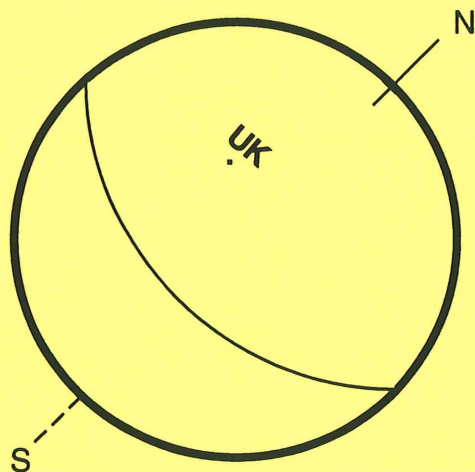


Round Up: 1998

Department of Geological Sciences
University of Kentucky



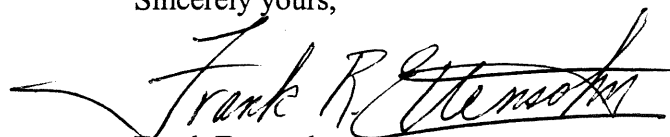
LETTER FROM THE CHAIRMAN

Dear Friends of the Department,

I would like to extend my greetings to all members of our geologic community. As you may remember from last year's letter, the Department has developed a consensus that we need to move in a more applied, environmental direction while maintaining a firm foundation in geologic basics, natural sciences and mathematics. Although this approach is commonly touted as "environmental," it is in reality an interdisciplinary approach that is transforming our science by treating the lithosphere, biosphere, hydrosphere, and atmosphere as parts of a single system in order to understand how the Earth functions and to make related predictions. Whatever one calls this approach, it is now clear that it is not simply a fad. The evidence indicates that it is here to stay. At the recent Annual Meeting of the Geological Society of America, I was amazed at all the related innovations in undergraduate earth science education that are making their way across the country, and even more so by the ten-year, strategic plan of the USGS Geologic Division which has a very definite integrative and environmental themes running throughout it. By comparison, our proposed changes are "right on track." In making these changes, the Department has grown in many ways during the past year, and I would like to share with you some of the highlights. The Department has agreed to focus on three areas of existing or potential strength in its research and graduate efforts: environmental geosciences, energy resources, and tectonics. The Department's request for a name change to Department of Earth and Environmental Sciences has been approved by the University Senate. The Department has successfully completed the hiring of an engineering geologist (Dr. Slawek Tulaczyk), who brings added strength in surficial processes and global environmental change; he already anticipates NSF funding for two projects related to environmental global change. The Department has more than doubled its external funding since 1995. The Department has streamlined its undergraduate University Studies and undergraduate major program to allow greater flexibility and more hands-on field experience. The Department has submitted a plan for a topical major in environmental sciences and has been involved in developing an interdisciplinary proposal for a B.S. in Environmental Sciences. Finally, the Department is in the process of revising its graduate curriculum.

As you can gather, a lot of changes are under way in the Department, and we would appreciate any ideas you may have on how to build a stronger and more effective department. Your support, both in terms of ideas and student aid (see pages 23-24), is critical as we implement our new plans for the future, and we look forward to any input you can provide.

Sincerely yours,

A handwritten signature in dark ink, reading "Frank R. Ettensohn". The signature is fluid and cursive, with a large, sweeping initial "F" and "E".

Frank Ettensohn
Professor and Chair

DIRECTORY

Department of Geological Sciences
University of Kentucky
101 Slone Building
Lexington, Kentucky 40506-0053
(606) 257-3758

Chairman

Frank R. Ettensohn

Stephen Greb
Donald C. Haney
James C. Hower
John Kiefer
David Wunsch

Professor

Richard I. Barnhisel*
John C. Ferm
Nicholas Rast
William A. Thomas

Technical Staff

James A. McHugh

Associate Professor

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
Paul D. Howell
Slawomir M. Tulaczyk

Emeriti

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

Instructor

Kevin Henke

Adjunct Faculty

Donald Chesnut
James C. Cobb
James S. Dinger
James A. Drahovzal
Cortland Eble

* Joint with Agronomy

ANNOUNCEMENTS

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

1998 Alumni Weekend

Those who signed in for the 1998 Annual Alumni Weekend and participated in some of its functions included:

William L. Jackson
Mary Sue Johnson
Frank R. Effensohn
Jessica Wichtowski
Steve McDowell

Eric Wallin
Debra A. Smith
Jeremy Middleton
Kari Wirth
Matt Gregory

David Moecher
Margaret C. Brewer
Ginger Anderson
Alan Fryar
Walter K. Johnson
Matthew B. Vest
Christian Wallover
David Kreeger
Pat Anderson
Mark Gormley
Rick Xedos
Gary Jacobs
Jeff Crevier
Shane Schmidt
Phil Miles
Steven Juscuk
W.C. MacQuown
Russell J. Ford
Sue Rimmer

Mark Kulp
Kelly Waymire
Nicholas Rast
Sara Cross Oddo
Jennifer Miller
Jamen Mohan
Sunil Mehta
Jonathan McIntyre
Paul Howell
Kieran O'Hara
Xin-Yue Yang
Ann Watson
Diana Rast
Jack C. Wilhoit, II
Doug Gouzie
Lois Campbell
Marge MacQuown
Carolyn Ford
Steve Hurst

The 1998 McFarlan Lecture was given by Dr. Patrick Pringle of the Washington Division of Geology and Earth Resources.

The weekend program included a field trip on Friday afternoon: Seismites and bentonites in central Kentucky; led by Frank Effensohn, Stephen Greb, and Nicholas Rast. The annual picnic was held at the Kentucky Horse Park Friday evening..

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

Career options for geology majors

Bruce Amig., Coltec Industries
Mark Gormley, Attorney-at-Law
Doug Gouzie, Agency for Toxic Substances and
Disease Registry

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.

AWARDS

James Cobb, Adjunct Assistant Professor, is getting the Gordon Wood Award from the Eastern

Section EMD this fall. That makes three years out of the last four that someone associated with the Department has won this award.

James Hower, Adjunct Associate Professor, will be taking on the job as editor-in-chief of the *International Journal of Coal Geology* starting in January.

William MacQuown, Professor Emeritus, Geological Sciences, won the Lifetime Achievement in Geology Award from the Kentucky Section of the American Institute of Professional Geologists.

William A. Thomas, Professor, was elected treasurer of the American Geological Institute, which works to coordinate the needs of the geoscience community in North America.

Slawomir Tulaczyk, while still a graduate student at Caltech, presented an invited paper entitled "Future Ice-Sheet Growth or Collapse: Exploring a Plastic-Bed Model of Ice Stream B, West Antarctica. He received an outstanding student paper award from AGU.

David Wunsch, Adjunct Assistant Professor, was awarded a fellowship by the American Geological Institute and will spend a year in Washington, DC. While there, he will learn about scientific issues facing Congress and lend expertise to Congressional members on scientific public policy issues.

ALUMNI NEWS

Patricia A. Anderson, B.S. 1980

Although I am an Environmental Protection Agency employee, I am working in the Underground Storage Tank Program at the Central Valley Regional Water Quality Control Board. I am part of the Federal Rent-a-Fed. Program. This past year, I toured China and the Yantze River. I'm also enjoying touring California on various Geological Society and B.L.M. weekend trips.

Jon B. Armstrong, B.S. 1990, M.S. 1992

I am currently employed by BP Oil Company working as a senior hydrogeologist managing corrective action at petroleum storage facilities in the eastern United States.

Leslie Berry, B.S. 1967

Went independent 9/90, resigning as Chief Geologist of Lake Ronel 0.1 Co., Tyler, Texas. Moved to ranch and set up shop there with fax, phone and modem. Currently putting together medium to large oil and gas deals in west Kentucky Rough Creek grabon, west Tennessee, Utah, east Texas, and ARK-LA-TEX. 1997 was my best year (that means a positive cash flow). 1998, looks very promising. Currently working some with Monte Hay of east Kentucky fame, also a U.K. graduate. Had a good visit with Bill MacQuown in Lexington this past summer.

James G. Blankenship, B.S. 1958

Continuing to enjoy life and retirement.

David J. Campagna, M.S. 1980

After receiving my doctorate at Purdue University in 1990, I worked at Unocal. Presently I am a project manager at Advanced Resources International, an oil and gas consulting firm. I also serve as an adjunct professor at W.V.U. and a research associate at William and Mary.

William L. Champion

Last (1997) fall I had the opportunity to be in Kentucky for the UK/LSU football game. My son, a LSU graduate, enjoyed the game more than I. The weather was bad, so we were in a rush to get to and from Lexington and I didn't get the opportunity to visit. The log library is still getting along with my volunteer work on our reference collection. They had hired someone to organize it, but he quit after getting paid, leaving the collection with LC call numbers and no catalogue. I have renumbered it with modified Dewey numbers and produced a topical list of the books. People who use it can find what they want, as it has works with the same topic on the same shelf. Those for a specific area are together. At any rate, I am not doing any real geology. I enjoy my recreational geology. My son and youngest daughter drove to Salt Lake with me last May through great geology; Plains of San Agustin, Mt. Taylor and the lava flows and Mesozoics around it, Cañon de Chelley, across the Chuskas to Ship Rock, Arches, San Rafael "Reef," Capitol "Reef," Cañonlands, Escalanta

Cañon, Great Salt Lake, and Promontary "Point." I still hope to get back to Kentucky for a visit—maybe next Spring.

Dennis Coskren, Ph.D. 1983

I'm now teaching chemistry at a local high school. My three new rare-earth materials have been approved and are now official, and I am working on a fourth, a ferric phosphate-sulfate.

Joseph Cupp, B.S. 1992, M.S. 1994

In April, 1997, I began working as a senior hydrogeologist for CMD and Associates, L.L.C., an environmental partner with BP Oil Company, performing Risk Assessments on over 20 BP sites in Knoxville and Chattanooga, Tennessee and in Jackson, Mississippi. Am now Office Manager of CMD Associates, LLC.

Michael T. Currie, M.S. 1981

We have just returned to Houston, Texas, after spending six years overseas in Aberdeen and London. I was privileged to be assigned to several fascinating projects during my posting, including the development of the Foinaves (west of Shetlands) and Girasso (deepwater Angola) fields. We are presently in the process of getting settled and of building a new home.

Timothy Elam, M.S. 1978

I am staff geologist with Chevron in Bakersfield, California. I have been working Cymric Field, one of our heavy-oil steam-drive fields on the west side of the San Joaquin Valley. Much of my work this past year has involved planning and drilling horizontal wells.

I enjoy collecting minerals. I am on the Board of Directors of the Buena Vista Museum of Natural History, a non-profit museum here in Bakersfield. My wife, Pat, and I spend a lot of time with museum functions and activities at First United Methodist Church.

Christopher Elvrum, M.S. 1994

Currently working as a hydrogeologist with an environmental consulting firm in Milwaukee, Wisconsin. Projects include petroleum, agricultural, and chlorinated solvent sites.

Donald S. Fullerton, B.S. 1958, M.S. 1961

The first half of 1998 was spent in Calgary, Alberta, working with BHP World Mineral and joint venture partner, Shell Canada, on the Muskeg River mine project. This is an Athabasca oil sands project north of

Ft. McMurray with mine development anticipated in year 2000. My involvement was to establish depositional facies correlations from core data and geophysical logs from approximately 700 drill and core holes in an area of 20+/- miles, establishing lateral extent and three-dimensional facies relationships identified from the core samples. For the second half of 1998, laying low!!

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

Retired in 1994 from an agri-business. Was able to use my geology background on several occasions; the last one being in the environmental field.

James B. Harris, M.S. 1989, Ph.D. 1992

I am an assistant professor in the Department of Geology at Millsaps College in Jackson, Mississippi. I was recently appointed Department Chair. My wife, Peg, and I have two little girls (Rachel 3 ½ and Molly 1 ½).

James W. (Jim) Hazel, M.S. 1973

Still with the Kentucky Division of Oil and Gas.

Roger Head, M.S. candidate 1962-64

Teaching earth science at Okaloosa-Walton Community College, Niceville, Florida.

Michael D. Hines, B.S. 1982

1993 M.S. Project and Systems Management, Golden Gate University. Left active duty military in 1992. Have since applied skills into construction project management, facilities management and most recently, telecommunications project management. Just completed a year 2000 census for over 2,000 locations nationwide. Pursuing my hobby of wildlife rehabilitation and environmental impact studies.

Mark A. Horrell, M.S. 1981

I attended the University of Chicago and received a Ph.D. in Paleoclimatology in 1991. Since then, I have been teaching at the Illinois Mathematics and Science Academy in Aurora. My courses emphasize the use of computer technology for data collection.

C.B. Huggins VI, M.S. 1986

Started an environmental management consulting firm about two years ago. Have a wonderful son of two years and live on a farm located between the Blue Ridge and Appalachian Mountains with my wife Sidney.

Charles T. Hughes II, B.S. 1991

Currently working for ARCIADIS Geraghty and Miller in Oak Ridge, Tennessee. I am a mid-level hydrogeologist in charge of field activities and report preparation. My main focus currently is risk assessment activities in Tennessee, Kentucky, South Carolina, and Alabama both for UST sites and RCRA sites.

Mümin Köksoy, B.S. 1959

After obtaining B.S. from the University of Kentucky, I got my M.S. (1961) from Colorado School of Mines, Ph.D. (1967) from Imperial College, London. I worked as exploration geologist and geochemist until 1973 for the Mineral Research and Exploration Institute of Turkey (MTA). In 1990, I was appointed by the President of Turkey as an executive member of Higher Education Council of Turkey (YÖK). My second term will end in mid-summer, 1998, and then I will return to Hacettepe University.

I send my sincere greetings to my classmates, my sincere regards and respects are due to my professors (Emeriti) W.R. Brown, L.J. Campbell, I. Fisher, B.R. Moore, T.G. Roberts and the late, great McFarlan. They have a special place in my heart and memory.

Phil M. Miles, B.S. 1938, M.S. 1940

Semi-retired and keep busy with investments, occasional consulting, golf, and flying.

Todd Milici, B.S. 1995

I moved to Colorado in May, 1996 and currently live just outside of Boulder, Colorado. I was able to secure a job immediately with a local geotechnical-environmental engineering firm. I am currently working as a project manager/engineering technician on a stormwater collection project at Denver International Airport that is designed to collect, contain, and recycle the Glycol that is used for de-icing the aircraft. My company is providing the Q.C. as well as design specifications. I am recently engaged to be married on August 15, 1998. In my free time, I play hard in the mountains and explore the local geologic diversity.

Timothy Miller, M.S. 1984

We are still mining thin coal underground and are overcoming roof problems. The company is exploring underground mining of limestone to increase our future reserves. We are presently modeling the limestone to determine the slope of the body and how it can be mined.

Henry M. Morgan, B.S. 1958

Retired – Doing a little consulting, raising grandchildren, cattle and a little hell. Joan and I are enjoying retirement and do a good bit of traveling in our motor home and a lot of boating in the summer. We urge all our friends to call or write and come by when you can.

Robert A. Nienaber, B.S. 1984

I am now Corporate Controller of two affiliated companies, Jordan Construction of Hilton Head, Inc. and Jordan Mining Co., Inc., both of Hilton Head Island, South Carolina. Mining in the South Carolina low country is not exciting—we “mine” dirt and sand. But it funds my personal research in beach sands and the marine environment. When Connie and I aren’t working, we are on the boat or beach with our dog. We hope to visit UK this year, and see how things have changed since my days at Bowman Hall.

Sarah J. Cross Oddo, B.S. 1992

Currently working as a project scientist at Nesbitt Engineering, Inc. in Lexington, Kentucky. Recently completed Master of Science in Environmental Science degree at Indiana University with a concentration in water resources.

Alma Paty, M.S. 1984

My consulting business is going well, with work coming in from the American Coal Foundation, the American Geological Institute, the National Coal Council, and the National Mining Association. Have served as local chapter president of a group known as Women in Mining, and our membership has more than doubled in 15 months. The Director of the Office of Surface Mining is one of our members. Traveled this year to Costa Rica and St. Petersburg, Russia. John and I live on Capitol Hill and all old alums are welcome to call for a tour.

A. Edwin Pettit, B.S. 1940

The same—playing some golf, doing a little fishing, and a lot of reading.

Don Prater, B.S. 1993

Coal exploration geologist with Addington Enterprises, Inc., in Ashland, Kentucky I am in charge of a drill and crew in eastern Kentucky and Tennessee.

James S. Rankin, M.S. 1979

Our girls, ages seven and nine, are growing and

thriving. We are quite involved in our church and Linda especially in the girls' school. This fall will mark my third year as Department Chair (math) at Thomas Jefferson High School in Denver, Colorado. We continue to enjoy living in Colorado. I often miss working in geology but, all things considered, teaching high school is working out well.

Michael S. Reed, B.S. 1982

We have relocated in Louisville, Kentucky, after eight years in Illinois. Visitors welcome. It's great to be back in Kentucky. I hope to visit Lexington on occasion and see what's up.

Herman H. Rieke, B.S. 1959

The petroleum industry is still strong in south Louisiana despite the low prices. All are optimistic. I spent a quiet summer in Morgantown working on a new book with two others: one is a mathematician and the other is a geologist. The tentative title is *Probability Theory for Environmental Applications*. I expect that the book will be published by Elsevier, since they appointed me an associate editor for their *Journal of Petroleum Science and Engineering*. Well, more work for me. The family is doing okay—I have two boys still in universities with a third son to join them in 1999. So far, no takers to major in geology or petroleum engineering.

Tom Schick, B.S. 1994

A lot has changed since last year. At this time, I am still employed by Geotechnologies, Inc. in Raleigh, North Carolina. I am, however, a manager in training while a new office is opened in Charlotte, North Carolina. Also, Jennifer and I are expecting our first child in December.

Edward M. Self, B.S. 1950

Retired—going “bionic” due to two hip replacements and now two knees also. Expect to be back on the golf course by January 1.

Nicholas Sirek, B.S. 1993, M.S. 1995

After two years with the Commonwealth of Kentucky in the Environmental Protection Cabinet, I have finally broken free into the world of private consulting with Marcum Environmental, Inc., a small environmental firm out of Huntington, West Virginia. I am currently the Kentucky Regional Manager and work out of my house in Lexington, Kentucky. Recent mergers between some of our larger clients have thrown us into the fray with the big consulting firms. I have been

contracted by SuperAmerica to work inside their corporate offices here in Lexington and manage approximately 180 of their environmental restoration projects in an eight-state region. It has been a great opportunity for me and our company. I am also currently studying for the ASBOG exam this fall. If all goes well, I will be a P.G. by the time you read this. Life has been good to us this year and we hope it is as good for everyone else.

Franco Urbani, Ph.D. 1975

Still in Venezuela. Nothing new since last report.

Zhengping Wang, Ph.D. candidate 1995

I started my current full-time job as a software engineer in February, 1997, at Newbridge Network Corporation, one of the largest network production manufacturers in Canada. I enjoy my work very much. I got my MS in computer sciences from Carleton University in April, 1997, after 20 months of hard effort (courses and thesis). Since I am going to be living in Ottawa for a long time, I bought a house.

Thomas R. Webb, B.S. 1983

I currently am employed by the City of Lexington as the Environmental Services Program Manager of 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.

A.P. Chip Whipple, B.S. 1952

Retired from career in exploration including three years U.S. Air Force, seismologist, 12 years Chevron Oil as geologist/geophysicist, 21 years CONOCO as geologist-geophysicist in research; and in operations geophysics. Currently completing M.S. in geography at Oklahoma State University, Stillwater, Oklahoma.

George Brian Wyatt, M.S. 1991

Since October, 1997, I have been working for R.D. Zano and Associates in Columbus, Ohio. Although the firm is a full service engineering consultant, including environmental, I am in the land planning division, where we design single-family developments ...a far cry from practicing geology!

GSA MEETING

The 1997 annual meeting of the Geological Society of America was held in Salt Lake City, Utah. Over

fifteen participants affiliated with the Department signed "the book."

IN MEMORIAM

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

William V. Naylor, Jr.

Phyllis Nelson, September, 1998

Phyllis Nelson

Phyllis was the wife of Vincent Nelson who taught structural geology, field camp, and economic geology in the Department for many years. Vin passed away about 10 or 12 years ago. For a brief time after Dr. McFarlan retired, Vin was also acting chair of the Department. Phyllis accompanied him on many of his geologic activities, and Phyllis was attending some Departmental functions as late as last year. Anyway, for many years Phyllis was an avid supporter of the Department and of its many activities.

Phyllis passed away on 27 September, and services were held on Friday, 2 October, at Faith Lutheran Church. Contributions may be made to Faith Lutheran Church or to one's own favorite charity. Vin and Phyllis are survived by one daughter, Andrea.

STUDENT NEWS

1997-1998 DEGREES AWARDED

Bachelor of Science

Steven Aldis

Allen Laughlin

Steve McDowell

Jonathan McIntyre

Mark Strevels

Stephen S. White

Steven B. Wood

Master of Science

Margaret C. Brewer, 1997, M.S., Stratigraphy and structure of an ancient rifted continental margin in the southern Appalachians of Tennessee and North

Carolina.

Advisor: William A. Thomas

Therese C. Dowdy, 1998, M.S., Application of a GIS to a hydrogeologic investigation of the inner bluegrass karst region in Scott County, Kentucky

Advisor: Lyle V.A. Sendlein

Daryl Hines, 1998, M.S., Hydrologic investigation at an industrial site of Scott County, Kentucky

Advisor: Lyle V.A. Sendlein

Eric Scott Johanson, 1997, M.S., Petrography, facies stratigraphy and depositional environments of the big Lime (middle/upper Mississippian) on the Pine Mountain overthrust, southeastern Kentucky.

Advisors: John Ferm and Frank Ettemsohn

Shane R. Schmidt, 1998, M.S., "Reef" occurrence and sequence stratigraphy of the Upper Ordovician Bardstown member, Drakes Formation, north-central Kentucky.

Advisor: Frank R. Ettemsohn

Eric J. Wallin, 1998, M.S., Ground-water/stream-water interactions in the vicinity of the Paducah Gaseous Diffusion Plant, McCracken County, Kentucky.

Advisor: Alan E. Fryar

Mark J. Warrell, 1998, M.S. Determination of the origin of groundwater in a fly ash landfill in northern Kentucky.

Advisor: Lyle V.A. Sendlein

Doctor of Philosophy

Esawi K. Elesawi, 1997, Ph.D., Geology and geochemistry of the Mocksville Complex, central North Carolina: Petrogenetic and tectonic implications.

Advisor: Nicholas Rast

Donald K. Lumm, 1998, Ph.D., Subsurface geometry and petrography of rock units between the Beech Cree (Barlow) Limestone (Pope Group) and the Springfield Coal (Carbondale Formation) across part of the LaSalle anticlinorium, Lawrence County, Illinois

Advisor: John C. Ferm

Zhenming Wang, 1998, Ph.D., Two-dimensional

ground-motion simulation in the Upper Mississippi Embayment.

Advisor: Ron Street

Edward Woolery, 1998, Ph.D., An integrated high-resolution P- and Sh-wave seismic-r-reflection investigation of neotectonic deformation in the Kentucky Bend region: Central New Madrid seismic zone.

Advisor: Ron Street

Yang, Xin-Yue, 1998, Ph.D., Petrologic and chemical changes in ductile shear zones as a function of the depth in the continental crust.

Advisor: Kieran O'Hara

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

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

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

Advisor: William A. Thomas

David L. Butler (B.S., Kentucky)

M.S. thesis: Biodegradation of trichloroethene in wetland soils from McCracken County, Kentucky
Supported by the Kentucky Water Resources Research Institute

Advisor: Alan E. Fryar

David Campbell, (B.S., Morehead)

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

Advisor: Paul Howell

Denny J. Cantrell (B.S., Kentucky)

M.S. thesis: Organic maturation of the Devonian black shales in eastern Kentucky.

Advisor: Sue M. Rimmer

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

Alan Gentry, (B.S., Louisville)

M.S. thesis: Application of RISK PRO to USG 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

Greg Graham (B.S., Wisconsin-Milwaukee)

M.S. thesis: Geologic mapping and three-dimensional characterization of two juxtaposed lateral ramps in the Appalachian thrust belt in northeastern Alabama.

Supported by USGS EDMAP

Advisor: William A. Thomas

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)

Walter Johnson (B.S., Louisville)

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

Advisors: Frank R. Ettensohn and Nicholas Rast

Steven Juszczuk (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

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

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

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

Advisor: Frank R. Ettensohn

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 and G.S.A.

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

Yalan Tang (B.S., Shanxi; M.S., Beijing)

Ph.D. dissertation: Coal petrology, mineralogy, and geochemistry of the Fire Clay coal bed, southeastern Kentucky.

Advisor: Sue M. Rimmer

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. Ettensohn

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

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

Advisor: Frank R. Ettensohn

Jessica L. Wichtowski (B.S., State Univ. of New York at Geneseo)

Reactions of trichloroethene with pyrite.

Supported by the Kentucky Water Resources Research Institute

Advisor: Alan E. Fryar

NEW GRADUATE STUDENTS

Seth A. Berman (B.S., Millsaps)

Eliazabeth Haynes (B.A., Centre)

Helen E. Jewell (B.S., University of Georgia)

Danita M. LaSage (B.S., Eastern Kentucky; M.S. University of Alaska)

Jonathan L. McIntyre (B.S., University of Kentucky)

Stephen T. Plauché (B.A., University of California)

Steven B. Wood (B.S., University of Kentucky)

TEACHING ASSISTANTS

Seth Berman

Sunil Mehta

David Butler

Christofer Sweat

David Campbell

Matthew Vest

Elizabeth Hanes

Jessica Wichtowski

Lisa Jewell

Kari Wirth

Danita LaSage

Steven Wood

RESEARCH ASSISTANTS AND FELLOWS

Christina Langston

Jonathan McIntyre

Stephen Plauché

STUDENT AWARDS

Arts and Sciences Dean's Scholarship

Nick Garland

Best Student Paper Award, Geology Section, Kentucky Academy of Sciences

Nick Garland

Chevron Fellowship

Steven Juszczuk

Graduate School Research Grant

Matthew Vest

Graduate School Travel

Margaret Brewer
David Butler
Christofer Sweat
Xin-Yue Yang

Geological Society of America Research Grant

Sunil Mehta

Graduate School Dissertation Enhancement Award

Sunil Mehta

Hudnall Scholarships

Robert J. Blair
Thomas B. Brackman
Matthew A. Gregory
Susan E. King
David M. Kreeger
Jill Krukoski
Gary S. McDowell
Shayne A. Newsome
Daniel B. O'Connor
Becky A. Ross
Elise A. Venard
Christian J. Wallover
Jack C. Wilhoit II
Christian J. Wallover

McFarlan Fund

David Butler
Elizabeth Haynes
Christina Langston
Jonathan McIntyre
Christofer Sweat
Matthew Vest
Kari Wirth

Science Project Award, AAAS/NAAS/AJAS

Nick Garland

Tarr Award (Sigma Gamma Epsilon) - outstanding graduating senior

Richard N. Xedos

Undergraduate Research and Creativity Awards

Matthew Gregory
Deana Wunsch

Undergraduate Research Program Award

Nick Garland

Pirtle Award - outstanding junior showing promise in geology

David M. Kreeger

Pirtle Graduate Fellowships

David Butler
Sunil Mehta
Christofer Sweat

STUDENT PRESENTATIONS

David Butler: Natural attenuation of trichloroethene in wetland soils: Geological Society of America Southeastern Section Meeting, Charleston, WV, March 31, 1998;

David Butler: Assessing potential biodegradation of trichloroethene in wetland soils and sediments along the Ohio River, McCracken County, Kentucky: American Geophysical Union Spring Meeting, Boston, MA, May 27, 1998.

Nicholas Garland: Paleoecology and taphonomy of a Middle Ordovician edrioastroid firmground, central Kentucky, Kentucky Academy of Science, Morehead, KY, November, 1997.

Nicholas Garland: Life and times on a Middle Ordovician edrioasteroid firmground from the Lexington Limestone, Central Kentucky Southeast Section, G.S.A., Charleston, West Virginia.

Gregory Graham: Three-dimensional characterization of two juxtaposed lateral ramps in the appalachian thrust belt of northeastern Alabama. Geological Society of America Annual Meeting, Salt Lake City, UT, October 19-23, 1997

Mark Kulp: Recognition of seismogenic influence during paleozoic epicontinental sedimentation: Examples from the Middle Ordovician Lexington limestone, central Kentucky. Eastern American Association of Petroleum Geologists, Lexington, KY, September 27-30, 1997.

Mark Kulp: Stratigraphic and structural framework of Granville-like lithologies in the Tanglewood member, Middle and Upper Ordovician Lexington

limestone, central Kentucky, Eastern American Association of Petroleum Geologists, Lexington, KY, September 27-30, 1997.

Wm. Jay Sims: Geologic instruction at the secondary or introductory college level using local topographic and geologic maps. Geological Society of America Annual Meeting, Salt Lake City, UT, October 19-23, 1997

Christofer Sweat: Natural attenuation of trichloroethene in paleowetland sediments and wetland soils in western Kentucky: the role of organic carbon: Geological Society of America Southeastern Section Meeting, Charleston, WV, March 31, 1998;

Christofer Sweat: The role of organic carbon in trichloroethene sorption to paleowetland sediments and wetland soils, McCracken County, Kentucky: American Geophysical Union Spring Meeting, Boston, May 27, 1998.

Eric Wallin: Ground-water discharge to tributary streams: a possible mechanism of contaminant transport to rivers?: Geological Society of America Annual Meeting, Salt Lake

Xin-Yue Yang: Element mobility during greenschist mylonitization: An example from the Brevard Zone, North Carolina. Geological Society of America Annual Meeting, Salt Lake City, UT, October 19-23, 1997

FACULTY NEWS

Richard Barnhisel

Over the past thirty years, my primary research has turned from clay mineralogy to surface mine reclamation to more recently to precision farming. However, I still maintain some activity in each area. I still enjoy teaching clay mineralogy and plan to offer this class in the spring of 1999. Precision agriculture utilizes GPS/GIS equipment and software. I also use this equipment in locating sampling positions associated with reclamation research.

Most of my research efforts in reclamation during the past few years relates to the return of disturbed soils to their original productivity prior to being

mined. I have been heavily involved in editing a book on the subject of reclamation of drastically disturbed lands which should be in print early 1999. In January, I will assume the position of Executive Secretary of the American Society for Surface Mining and Reclamation.

Frank R. Effensohn

Any more, most of my work seems to center on departmental administrative tasks and teaching. However, together with coworkers in Physics and Astronomy and in the College of Education, I submitted a proposal to the state to fund a month of teacher professional development in the Earth and space sciences for high school teachers. High schools in Kentucky are now mandated to include the Earth and space sciences in their curricula, and truthfully very few of these teachers have the necessary background to effectively deal with these topics. So our grant was funded to provide basic training to a group of 24 central Kentucky high school teachers who will pass on the information to other teachers in the area. The program went so well that we were asked to make a series of educational TV modules on the Earth Sciences for use in the state and were encouraged to submit another proposal for work with middle school teachers in the coming year.

After working with the teachers for the month of June, I did four weeks of field camp in Colorado with Dave Moecher in our traditional Crested Butte-Gunnison locale. The idea was to familiarize Dave with the area and show him what kind of exercises we have been doing so that he can take over the running of field camp in successive years. Perhaps the highlight of this four weeks for me was the opportunity to spend three days in central New Mexico collecting volcanic and pyroclastic rocks from the Valdes caldera for use by John Fern in his introductory geology course for teachers.

I spent what was left of the summer working on parts of the Pound Gap Section in eastern Kentucky and working with Ordovician seismites in central Kentucky area with Nick Rast. We have been mapping the intensity of deformation in three well controlled horizons in the Brannon Member of the Lexington Limestone in the hope of locating areas of apparent epicentral intensity. Our preliminary results were presented in a symposium on seismites convened by Nick and myself at the Annual G.S.A. Meeting in Toronto at the end of October.

The Pound Gap Section contains about 1700 ft of Upper Devonian through Lower Pennsylvanian strata

almost completely exposed on the upper block of the Pine Mountain Thrust in Letcher County, Kentucky. This spectacular exposure was the site of 1998 Kentucky Society of Professional Geologists Annual Fall Field Trip, and Don Chesnut, president of the society, brought together a group of 15 geologists to develop a field guide for the trip, each person working on a part of the section. I worked on three parts of the section, including marine parts of the Pennington Formation, the Upper Newman Formation, and the Devonian-Mississippian black-shale sequence at the base of the section. The trip was probably one of the best trips ever offered by the society with more than 130 participants.

Finally, I can report that two graduate students whom I advised completed their theses in the past year. Shane Schmidt defended his thesis on the sequence stratigraphy of the Upper Ordovician Bardstown Member of the Drakes Formation in west-central Kentucky, and Scott Johansen defended his thesis on depositional environments in the Mississippian Big Lime on the Pine Mountain Overthrust of southeastern Kentucky.

John C. Ferm

Last year John taught sedimentology and geology for elementary school teachers during the first semester. After careful polling of the teachers group, he found that they were not satisfied with the labs and prepared a proposal for upgrading them. The proposal was accepted and improvements are now in progress.

During the second semester, John and Doris went to New Zealand where John worked with Tim Moore on a proposal to prepare a "core book" for the New Zealand coal fields. The proposal was accepted and John now plans to spend the spring semester of 1998 in New Zealand working on this project. He also visited Joan Esterle in Brisbane, Australia last spring and found that she is doing very significant work on coal breakage, saving the coal companies millions of dollars each year. This is a big project and could have important implications for the U.S. coal business.

Alan E. Fryar

During the past year, we concluded the first phase of our studies of ground-water flow and contaminant fate around the Paducah Gaseous Diffusion Plant (PGDP). Eric Wallin defended his M.S. thesis in April and has moved back to Minnesota, where he is working for GME Consultants. Using hydraulic, thermal, and hydrochemical monitoring, Eric

documented that ground-water discharge is focused along incised reaches of tributary streams in the Ohio River flood plain. I will be submitting a manuscript based on Eric's work this fall. The second phase of our work, involving laboratory studies of natural attenuation of trichloroethene (TCE) in soils and sediments, is in high gear. Working with students and faculty from the UK Department of Agronomy and Florida State University, David Butler is finishing studies of anaerobic biodegradation of TCE in wetland soils and sediments from the Ohio River flood plain. Chris Sweat is finishing studies of adsorption of TCE to organic matter and mineral surfaces in wetland soils and paleowetland sediments from the upper Cretaceous McNairy Formation, which underlies the contaminated aquifer at PGDP. Jessica Wichtowski will be examining the potential for abiotic degradation of TCE by pyrite from the McNairy Formation. The third phase of our work began this summer: Danita LaSage (a new Ph.D. student) and I are examining mechanisms of natural attenuation along a reach of stream to which contaminated ground water is discharging.

In non-Paducah news, Sunil Mehta passed his Ph.D. qualifying exams and continues to make progress in studying salinization of the Ogallala aquifer in the northern Texas Panhandle, as evidenced by his awards from the Geological Society of America and the Graduate School. We spent eight hot days collecting water samples near Pampa, Texas, last August. I taught a graduate seminar in contaminant hydrogeology last fall and introductory hydrogeology in the spring, and I convened a session on environmental geosciences at the Eastern Section meeting of the American Association of Petroleum Geologists last October.

Paul D. Howell

Dr. Howell has been selected for a second year to serve as distinguished lecturer for the National Association of Geoscience Teachers (NAGT) for 1998-1999. In addition to visiting several universities to discuss teaching and curriculum issues, he will be part of the team presenting the NAGT Innovative and Effective Geoscience Teaching workshop at the GSA Annual Meeting in Toronto.

David P. Moecher

The newest experience for me in the past year was travelling to the Gunnison, Colorado, area to teach geology field camp with Frank Ettensohn. We had a large contingent of students (14) who cut their teeth on the Cement Creek and Almont sections, and then

became experienced mountaineers by scaling Double Top. My hat is off to all the past UK students who have completed the mapping projects on both sides of Cement Creek; it is a physically challenging map area. But the view from the top makes all the climbing and hiking worth the effort. Beginning next summer I will be the instructor at camp while Frank helps teach a new course: GLY 223, Introductory Geology in the Rocky Mountains. This course will be based at Western State College in Gunnison as well. Stop out and visit us, if you are in the area.

My research interests continue to include aspects of metamorphism and tectonism in the southern and northern Appalachians. Projects include an assessment of the conditions of high grade metamorphism in the southern Blue Ridge near Franklin, North Carolina, which led to melting of the rocks. One aspect of this work involves oxygen isotope analysis of minerals using the laser fluorination method. We find that the rocks may have been metamorphosed to temperatures as high as 900 °C! I would melt too, at those conditions.

Elizabeth Haynes has started her Master's research under my supervision. Elizabeth was a post-bac student in the Department for a couple years, and was very active in Department functions. She will be working on oxygen isotope systematics in metamorphosed carbonatites in the Grenville Province of Ontario.

Kieran O'Hara

The past year was spent finishing up research projects on chemistry of continental shear zones. Mr. Xin-yue Yang successfully defended his dissertation on this topic in the Spring. Other projects almost completed include a study of oxygen isotopes in brittle fault zones and the role of water in earthquake generation. On a more relaxing note, I took several canoe trips along local streams during the summer to search for offset of stream sediment near fault zones. One locality on Boone Creek in Fayette County shows substantial disruption at the Kentucky River fault, suggesting more recent activity than commonly assumed.

This semester Paul Howell and I are teaching a new course in environmental geology for non majors, and so far it is being well received. I continue my duties as co-ordinator of Graduate affairs. Some welcome news is the continued NSF support for our geochemical studies of ancient earthquake sites.

Nicholas Rast

This year Nicholas Rast again concentrated on sorting out and preparing data for publication. The joint research with Dr. F.R. Ettensohn continued and, in particular, emphasis was laid on recording of sedimentary manifestations of ancient earthquakes that caused liquefaction of carbonate deposits of Ordovician age. In addition, personal research into the Precambrian basement of the Appalachian Chain continued and some recent ideas submitted and accepted for publication.

Research-related effort connected with the *Journal of Geodynamics* continued.

In September, 1997, Dr. Rast was invited (and he attended) to participate in a major conference in the British Isles held in commemoration of the 60th birthday of Professor J. F. Dewey in Oxford and related field-trips in Ireland. The Proceedings of the Conference are due to be published this year.

Susan M. Rimmer

In a difficult year involving administrative changes in the College of Arts and Sciences, Dr. Rimmer continued as a much overworked Associate Dean.

Ron L. Street

Since the last *Round Up*, the students and I have completed approximately 35 km of high-resolution P- and SH-wave CDP lines in western Kentucky and southeastern Missouri. We have also completed nearly 200 SH-wave vertical soundings in western Tennessee and northeastern Arkansas. I would like to say it has been fun, but either the Upper Mississippi Embayment is getting hotter (global warming?) or I'm getting older.

We have also started work on a NSF-sponsored project near New Madrid, Missouri, to seismically image the edges of the Sikeston Ridge, and a USGS-sponsored shear-wave study in the Memphis, Tennessee, area. In the latter study, we are acquiring SH-wave soundings with a seismic hammer and our Vibroseis unit for the purpose of determining dynamic sit periods in the Memphis metropolitan area. Both studies are scheduled to continue through next summer—I am hoping for a nice cool, dry summer.

William A. Thomas

Reflecting on a full year of sabbatical leave, more got started than got finished. It was a thoroughly enjoyable and productive year. The highlights included five weeks of field work in Argentina and presenting a seminar at the Academia Nacional de

Ciencias (National Academy of Sciences) on the national day of geology. At the Alabama Geological Survey, I completed compilation for publication of the geologic map of the Coosa deformed belt; this is a joint effort with Jim Drahovzal and covers parts of 28 7.5-minute quadrangles. The Coosa deformed belt consists of several thin, imbricate thrust sheets above an upper-level detachment. Understanding this relatively complex structure is necessary to protect the primary aquifer, the fractured Mississippian Fort Payne Chert, which is subject to pollution from unofficial waste dumps in numerous abandoned chert pits. Also in Alabama, I worked in the field with two graduate students (Maggie Brewer and Greg Graham), who are doing geologic mapping with support from the USGS EDMAP program. Ricardo Astini came from Argentina on a Fulbright research fellowship to work with me on Cambrian stratigraphy in Alabama, Georgia, Arkansas, Oklahoma, and Texas. That project with support from NSF and National Geographic involved nearly three months of field work and was followed by comparable work in Argentina. During the year, I was elected to a two-year term as Treasurer of the American Geological Institute, and that will be followed by a two-year term as Chair of the Finance Committee of AGI.

Slawomir M. Tulaczyk

I feel very fortunate that I was given the opportunity to join our Department as its newest faculty member in the Fall of 1998, and I would like to give warm thanks to all the people in the Department who have given me so much help in the difficult transition period. My research and teaching interests are focused on surface processes and engineering geology and I am looking forward to working in these areas with our undergraduate and graduate students. My expertise in these areas should contribute to both, applied and basic research emphasis of the Department. In addition, I hope to work closely with the KGS, KWWRI, and the UK Department of Civil Engineering.

My first class at UK is GLY470 (Senior Seminar) and teaching it is a thoroughly enjoyable experience. This class gives me the chance to get to know some of our most senior undergraduates who have turned out to be a very mature group of individuals knowing that they are here for quality education. Hopefully they will keep in touch with the Department after graduation. In addition to the Senior Seminar, I am also advising on an Independent Study of Elizabeth Haynes who is doing

a study on clay mineralogy of sediment samples recovered from beneath the West Antarctic Ice Sheet. Next semester I plan to teach the long-forgotten course in Landforms which will be targeted toward undergraduates in our Department and also in Agronomy, Civil Engineering, and Geography. Additionally, we (Dr. Street and myself) are offering a seminar class in Engineering Geology. This class will have a strong field component because we want to take students to different sites which illustrate the importance of engineering geology in human interactions with the Earth (e.g., the landslide in Hickman, KY).

In the near future my research will be a combination of continuing studies of glacial processes (subject of my Ph.D. thesis) and new projects developed since my arrival to the UK. I have had the good luck of receiving a 2-year NSF grant to pursue laboratory studies of glacial erosion. This grant has 1.5 years of support for a graduate student and I hope to find somebody, who wants to pursue a M.S. degree in engineering geology, to do this work. Additional NSF funding is likely to be granted in January 1999 to do computer modeling of the West Antarctic Ice Sheet which may become unstable in response to the ongoing global warming. This work will be in cooperation with Dr. Douglas MacAyeal (U. Chicago) who is a renown expert in numerical modeling of fluid dynamics. If funded, this grant would have full RA support for 3 years. This project will be suitable for a graduate student interested in pursuing a Ph.D. with heavy emphasis on numerical simulation and scientific visualization. In addition to these efforts, I am working hard on jump starting some projects related to Kentucky. One of these projects involves geochemical investigations of cave flowstones and dripstones which may contain paleoenvironmental and paleoclimatic records. The goal of this study is to verify whether we can use the speleothems from Kentucky to reconstruct past climatic and environmental changes which affected this region over the last 100s to 100,000s of years. A graduate student of ours (and a passionate caver), Walter Johnson, is already helping me to identify sites for sampling of speleothems. In addition, David Kreeger (a graduating senior) is planning to do post-baccalaureate studies with me during the next two semesters. David is interested in geochemistry and the speleothem project will give him a good opportunity to get some research experience before going to a graduate school somewhere else.

In summary, the two months since my arrival to the Department have been very eventful and busy but also very enjoyable. I am looking forward to meeting all of the friends of our Department at its various functions.

ADJUNCT FACULTY.

James A. Drahovzal

I continue to head up the Geologic Mapping and Hydrocarbon Section at the Kentucky Geological Survey. Despite the fall in oil prices, we have managed to put together a Rome Trough Consortium to examine the geology and natural-gas potential of this Cambrian graben. The two-year project will be funded jointly by industry and DOE. The Ohio and West Virginia geological surveys will also participate in part of the study. Our digital geologic mapping effort continues to grow and we have now digitized about 100 7.5-minute geologic quadrangles and compiled several 1:100,000-scale maps. We have begun working with the Kentucky Transportation Center and the state highway department who will be applying digital geology to highway planning and design.

Personally, I have continued to conduct research in the Cambrian and Precambrian rift basins of Kentucky and continued mapping the Precambrian basement. Most of this work has been done utilizing newly available reflection-seismic data for the state. Within the past several months, we have acquired several significant seismic lines that should help us understand the relationship of the eastern part of the Cambrian Rough Creek Graben to the Proterozoic East Continent Rift Basin. We now have over 1800 line-miles of 2-D seismic data with which to work. Within the next several months we will be adding a geophysicist at KGS, who will be addressing several topics in addition to the deep and neotectonic structures of the Commonwealth.

As an adjunct associate professor in the department, I team taught an Illinois Basin neotectonics course with Ron Street during the Spring semester. In addition, I participated on the committees of four M.S. and four Ph.D. candidates. Their research topics include goniatite biostratigraphy, high-resolution seismic reflection studies, geologic mapping, earthquake geophysics, structural geology, and stratigraphy. A recent Ph. D. student from the department is working with me this year as a post-doctoral fellow in the area of digital geologic mapping. Two of the Department's

undergraduate students have student appointments with the Geologic Mapping and Hydrocarbon sections 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 part of Department activities.

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 toward the utilization of coal and products derived from coal. Recent research has focused on the petrographic aspects of the grinding properties of coal and on the petrology of coal-derived fly ash. Research is conducted in cooperation with many of the coal-burning utilities in the eastern United States. Last September, Jim Drahovzal and I co-hosted the joint meeting of The Society for Organic Petrology and the Eastern Section of the American Association of Petroleum Geologists. In March, Cortland Eble and I organized a symposium on applied topics in coal geology at the Southeastern Section meeting of the Geological Society of America.

EMERITUS FACULTY

Lois J. Campbell

This past year has been eventful for me. I have been about a bit and am now getting ready to move to a retirement community in Atlanta.

It was in late November that I made an unplanned trip to the hospital. That led to heart surgery followed by some months of various rehab activities. I have learned to use the treadmill, the rowing machine, various bikes and to lift weights.

In March, I had a visit from Brigitta Molin from Sweden. Those of you who were part of the old Miller days may remember her as our geology librarian for one year.

In late May, I drove to Memphis for the wedding of a nephew and the following week I flew to Las Vegas for another wedding. There have also been trips to Toledo and Columbus. So I am getting around.

The retirement community I chose is in northwest Atlanta, but I have had to wait for a vacancy. It is

now settled that I will move at the end of October. My new address will be St. Anne's Terrace, 3100 Northside Parkway NW, Atlanta, Georgia 30327. I will not have my own telephone number until I move in. If any of you should find yourselves in Atlanta or just passing through, I would be pleased to hear from you.

William Dennen

Not much of note at this end—lots of householding interspersed with model rail-roading in the main. Took a trip to my old stamping grounds in Nova Scotia where the rocks have lasted better than the people.

I still maintain my relations as a "Research Scientist" at Salem State College where I do little but occasional advising.

Irving Fisher

This has been the year of the heart. I have got a new mitral valve. It used to belong to a pig, but I doubt very much that he is in any shape now to use it. This happened in the middle of July and now I am walking two miles a day. When I went to the hospital I asked Ginny, who was to have a physical exam, to ask the doctor to check up on why she was so short of breath. It seems that she also has a bad mitral valve and will probably have it replaced in late October or November.

Other matters have receded. I have dropped my job as treasurer of the Diamond Island Association and Secretary of the Ricker Park Condominium. In fact, I am now a total loafer. I did see the UK vs. Louisville football game on TV and we watch UK basketball whenever possible. We have a satellite dish and can get many programs. My sons have been mowing the lawn for me. Larry usually, but Chuck this last week while he was here. I should be able to handle it now (riding lawn mower).

We put in a separate line for the computer so that the phone won't always be tied up. Fortunately Chuck was here when it came to the house. I had casually said I would put it in from the outside, but I hadn't figured on the maze of wires that had to be handled. Chuck did it for me. Just ignore most of the wires. It works.

Outside of open-heart surgery we are fine. Come and see us when you get to Maine. My e-mail address dibud@aol.com. Would be pleased to hear from you.

Bruce Moore

A variety of geological projects are continuing to

make retirement very productive and enjoyable. I have been spending winters in Australia on various gold, petroleum, and coalbed methane gas projects, including chair for a session of the International Coalbed Methane conference in Brisbane and a paper and met with former UK students Joan Esterle and Jack Pashin.

Have continued to spend time flying and to apply and develop my low altitude airborne multispectral fracture detection system with recent exploration successes in Canada, Australia, Nevada, Michigan, and Illinois. Gave an invited paper at the International Symposium on Mantle-related mineral deposits. Currently working on the detailed geochemistry of fractures with mineral industry support.

Will continue to spend most of the year in Lexington with trips to Australia via Hawaii. Would appreciate hearing from students and I continue to work closely with former graduate students on several projects.

Charles A. Ratté

I was overwhelmingly pleased to watch the Big Blue basketball team take the NCAA championship under new coach, Tubby Smith, in 1998. Bravo Tubby and the team.

Judy and I had a fantastic month-long vacation/geology trip around the Gaspé Peninsula, the east coast of New Brunswick, and Prince Edward Island. A "must" for every geologist. Don't miss the Miguasha Provincial Park.

We have moved from Vermont to Martha's Vineyard, Massachusetts, and our new address is P.O. Box 3027, Oak Bluffs, MA 02556 (508) 693-8589.

My writing of the "Story of Vermont Geology for the Layman" is progressing. The recent trip to the Gaspé was most enlightening since the rocks in the Gaspé are non-metamorphic extensions of Vermont rocks which were severely contorted and metamorphosed during both the Taconic and Acadian orogenies. Unquestionable Devonian fish and plant fossils occur in the Canadian equivalents of what has been known as the Connecticut Valley, oldest Gaspé sedimentary basin. The age of the rocks in this basin have been a concern to geologists working in Vermont for many years due to the lack of unquestionable "in situ" fossils, and uncertainty concerning the reliability of radiometric ages.

Thomas Roberts

Dr. Roberts remains in the nursing home where he seems quite contented. Mrs. Vincent Nelson and Dr.

Lois Campbell have been to see him every few weeks. He is always pleased to see them and recognizes their faces but not their names. He and some of the other patients are taken on excursions such as picnics, the Keeneland races, etc. Mail gives a moment's pleasure and any cards are put up in his room. If you care to send one, the address is Thomas G. Roberts, Lexington Centre for Health and Rehabilitation, 353 Waller Avenue, Lexington, KY 40504.

Lyle Sendlein

I retired at the end of August, 1998, having completed a total of sixteen years with the University, the last three years on half time. My association with the Department over these years has not been that of a normal faculty member because my primary job was directing first the Institute for Mining and Minerals Research and later the Kentucky Water Resources Research Institute. During the course of my association with the Department, I taught a graduate-level course in Ground Water for nine years and have advised thirty graduate students. All but one of these students have finished their degree programs and graduated. Twenty-six of these were MS degrees and three were Ph.D. degrees. During this time, I served in an acting capacity, for a year and a half, as the Chairman of the Department. An important result of this activity was securing Slone as the home for the Department. I had a lot of help from Drs. Donald Haney and James Chapman. We were able to get some funds which allowed us to renovate part of the building and Bill Thomas was able to complete the job. The faculty continues to make this building a good home for the Department. Although I have planned a full schedule for my retirement, I know that I will miss the contact with graduate students. Perhaps I will find a way to get some of them into my schedule as well.

John Thrailkill

The Thrailkill's are still alive and well in St. Augustine. Last August we took off for a driving trip to the west. Our route was generally diagonally across the country to Victoria, British Columbia, then down the coast to the Los Angeles area and back to St. Augustine. A total of six weeks and 10,000 miles (I don't think we'll be doing that again). Many interesting sights and people along the way—some new and some old. One of the things we hadn't seen before was the Mammoth Site in Hot Springs, South Dakota, which is well worth a stop if you're in the area.

Then in February we left for a month's tour of New

Zealand and Australia. Our route was Los Angeles to Fiji, then New Zealand, Tasmania, Australia, and then back through Tahiti. We saw the usual sights and enjoyed it. A total of 31 takeoffs and landings included large and small planes, helicopters, and a hot-air balloon (our first but I hope not our last).

Since then we have been doing the usual things. Lavine continues to help keep the American Cancer Society office here in town going and I am treasurer for our condo association, so we both keep fairly busy. Still trying to learn that #*\-! "game" of golf.

FACULTY RESEARCH SUPPORT

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. Etensohn

Kentucky Science & Technology Council INC

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

John C. Ferm

U.S. Geological Survey

Spatial and temporal variability in seepage fluxes between contaminated aquifers and tributary streams.

Alan E. Fryar

U.S. Geological Survey

Natural attenuation of trichloroethene in wetland soils and paleowetland sediments:

Alan E. Fryar

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

National Science Foundation

The Argentine Precordillera, when and how was it transferred from Laurentia to Gondwana?

William A. Thomas

National Geographic Society

Paleogeography of paired continental margins: Argentine Precordillera and southern Laurentia.

William A. Thomas and Ricardo A. Astini (Universidad Nacional de Córdoba, Argentina)

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

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:

Geological mapping in the Appalachian thrust belt in northwest Georgia.

William A. Thomas

U.S. Geological Survey EDMAP

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

William A. Thomas

Petroleum Research Fund of the American Chemical Society

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

William A. Thomas

**REPRESENTATIVE
PUBLICATIONS**

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

Faculty - Bold

Students – *italics*

Barnhisel, R.I., and **Hower, J.M.**, 1997. Coal Surface Mine Reclamation in the Eastern United States: The Revegetation of Disturbed Lands to Hayland/Pasture or Cropland. *Advances in Agronomy*. 61: 233-275.

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Graham, G. B., and **Thomas, W. A.**, 1997, Three-dimensional characterization of two juxtaposed lateral ramps in the Appalachian thrust belt of northeastern Alabama: Geological Society of America Abstracts with Programs, v. 29, no. 6, p. A-225.

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**DEPARTMENTAL SEMINARS
1997-1998**

Stratigraphy in non-marine settings—The southern Permian basin in Europe – Ute Gebhardt, Geologisch-Paläontologisches Institut Universität Hamburg

Microfacies analysis and paleogeographic interpretation of the non-marine limestones in the Upper Jurassic Morrison Formation – Tanja Merkel, Geologisch-Paläontologisches Institut Universität Hamburg

Geology of near-surface aquifers in the Libyan Saharan Desert with new evidence from the space shuttle, Endeavor – James Cobb; Kentucky Geological Survey

Formation of Pennsylvanian sedimentary sequences in the central Colorado trough or, How I spent my summer vacation – Karen Houck; Eastern Kentucky University

Metal disulfides: their surface oxidation chemistry and catalysis/inhibition effects – V.P. Evangelou; Agronomy, University of Kentucky

The geological history of the Grenville Terrane in Ontario and New York – Eric Essene; University of Michigan

Geologic and geochemical controls on radioactivity in produced water and scale – R. Stephen Fisher; Kentucky Geological Survey

The Clean Air Act Amendments of 1990: Impacts on Kentucky coal – Cortland Eble; Kentucky Geological Survey

Fossil earthquakes – Nicholas Rast, University of Kentucky, Department of Geological Sciences

Hydrocarbon potential of Kentucky's Cambrian grabens – David Harris; Kentucky Geological Survey

Geostatistical analysis of facies assemblages in

glaciofluvial aquifer systems – David Dominic; Wright State University

Thickness variation of Appalachian coal beds: Implications for resource estimation – Jerry Weisenfluh; Kentucky Geological Survey

Hydrogeological investigations of the central Kentucky karst – Christopher Groves; Western Kentucky University

“Environmental” effects of black holes in “this” universe – Issac Shlosman, University of Kentucky, Dept. of Physics and Astronomy

Injection well testing at the Air Force Global Communications Facility in Davis, California – Mike Sukop, University of Kentucky, Department of Agronomy

**National Association of Geology Teachers
Distinguished Lecture**

Do we teach sciences? Or do we teach ABOUT science? Methods and madness in the introductory classroom – Paul Howell, University of Kentucky, Department of Geological Sciences

Element mobility during greenschist mylonitization: An example from the Brevard Zone, North Carolina Xin-Yue Yang, University of Kentucky, Department of Geological Sciences

Structural geology of the Ouachita thrust belt – Steven Juscuk, University of Kentucky, Department of Geological Sciences

The Argentine Precordillera—a rifted, drifted Laurentian orphan – Ricardo Astini, Catedra de Estratigrafia y Geologia Histórica Universidad Nacional de Cordoba (Argentina)

Control of ice-till interactions on stability and evolution of ice streams: Will the west Antarctic ice sheet collapse or grow? - Slawek Tulaczyk, Division of Geological and Planetary Sciences California Institute of Technology

Glacial-lake outburst floods in the Mount Everest region of Nepal: Flow processes, flow hydraulics, and geomorphic effectiveness – Daniel Cenderelli, Colorado State University

Natural attenuation of trichloroethene in wetland soils – David Butler, University of Kentucky, Department of Geological Sciences

Natural attenuation of trichloroethene in paleowetland sediments and wetland soils in western Kentucky: The role of organic carbon – Christofer Sweat, University of Kentucky, Department of Geological Sciences

Ooid mineralogy and long-term changes in seawater chemistry – Thomas Algeo, University of Cincinnati, Department of Geology

Acid-mine drainage and remediation through constructed wetlands – Barry Maynard, University of Cincinnati, Department of Geology

Depth of ductile deformation along the Chunky Gal Fault, North Carolina: Evidence from sillimanite-rich tectonic schists – Jill Krukoski, University of Kentucky, Department of Geological Sciences

Natural attenuation of trichloroethene in paleowetland sediments and wetland soils in western Kentucky: The role of organic carbon – Christofer Sweat, University of Kentucky, Department of Geological Sciences

Glacial-lake outburst floods in the Mount Everest region of Nepal: Flow processes, flow hydraulics, and geomorphic effectiveness – Daniel Cenderelli, Department of Earth Resources, Colorado State University

McFarlan Lecture

Shake and bake: How tree rings, the eruption of Mt. St. Helens, and new evidence of ancient Cascadia earthquakes have rewritten the geologic history of the Pacific Northwest – Patrick Pringle, Washington Division of Geology and Earth Resources

Career options for geology majors – Bruce Amig, Coltec Industries; Doug Gouzie, Centers for Disease Control; Gary Jacobs, Chevron USA; Mark Gormley, Attorney-at-Law

GSA Birdsall-Dreiss Lecture in Hydrogeology, cosponsored by the Kentucky Water Resources Research Institute.

Origin and migration of saline fluids in sedimentary basins – Jeffrey Hanor, Louisiana State University,

Department of Geology and Geophysics

Joint Oceanographic Institutions Distinguished Lecture

Sea-level changes: The pulses of sedimentation on carbonate platform margins – Gregor Eberli, Rosenstiel School of Mines and Atmospheric Sciences, University of Miami

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