999, Comparison of conventional and garnet-aluminosilicate-quartz O isotope thermometry: Insights for mineral equilibration in metamorphic rocks. *American Mineralogist*, v. 84, p. 1287-1303.

Moecher, D.P., 1999, The distribution, style, and intensity of Alleghanian metamorphism in south-central New England: Petrologic evidence from the Pelham and Willimantic domes. *Journal of Geology*, 107, p. 449-471.

Moecher, D.P., O'Hara, K.D., Cleary M., Allen, J.L., 1999, Mineralogy of a mullite-bearing pseudotachylite. *Geol. Soc. Am. Abst. Progs.*, v. 31, p. 359.

Rast, N. and Skehan, J.W., 1999, Appalachians in the time interval between the Grenville orogeny and Variscan collision in Sinha A.K. (ed.) *Basement Tectonics* 13, p. 257-275.

Harris, J.E., Woolery, E., Street, R., 1998, Shallow seismic reflection investigations of neotectonic activity in the Lower Mississippi Valley, Expanded Abstracts, 68th International Meeting of the Society of Exploration Geophysicists.

Thomas, W. A., and Astini, R. A., 1999, Simple-shear conjugate rift margins of the Argentine Precordillera and the Ouachita embayment of Laurentia: *Geological Society of America Bulletin*, v. 111, p.1069-1079.

Thomas, W. A., 1998, Neoproterozoic-Paleozoic geography and tectonics: Review, hypothesis, environmental speculation: Discussion: *Geological Society of America Bulletin*, v.110, p. 1617-1618.

Thomas, W. A., 1999, Lateral ramps, mushwads, fault intersections, and sequence of thrusting: *Geological Society of America Abstracts with Programs*, v. 31, no. 3, p. A-71.

Thomas, W. A., 1999, The Taconic orogeny in the mega-South: *Geological Society of America Abstracts with Programs*, v. 31, no. 3, p. A-71.

Thomas, W. A., and Keller, G. R., 1999, Cambrian rifting and subsequent structures in eastern Texas: *American Association of Petroleum Geologists*,

1999 Annual Convention Official Program, v. 8, p. A138.

Tulaczyk, S., Kamb, B., and H. Engelhardt, 1999, Basal mechanics of Ice Stream B. I. Till mechanics: *Journal of Geophysical Research*, in press.

Tulaczyk, S., Kamb, B., and H. Engelhardt, 1999, Basal mechanics of Ice Stream B. II. Plastic-undrained-bed model: *Journal of Geophysical Research*, in press.

Tulaczyk, S., and R.P. Scherer, New model for weak sub-ice-stream tills: XV-th International Congress of INQUA, Durban, South Africa, August 3-11, 1999.

Wang, Z., Madin, I.P., and Street, R., 1998, Shear-wave velocities and soil classifications for communities in Oregon, *Proceedings of the 8th Congress of the International Association of Engineering Geology*, Vancouver, British Columbia, Canada, September 21-25, 1998.

Wood, S., Street, R., and Woolery, E., 1999, Shear-wave velocities of the post-Paleozoic sediments in the Memphis, Tennessee, metropolitan area, *abs.*, *Seismological Research Letters*, in press.

Woolery, E., R. Street, Z. Wang, J. Harris, and J. McIntyre, 1999, An integrated high-resolution P- and SH- wave seismic reflection investigation of neotectonic deformation in the Kentucky Bend region: Central New Madrid Seismic Zone, *Seism. Res. Letters*, in press.

<p style="text-align: center;">DEPARTMENTAL SEMINARS 1998-1999</p>

Application of a GIS to a hydrogeologic investigation in the Inner Bluegrass region in Scott County, Kentucky. Teri Dowdy, Fuller Mossbarger Scott and May Engineers

Sequence stratigraphy in black shales: Results of recent stratigraphic studies in the Chattanooga shale of Tennessee. Juergen Schieber, University of Texas at Arlington

Carbonate diagenesis and sea-level fluctuations. Mark Boardman, Department of Geology, Miami University.

Extreme Neoproterozoic ice ages and the development of the earliest animals: Are the two connected? Large-magnitude extension in the southwestern U.S.: A fresh critical examination. Mark Abolins, Department of Geography and Geology, Middle Tennessee State University.

Earth Science Week Lecture

Discovering ice ages; terraces, curves, and isotopes in Milankovic's paleoclimatology. Vladimir Jankovic, Department of Philosophy, University of Kentucky.

Investigation of the shallow subsurface near the Paducah Gaseous Diffusion Plant using SH-wave seismic methods. Christina Langston, Graduate Student, Department of Geological Sciences, University of Kentucky.

Controls on regional-scale salinization of the Ogallala aquifer, Southern High Plains, Texas. Sunil Mehta, Graduate Student, Department of Geological Sciences, University of Kentucky.

Speculations on disappearance of Paleoproterozoic cratonic basement in the eastern and southern midcontinent region. Randy Van Schmus, Department of Geology, University of Kansas.

Mercury remediation using sulfur-containing ligands. Kevin Henke, Departments of Chemistry and Geological Sciences, University of Kentucky.

The effects of Triton X-100 on the rate-limited desorption of 1,2-dichlorobenzene from soil to water. James Deitsch, Department of Civil Engineering, University of Kentucky.

Hickman, Kentucky: A moving but costly experience. John Kiefer, Kentucky Geological Survey, University of Kentucky.

High-resolution STM images of coal char structures. Uschi Graham, Center for Applied Energy Research, University of Kentucky.

GSA Birdsall-Dreiss Distinguished Lecture

Faults and Fluids: What can we learn about brittle failure in the crust from shall subsurface hydrology? Stuart Rojstaczer, Duke University

Publish and perish! Nicholas Rast, Department of Geological Sciences, University of Kentucky.

Changing influences of tectonics, eustasy, and climate on Pennsylvanian coals in the Illinois and Appalachian Basins. Stephen Greb, Kentucky Geological Survey, University of Kentucky

Pennsylvanian tidalites in the Central Appalachian Basin. Ronald Martino, Department of Geology, Marshall University.

Fossil horses, carbon isotopes, and global change. Bruce MacFadden, Florida Museum of Natural History, University of Florida.

A case study of transpressional orogeny: Uplift and erosion of the San Bernardino Mountains along the San Andreas fault, southern California. James Spotila, Department of Geological Sciences, Virginia Polytechnic Institute.

Toba Caldera, Indonesia: Earth's largest quaternary caldera. Craig Chesner, Department of Geography, Eastern Illinois University

Tectonics of the Qinling Mountains, northwest China. William A. Thomas, Department of Geological Sciences, University of Kentucky.

Recent landslide assessment and mitigation at Huntsville, Alabama. Benjamin Ferrill, Planning Division, City of Huntsville, Alabama.

McFarlan Lecture

Secular oscillations in the mineralogy of dominant carbonate-secreting organisms driven by tectonically forced shifts in seawater chemistry. Steven Stanley, Department of Earth and Planetary Sciences, The Johns Hopkins University.

Remedial design alternatives for foundation seepage at Patoka Dam, Indiana. Edward Woolery, Kentucky Geological Survey, University of Kentucky.

Hydrogeology of the alluvial aquifer near West Point, Kentucky, with special reference to the effects of natural gas storage. Michael Unthank, Kentucky District of U.S. Geological Survey.

DEPARTMENTAL FUNDS

Several important Departmental funds continue to be supported by contributions from alumni and friends of the Department. The special uses of these funds are as follows:

The John C. Ferm Memorial Graduate Student Fund

- a new fund in honor of John C. Ferm to support graduate student research

The GEOFund

- a newly endowed fund to provide long-term departmental needs

McFarlan Fund

- student research grants; student prepares proposal including itemized budget
- student travel to professional meetings to present papers
- McFarlan Lecture (annual seminar)

Geology Development Fund

- enhancement of departmental programs in teaching and research through improvement of equipment and facilities

Geology Support Fund

- support of the departmental seminar program
- equipment for enhancement of instruction
- support for initiation of special programs

Geology Museum Fund

- operation of the Hudnall Geological Sciences Museum

Glenn Rice Memorial Fund

- undergraduate research grants, to support senior theses

In addition to the funds supported directly by alumni contributions, the Department of Geological Sciences has other funds supported by endowments from alumni and annual corporate contributions. These funds and the purposes are:

Hudnall Scholarship Fund

(endowed by James S. Hudnall)

- scholarships for participation in the summer field course

Pirtle Scholarship Fund

(endowed by George W. Pirtle)

- undergraduate scholarship for outstanding junior (\$1,000 per year)
- graduate fellowship (approximately \$2,000 per year as summer stipend plus tuition)

Chevron Fellowship (funded annually)

- graduate fellowship (approximately \$9,000 per year plus tuition)

Chevron Support Fund

- support for student research
- equipment for instruction and/or research

Wallace W. Hagan Scholarship Fund

(endowed by contributions)

- undergraduate scholarship, for a student in field-oriented geology

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- James E. Fout (in honor of James S. Fout, Ashland Inc. Foundation matching)
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