ROUND UP
1993

Department of Geological Sciences
University of Kentucky

LETTER FROM THE CHAIRMAN

The year 1992-1993 provided a roller coaster for the Department of Geological Sciences. We began the one-hundredth year of the department with an optimistic outlook, making plans for the future. As we approached the time for the Fall Centennial Celebration, the now infamous committee report appeared, recommending that this department cease to exist in its present form and that all degree programs be terminated. With strong support from all quarters, we responded, challenging not only the recommendation but also the accuracy of the report. During the Fall Centennial Celebration, discussions centered on future directions for the department, and a program for the future began to emerge. Later in the fall, a modest renovation of space in the Slone Building was approved. The work was completed, and much of the department moved into the Slone Building in January, 1993. By then, a new department plan was taking shape: (1) maintain a strong program in the fundamentals of the geological sciences, avoid overspecialization, and provide adaptability for the future; and (2) establish a strong program in environmental applications of the geosciences. With that emphasis, we secured authorization to recruit a faculty member with specialization in low-temperature geochemistry; and our search for that faculty member is currently underway. Later in the spring of 1993, the University administration created a new type of faculty position, the Special Title Series faculty, which has responsibilities almost entirely in undergraduate teaching. Because of our growing enrollment in lower-division courses and our plans to emphasize environmental issues, we received authorization to fill a Special Title Series position. We pursued that opportunity vigorously, and Paul Howell has already joined the faculty in that position. An organizational meeting for a new external advisory board was held during the Spring Centennial Celebration, and the initial activities of that board are reported in Department News. Those of you who were here for the Fall Centennial Celebration may have seen the bottom of the roller coaster! Since the report of last October, the department has moved into new space, added new faculty, brought in several new graduate students, increased the number of undergraduate majors, and enjoyed the support of many alumni. If I continue the roller coaster analogy, I hope it will be understood as positive when I say that we seem to still be going uphill. And perhaps the top isn't even in sight!

We begin the one-hundred-first year of the department with an optimistic outlook, making plans for the future.

Bill Thomas

DIRECTORY

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

Chairman

William A. Thomas

Professor

Richard I. Barnhisel*
Frank R. Ettensohn
John C. Fern
Nicholas Rast
Lyle V.A. Sendlein

Research Professor

Frank E. Huggins

Associate Professor

Bruce Moore
Kieran O'Hara
Susan M. Rimmer
Ron L. Street

Assistant Professor

Paul D. Howell
David P. Moecher

Research Geologist

Nilanjan Chattjee
Brian M. Whiting

Adjunct Faculty

James C. Cobb
James S. Dinger
James A. Drahovzal
Donald C. Haney
James C. Hower

Retired Faculty

William R. Brown
Lois J. Campbell
William H. Dennen
Irving S. Fisher
Erwin J. Lyons
William C. MacQuown
Thomas G. Roberts
John A. Stokley
John Thrailkill
Frederick D. Wright

Technical Staff

James A. McHugh

Administrative Staff

Debra A. Smith

* Joint with Agronomy

ANNOUNCEMENTS

GEOLOGICAL SCIENCES ALUMNI WEEK-END AT UK

Now that we have celebrated the departmental centennial, we have no more excuses for a celebration; however, the Centennial Celebrations called attention to the importance of periodic opportunities for alumni to visit the department. We now plan an annual Geological Sciences Alumni Week-End at UK. In response to the questionnaire last year, the alumni week-end will be in the spring. This year the alumni week-end will be held April 22-24, 1994. Please consider this as the first announcement, and put the dates on your calendar. More information and registration materials will be mailed to alumni in January. (If you can help with corrections to the mailing list, please send those by early January.)

THE NEW CO-OP PROGRAM

As the population of the world continues to grow, we see ever increasing occurrences of the devastating impacts of earthquakes, floods, pollution, water shortages and energy shortages. These problems both underscore the need and create the demand for the geoscience professional. Recognizing the role we as geoscientists play in society, the Department of Geological Sciences Plan for Research and Teaching established the long-term program objective of the Department to "emphasize the application of fundamental principles of geosciences to the solution of a variety of practical problems facing society."

One of the methods by which this objective can be met is to provide our students with exposure to the daily activities of the practicing geologist. As the Department continues to strive to meet our long-term objective, we are in the process of developing a co-op program.

The intent of the co-op program will be to provide our students with the opportunity to gain practical experience by working at companies and government agencies involved in using geological science in real world applications. The program will be available for credit at the undergraduate level as GLY 395-Special Problems in Geology and at the graduate level under GLY 782-Individual Work in Geology.

We strongly encourage any of our alumni and students to get involved in the development of this program, especially those of you who know of a company or agency which would consider placing one of our students. If you have any suggestions or comments, send them to Co-Op Program, Department of Geological Sciences, University of Kentucky, Lexington, Kentucky 40506-0053.

CENTENNIAL NEWS

During the centennial year of the Department of Geological Sciences, we conducted two programs in celebration of the founding of the department. Now the department is officially launched on its second one-hundred years.

FALL 1992 CENTENNIAL CELEBRATION

The Fall 1992 Centennial Celebration on October 30 and 31 and November 1 featured a forward-looking symposium and the UK Homecoming football game on Saturday. The week-end began with a field trip led by Bill Brown and M. C. Noger to Camp Nelson and Burdette Knob. A picnic following the field trip was held in weather conditions suitable for generating several stories of hardships overcome. The program closed with an open house in the Slone Building on Sunday morning.

The Fall Centennial Symposium was entitled "The next ten years: The geological sciences in 2002." Donald C. Haney, State Geologist of Kentucky, spoke on "The national geologic mapping program." Charles A. Ratté, retired State Geologist of Vermont and Visiting Professor at UK, emphasized future environmental concerns in "Natural resources, the environment, and state government." William L. Fisher, State Geologist of Texas, discussed "The domestic petroleum industry." Richard C. Edwards, Dean of the UK College of Arts and Sciences, spoke on "Higher education and the geological sciences in the coming decade." This symposium and its speakers were especially significant and timely in launching discussions about the future of the Department of Geological Sciences, and the role the department will play in the University and State.

The Homecoming Football game was preceded by a "tailgate party and pep rally," which had to be moved indoors in Bowman Hall because of very unpleasant weather. The weather didn't improve much during the game, although it did get a little colder. The game was an exciting one, but unfortunately the Wildcats lost a close one on the last play of the game.

Those who signed in for the Fall Centennial Celebration included:

Lavon Lewis
Bernard C. Massie
Brian Baker
Andrew Gremos
Kenneth E. Neavel
Wesley T. Combs
Stephen W. Lenhart
Bill Stoeckinger
Ben Ploch
William V.(Dick) Naylor
Mark Warrell
Nicholas S. Sirek
David Moecher
Don Prater
David A. Jackson
Jeff Perry
C. Edward Harris
Brent Owens
Carl Peterson
Debra A. Smith
David T. Scates
Shelley Minns
Chris Toles
Birinder Shergill
Lee Magid
C. Edward Harris
Jim Cobb
R. E. Fox
Edmund Nosow
Gail N. Cleary
Brad Wilkins
Philip Conrad
Carl Peterson
David Moss
Sara Baxter
Philip Shine
William R. (Bill) Brown
John "Lyle" Mars
Peter T. Goodman
Lois Campbell
William Andrews
C. Douglas R. Graham
Henry Morgan
John Whitler
Mark Gormley
Bruce R. Moore
Don Haney
Gene Rubarts
James M. Montgomery
Bob & Susan Laurenson
Joe Allen
Nicholas Rast
John D. Kiefer
Carl Majeske
Terence Hamilton-Smith
Martin C. Noger
Steven Cordiviola
Nancy B. Roberts
Jann A. Roberts
John Barton
Keith Goins
Jim Kipp
Jay Nelson
Donald W. Hutcheson
Rupert Bodden
Liane Alessi
Joe Allen
Frank H. Harken
Greg Mudd
Bill Toney
Birinder Shergill
John A. Bonita
Joey Cupp
Krista Gremos
Jerry Huffman
Chris Elvrum
Carolyn J. Thomas
Jeff Perry
Butch Butler
Jim & Becky Drahovzal
Eric K. Nicholas
Marc Harris
Kevin Wente
Jeff Snell
William C. MacQuown
David Wunsch
Wally Hagan
Jim McHugh
Bill & Rachel Thomas
Chuck & Judy Ratté
Sue Rimmer

SPRING 1993 CENTENNIAL CELEBRATION

The Spring 1993 Centennial Celebration on April 16-18 followed much the same format as our previous celebrations; however, this one established new levels for enthusiasm. Although this concludes our centennial events, we will initiate an annual week-end (announcement elsewhere in the Round Up).

The Spring Centennial Celebration began on Friday afternoon with a field trip to Clays Ferry, led by M. C. Noger and Bill Brown. A picnic scheduled for Friday evening brought down so much rain, that we again moved indoors, this time in the Slone Building.

The Spring Centennial Symposium considered the topic "Geology and public policy". Linda J. Magid, UK Vice President for Research and Graduate Studies, welcomed our group to UK and described some recent observations relative to research objectives. Donald C. Haney, President of the American Geological Institute and State Geologist of Kentucky, shouted "Geologists, wake up!" Craig M. Shiffries, Coordinator of Government Affairs of the American Geological Institute, described the "Role of geoscientists on Capitol Hill." Alma Hale Paty, Director for Public Lands and Mineral Policy of the American Mining Congress, spoke on "Sustainable development." Robert D. Hatcher, Jr., President of the Geological Society of America and Professor of Geological Sciences at the University of Tennessee, outlined long-range plans in "The future role of geology and geologists: Education, public involvement, and responsibilities." The program was followed by a vigorous discussion that lasted well into the lunch hour. The interest in and enthusiasm for the importance of this topic was clearly evident. Geologists are truly interested in being involved in public policy, and public policy will benefit enormously from that involvement.

On Saturday evening, we enjoyed a banquet at the UK Boone Faculty Center. After dinner, Russell J. Ford spoke on "Geology--past, present, and future." The enthusiasm Russ has for his profession is inspirational, and his talk closed our busy Saturday on a high note.

As usual, Saturday afternoon was left open, and the horses were running at Keeneland. We have not had a report on whether anyone covered their travel expenses. On Sunday morning an open house provided tours of the Slone Building.

Those who signed the book at the Spring Centennial Celebration included:

Pat Anderson
Lois Campbell
Robert W. Flynn
David P. Moecher
Bill Thomas
Russell J. Ford
Mark A. Kulp
Chris Elvrum
Andrew Gremos
Joe Allen
Angela W. Moore
William C. MacQuown
Diane Rast
Andrew Rast
Phyllis Nelson
Carolyn Ford

John Bonita
Jeptha Ray Hall
Bryan G. King
Katherine Manger
Phil Manger
Rob Shahmir
Frank H. Harken
Alma Hale Paty
John Stokley
Martin C. Noger
C. Edward Harris
John C. Mars
James M. Montgomery
Mitch Rutledge
Martha Rutledge
William R. Brown
Chris Bolton
Ali Al-Yazdi
Chuck & Judy Ratté
Donald C. Haney
Garland Devers
Harry Whitman
Steve Sullivan
Edmund Nosow
Phil M. Miles
Mary Beth Graves
Michelle R. Bell
Jennifer Thompson
Zhenping Wang
Dave Wilson
Blessing Brown
Philip S. Shine
Joey Cupp
William Duke Hopper
Hilary Lambert Hopper
Carolyn Thomas
Wallace W. Hagan
Sue Rimmer
Rachel Thomas
Craig Schiffries
Nicholas Rast
Lee Magid
Robert Fox
Bob Hatcher
Frank R. Ettensohn
Bobby J. Timmons
Donald K. Lumm
Bruce C. Amig
Jeff Snell
Russell J. Ford
Liane Alessi
James Dinger
Krista Gremos
Bruce R. Moore

HONORED ALUMNI

Press release, Oklahoma City, Oklahoma

WILLIAM E. JACKSON

William E. Jackson has recently been elected as an Honorary Member by the Oklahoma City Geological Society. This recognition is given to members that have made outstanding contributions to the Society, the science of geology, and to the geological profession. Bill, a resident of Edmund, Oklahoma, is a graduate of The University of Kentucky with a M.S. and a B.S. in Geology, is also a spokesman for heart transplant recipients and has authored several medical publications.

Since 1921 the 1100+ member Oklahoma City Geological Society has only bestowed honorary membership to 45 members. Bill's wife, Emily (Shelburne) Jackson, is also a University of Kentucky graduate.

Press release, Alexandria, Virginia

DONALD C. HANEY

Donald C. Haney was installed as President of the American Geological Institute for 1993. At the meeting of the Geological Society of America in Cincinnati, Ohio, October, 1992, Donald C. Haney received the 1992 AGI Ian Campbell Medal. Don is a graduate of the University of Kentucky, and he is State Geologist of Kentucky.

ALUMNI NEWS

Thomas Jeffrey Adams, B.S. 1984
Sites manager for Somerset Environmental Services in Somerset, KY. Manage remediation efforts in connection with underground storage tank removals, environmental assessments, and stormwater program development for petroleum related concerns. I received my M.B.A. in 1991.

Jamal M. Assad, M.S. 1988
A Post-Doctoral Fellow at Allied Geophysical Laboratories continuing further research in fractured mediums that have many applications in seismology, environmental, and seismic exploration. In our lab we are heavily concentrating on environmental aspects rather than exploration aspects. We are offering classes in the Department of Geosciences that have application to groundwater contamination, hazard waste disposal, and engineering geology. Also, we increase our ties with civil engineering to strengthen our geophysical program for geotechnical applications.

Ronald E. Alexander, B.S. 1976
Employed as Kentucky/South Indiana Branch Operations Manager for Reynolds, Inc., a water supply service contractor. Primary activities of the company include turnkey capabilities in groundwater investigation, exploration, well installation, and equipment supply/service. Primary target market is industrial (municipal) users.

Bob Baird, B.S. 1978, M.S. 1981
Published M.S. thesis work on Central Kentucky Mineral District in Economic Geology. After graduating in 1981, I went to work for Mobil E & P Services, Inc. in Dallas where I spent the first

summer in Stavanger, Norway, working on petroleum source rock potential and maturation. After a year-and-a-half in Dallas, I moved on to production in the Denver office. Articles from my Mobil work have appeared in AAPG Bulletin and the Journal of Petroleum Geology. I entered the Ph.D. program in geology at Virginia Tech in 1985, and graduated in 1989. Subsequently, I worked as Senior Geologist with the Virginia Water Control Board, where I successfully resisted becoming a bureaucrat. In 1992, I moved on to GES Environmental as Senior Project Manager.

Leslie F. Berry, B.S. 1967
Resigned in September 1990 after 16 years as Chief Geologist at Lake Ronel Oil Company and became independent consultant in oil and gas exploration.

James G. Blankenship, B.S. 1958
Vice President of Seagull Energy Corp. (NYSE-SGO); oversee all exploration (primarily oil and gas) for the company which has active operations headquartered in Amarillo, Texas, and Shreveport, Louisiana, and, of course, corporate headquarters in Houston, Texas.

Frederick M. Bodycomb, B.S. 1956
Consultant in industrial minerals in Springfield, Colorado.

A.L. Bryant, B.S. 1958
Senior Geologist for Louisville Gas and Electric Company. Responsible for the operation and development of 5 underground gas storage reservoirs with over 500 wells.

Edward L. Crisp, M.S., 1973
Assistant Professor of Geology at West Virginia University—Parkersburg; teaching geology and physical science. After leaving the petroleum industry in mid-1989, I taught a year at Sue Bennett College in London, Kentucky, and then a year at Morehead State University on a temporary contract.

Jay R. "Dick" Daniel, B.S. 1955
I am a technical application manager for Dyno US (an explosives manufacturing company). Principal activities are related to major-account (mining, construction, and quarrying), trouble shooting and application engineering. The geotechnical aspect of my degree has proven invaluable in my career. The classical geology, much less so. I certainly hope the department is able to continue educating in the earth sciences.

Mark D. Deering, B.S. 1983
Recently left the oil and gas business after 9 years as an exploration geologist within the Appalachian Basin. I am currently a geologist with McCoy and McCoy Environmental Consultants, Inc., in Lexington, Kentucky.

William Patrick Diamond, B.S. 1979, M.S. 1972
Research Geologist with the U.S. Bureau of Mines since 1973. Primary area of research has been coalbed methane, including fundamental geologic studies and the development of directional and vertical drilling technology to extract the gas in advance of mining. Recently received the Federal Executive Boards Silver Award for Outstanding Contribution to Science. I have been married since 1973; we have 2 daughters, Jennifer (10) and Kim (8). Kim will probably be the next scientist in the family as she likes rocks, bugs, snakes, etc.

Michael L. Eicher, M.S. 1973
After graduating, worked in the field of groundwater hydrology for the next 7 years before being hired by Rockwell International. There I began work on the first ever space shuttle to be launched from Kennedy Space Center - STS 1 - orbiter Columbia. I currently work for Lockheed Space Operations as a Test Project Engineer. During firing room operations to test and check out each orbiter/shuttle prior to launch, the test project engineer's responsibility is to coordinate all the technical aspects of that testing. The work is very satisfying and the reward is a successful launch and landing.

Noel W. Engel, B.S. 1935
I was not able to attend the Centennial Celebration because of a ruptured Achilles tendon. Extend my best to those of my vintage.

Russell J. Ford, B.S. 1949, M.S., 1950
Active as an oil producer and operator in north Texas and Oklahoma. My company is R.J. Ford, Inc.

Kathleen A. Frankie, M.S. 1984
Enjoying raising our 7-year old son, Thomas, working at Sangamon Elementary School, and doing volunteer work in the community.

Wayne T. Frankie, M.S. 1990
Employed at the Illinois State Geological Survey in the Oil and Gas Section and the Educational Extension Unit. Recently completed a research project, "Gas Potential of the New Albany Shale (Devonian and Mississippian) in the Illinois Basin."

Carlos M. Galceran, Jr., M.S. 1988
With Texasgulf Inc. since 1989. Involved in the exploration for bioepigenetic sulfur in West Texas and New Mexico. Originally in the capacity of a geophysicist, acquiring, processing and interpreting gravity data. Currently responsible for geological and geochemical mapping, and drilling operations. Previously with Mobil Exploration and Producing as a production geologist in heavy oil reservoirs in the San Joaquin basin, California; laid off in 1989. Still pounding the road and wearing out an average of four pairs of running shoes a year. Hasta la vista!

Robert J. Gibson, B.S. 1931
Retired—Former Vice President, General Sales Manager of Louisville Cement, Speed, Indiana; former Director of W.R. Stamler Corp., Millersburg, Kentucky; former Fellow, University of Kentucky.

Michael E. Graham, B.S. 1981
District Manager with ATEC Associates, Inc. in Louisville, Kentucky.

Thomas B. Griswold, M.S., 1970, Ph.D. 1978
With Rhodes and Associates, Inc. since 1990. Am Kentucky Professional Geologist No. 13. Now working as an Environmental Geologist doing assessments, groundwater, landfills, etc. Married Rebecca Meacham in 1989. Grandson born in 1991. Had 3 vertebrae fuses in 1991 (congenital back defect). Still teaching and studying martial arts.

James (Jay) Harris, Ph.D. 1993
Is a post-doc with the Kentucky Geological Survey in Lexington, Kentucky.

Charles David Hensley, B.S. 1983
Project Geologist for Ground Engineering Consultants of Lakewood, Colorado. I am doing engineering consulting work in Denver and the Colorado Front Range Mountains (received M.S. in Geological Engineering from Colorado School of Mines in 1993). I was married in 1987 to another UK graduate, Connie Gettinger, and we have a daughter named Kara Lee.

D. Andy Hissam, B.S. 1986
Working for NASA as a design engineer. Although I am not presently working as a geologist, I would not count it out in the future.

William Duke Hopper, M.S. 1986
Since 1986, employed at the Kentucky Department for Surface Mining, Reclamation, and Enforcement in the Permit Review Branch.

Camillus B. (Bren) Huggins V, M.S. 1987
Project Manager of Site Remediation Services for the Richmond, Virginia, office of ERM, Inc.

Eric Scott Johanson, B.S. 1988
Employed by the Kentucky Natural Resources and Environmental Protection Cabinet's Hazardous Waste Branch where I overview hazardous waste site groundwater monitoring plans. I am also writing my M.S. thesis on oil and gas exploration in eastern Kentucky.

Brian C. King, M.S. 1984
Began fourth year of teaching full time at Ball State University. My primary teaching responsibilities are introductory geology, oceanography, petrography, geochemistry, and plate tectonics. During the last three summers I have been teaching an 8-week course on the geology of northern Wyoming in Yellowstone National Park for Northwest College.

William R. King, Jr., B.S., 1949, M.S., 1950
Retired in 1993.

Alfred Lacazette, B.S. 1979, M.S. 1986
Received Ph.D. in Geoscience from Penn State in 1991. I am working for the Exploration and Production Division of Texaco (EPTD is Texaco's research lab). I work on problems related to natural rock fracture and fractured reservoir exploration/exploitation.

Jerry Markowitz, M.S. 1979
Geologist with Texaco for since graduating 14 years ago. I am currently working on a 3-D survey in south Louisiana.

Harry L. Mathis, Jr., M.S. 1983
Registered professional geologist employed at the South Carolina Department of Health and Environmental Control. I direct the Division of Hydrogeology which employs about twenty-five geologists and hydrogeologists who are involved in groundwater and environmental characterizations, assessments and cleanups at solid waste landfills, hazardous waste facilities, and superfund sites.

Gregory K. Maynor, B.S. 1981, M.S. 1984
Hydrogeologist with an environmental consulting firm.

Gary B. McCreary, B.S. 1956, M.S. 1958
Retired from Louisiana Land and Exploration Company in April, 1988. Manage my retirement funds and do volunteer work in the community, at Forest Cove Baptist Church, and the South Texas Professional Golf Association. Play golf at least 4 days per week.

Robin John McDowell, Ph.D., 1992
Finished a post-doc at Georgia State University by spending 4 months of field work mapping Tertiary volcanic rocks in southwestern Montana and then being an instructor for the GSU field camp in Dillon, Montana. In mid-July, I returned to Atlanta to start working as a Senior Research Geologist at the Georgia Geological Survey.

John E. McNulty, Jr., B.S. 1988
Working for ATEC & Assoc. as a Project Manager for environmental site investigations and remedial projects. Will be opening an ATEC Environmental office in Owensboro, Kentucky, this year.

Phil M. Miles, B.S. 1938, M.S. 1940
Consulting geologist and engineer specializing in oil and gas reserve studies and evaluations.

Timothy R. Miller, M.S. 1984
Working for the East Fairfield Coal Company in North Lima, Ohio, doing exploration and mine planning. We are currently operating four strip mines and one deep mine producing a total of 400,000 tons annually.

Shelley Minns, Ph.D. 1993
Working as a hydrogeologist with the Kentucky Geological Survey.

Robert D. Money, B.S. 1986, M.S. 1991
Employed as a Senior Project Geologist with ERM, Inc., Richmond, Virginia, office. Previously worked for Hatcher-Sayre, Inc. for two years in Lexington, Kentucky, and two years in Richmond, Virginia, as a Project Hydrogeologist. I am a Certified Professional Geologist in the Commonwealth of Virginia.

Michael G. Muthig, M.S. 1984
Worked for the South Carolina EPA while completing my Ph.D. (1991) at the University of South Carolina. Since then I worked for an environmental consulting firm for two years and recently took a position as the environmental scientist with Burris Chemical, Inc.

Eric Nicholas, B.S. 1993
Working as a hydrogeologist with Groundwater Technology, Inc. in Lexington, Kentucky.

Wendell Hugh Overcash, B.S. 1977
Attorney with Kentucky's Natural Resources and Environmental Protection Cabinet since September 1989. Prosecute surface mining reclamation violators.

Alma Hale Paty, M.S. 1984
Director of Public Lands and Minerals Policy with the American Mining Congress (AMC) since January, 1990. AMC is a trade association composed of domestic mining companies and manufacturers of heavy earth-moving equipment. Our main issues are the use of the nation's public lands located primarily in the west and how the Endangered Species Act's implementation affects businesses and employment. I particularly enjoy learning how minerals are the basis of our society. In September, 1992, I was married.

Daniel J. Phelps, B.S. 1984, M.S. 1990
Working part-time as an assistant to Dr. Rast on the Journal of Geodynamics while looking for a full-time position. In July, I founded the Kentucky Paleontological Society which currently has forty paid members and a mailing list of approximately 150. Any alumni wishing to join can contact me at 365 Cromwell Way, Lexington, Kentucky 40503.

Hugh H. Platt, B.S. 1950
Retired from Phillips Petroleum Company in 1974. Now spend most of my time volunteering at a local hospital. Health good and age creeping up.

H.M. Rutledge, B.S. 1956, M.S. 1958
In 1987, formed my own company, 2M Oil & Gas Company (Mitch & Martha), and was active in buying oil and gas leases until 1992. Having been fortunate enough to enjoy some success in these activities, as well as during my 30 years with two oil companies, I decided to rest in 1992. I am not quite sure what all I did while resting during 1992, but whatever it was that I did do, it managed to consume the entire year. I expect 1993 to be much the same, but reserve the right to change my mind.

Wendy Ray Schultz, B.S. 1984
Geologist for Texaco Western Exploration in Denver, Colorado. Received M.S. from Indiana University in 1986 and M.B.A. from U.K. in 1992.

Robert E. Schuster, B.S. 1960
Spent 30 years with Corning Glass Works in various glass technology, production, and engineering positions, with specialization in the areas of ophthalmic and optical glass batch mixing and glass melting. Retired in August, 1990. My wife and I have 8 children and now spend our time travelling and spoiling our 10 grandchildren.

Dean Sheets, B.S. 1992
Is working with Groundwater Technology, Inc., in Memphis, Tennessee, as a geologist in the field doing groundwater remediation work.

Jean Sherman, B.S. 1950
Became a high school teacher in Special Education. Now retired officially, but teaching part-time. Have four sons, none of whom chose geology, and two granddaughters.

Michael R. Short, B.S. 1970, M.S. 1973
Working for Amoco Production Company as exploration manager in GUPCO, a joint interest company with the Egyptian government. Have been in Egypt for 2½ years.

Mark Snider, B.S. 1985
Branch Manager for PB&S Chemical Inc. where I have worked since graduating in December, 1985; moved to Columbus, Indiana, in 1989.

Lawrence (Larry) E. Spangler, M.S. 1982
Hydrologist for the U.S. Geological Survey in Salt Lake City for the past 4 years; previously was a geologist in the oil industry in Denver, Colorado. I have remained intensely interested in the hydrology of karst terrains since graduate school and continue to pursue research in this aspect of hydrology, independent of my regular job. I had an opportunity to return to the Bluegrass on Memorial Day last year to attend Kentucky's Annual Cave Convention and lead a geology field trip through the Inner Bluegrass Karst. Also visited with John Thrailkill again and wished him the best in retirement. It was great to be back. Lexington has sure grown.

Paul C. Stallard, M.S. 1961
Retired from Texaco Inc. after 28 years as geophysicist and geologist. I worked primarily in rank wildcat areas as a senior explorationist.

John Allen Stokley, B.S. 1936; M.S. 1948
Retired in 1981. Continuing intense loafing and wife torture. Occasionally I attend a meeting of the B.O.G.S. (bunch of old geologists) on the last Friday of each month at Springs Motel in Lexington.

Stephen B. Sullivan, B.S. 1979, M.S. 1983
President of SCA Environmental Technology, Inc. which is a Louisville-based environmental consulting firm specializing in hazardous materials investigations and remediation.

Dennis R. Swager, B.S. 1977, M.S. 1978
Petroleum geologist and President of Swager & Associates, Ltd. in Lawrenceville, Illinois, which is involved in oil and gas development, operations management, and exploration.

Charles F. Tabor, Jr., B.S. 1990
Completed M.S. in geology (organic geochemistry) at the University of Colorado at Boulder in May and am now pursuing my Ph.D. I am employed by the U.S. Geological Survey in Boulder.

Maurice J. Terman
Retired from the U.S. Geological Survey, after more than 40 years with the organization. My professional career included two enjoyable years (1949-1951) as an instructor with the Department of Geology, University of Kentucky. The Survey has agreed for me to continue as a Geologist Emeritus; they will provide office space and some support, and I will have the opportunity to continue my pilot studies on the USGS bases for East Asia mapping of hazards, environment, and resources, and eventually to return to my long-term fascination with the synthesis and interpretation of Asia tectonics--but all of this will be on my own schedule taking into account a variety of other family and community interests.

George R. Thomas, B.S. 1949
In Veterans Administration hospital in Lexington. He enjoys letters, cards, and visits. Loved his work in geology and would enjoy talking with other geologists. Friends are encouraged to write:
V.A. Medical Center-2-2, Leestown Road,
Lexington, KY 40511

David C. Trimble, M.S. 1985
Senior Project Manager with GES Environmental, Inc. I oversee a staff of seven and all technical operations of the environmental consulting department in the Chesapeake, Virginia, branch office. I am in charge of all aspects of operation, including budget, P/L, hiring, training, marketing, proposal generation, project management, and report writing.

Franco Urbani, M.S. 1972, Ph.D. 1975
Director of the School of Geology, Mines and Geophysics, Universidad Central de Venezuela. Also published a book on the Venezuelan Hot Springs. Has been elected Vice President of the International Commission on the History of Geological Sciences (INHIGEO).

Roger L. Ward, B.S. 1986
Training Director for National Laboratories, Inc. in Evansville, Indiana, since January 1992. From 1988 to 1991 was co-owner of Walker & Ward, Inc., an environmental consulting and testing company. My wife, Tammy, and I have one boy named Cody.

Dan Wells, B.S. 1982, M.S. 1990
After working for 10 years for another UK alumnus, Phil Miles, I purchased Mr. Miles's consulting business in February, 1992, and am currently working as a geological consultant to the Appalachian oil and gas industry.

John Whitler, M.S. 1993
Working as a hydrogeologist with Groundwater Technology, Inc. in Lexington, Kentucky.

Wendy Wonderley, B.S. 1981
After getting a master's in civil engineering (water resources specialty), I am working for Bookman-Edmonston Engineering, Inc. in its Phoenix office; the firm has offices throughout the west.

David R. Wunsch, Ph.D. 1992
Completed Ph.D. in hydrogeology in 1992 under the direction of Dr. John Thrailkill. Have been working on several publications stemming from dissertation research and Kentucky Geological Survey research at the Star Fire Mine site in eastern Kentucky.

George Brian Wyatt, M.S. 1991
Joined the staff of Challenge Engineering Consultants, Inc. in 1993. Currently responsible for technical and administrative aspects of land surveys, engineering design, and marketing, in addition to assisting with environmental mining projects.

GSA MEETING

The annual meeting of the Geological Society of America was held in Cincinnati immediately after the department's Fall Centennial Celebration. Because of the centennial, we had a special alumni night meeting for the department. Those who signed "the book" at Cincinnati included:

Lyle Sendlein
Howard Lamkin
Lois Campbell
Bill MacQuown
Kevin Pogue
Nancye Dawers
Sue Rimmer
John Holbrook
Allan Axon
Brent E. Owens
Frank R. Ettensohn
Rob McDowell
Wardell Lavon Lewis
Bill & Rachel Thomas
Charles E. Mason
David R. Wunsch
Shelley Minns
Ann Watson
Joe Allen
Jim Montgomery
Michelle R. Bell
John Kiefer
Peter W. Whaley
James C. Cobb
Steve Barnett
Bill Blackburn
D. K. Lumm

AAPG MEETING

At the meeting in Houston, of the American Association of Petroleum Geologist, "the book" was signed by:

Clemont H. Bruce
J. O. Lewis
D. C. Haney
Bill Thomas

IN MEMORIUM

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.

Jack Hirsch - February, 1993
Lynn C. Jacobsen (former faculty member) - December 26, 1992
R. W. Johnson - about 2 years ago
Carmen C. King - March 19, 1993
Vivian MacQuown (Mrs. William C.) - August 29, 1993
Eugene Perry - October 1, 1968
Paul G. Vaughn - June 30, 1992

DEPARTMENT NEWS

DEPARTMENT MOVES TO SLONE

Last fall the University Physical Plant Department began some minor renovations to make parts of the Slone Building available for use by the Department of Geological Sciences. After a long and sometimes fitful process, the space was ready, and we moved during January. The new space provides three teaching laboratories; a lab with petrographic microscopes for mineralogy and petrology; a lab with

benches and tables for sedimentary petrology and stratigraphy; and a lab with tables for structural geology and geophysics. In addition, a room for student computers enabled us to bring all of the computing and related services for students into one space. Research space is now provided for coal petrology and for computer mapping. Three new faculty offices were made available, as well as departmental administrative office space. As the Round Up goes to press, we are making office space available for Paul Howell, our newest faculty member. Part of the department's operations, including two faculty offices, remain in Bowman Hall. The Pirtle Library will also remain in Bowman Hall. One large laboratory, equipped with wet-chemistry benches, remains not yet renovated to useable quality in the Slone Building. Our label on that lab says "Geochemistry," and we hope to obtain suitable renovation for that laboratory during this year.

PAUL HOWELL JOINS FACULTY

Paul Howell joined the faculty in a Special Title Series position in August. Paul had been teaching at Allegheny College, where he was developing computer applications in teaching introductory geology. His Ph.D. is from the University of Michigan. In the fall semester, Paul will be teaching physical geology, historical geology, and environmental geology; and he will direct the work of Teaching Assistants in the physical geology laboratories. Paul will introduce himself more thoroughly in the Faculty News.

SUE RIMMER BECOMES ASSOCIATE DEAN OF THE COLLEGE OF ARTS AND SCIENCES

Sue Rimmer, Associate Professor of Geological Sciences, was appointed Associate Dean of the College of Arts and Sciences, effective July 1, 1993. Sue's temporary, part-time absence from the department leaves a gap in our teaching, but her presence in the Dean's office is obviously a great gain in visibility for the department.

DEBRA SMITH RECEIVES CHANCELLOR'S AWARD FOR OUTSTANDING STAFF

Each year the Chancellor of the Lexington Campus presents awards for staff members who have been recognized for outstanding service to the University. Debra Smith, Administrative Assistant in the Department of Geological Sciences, was selected for this important award during 1992-1993.

EXTERNAL ADVISORY BOARD ESTABLISHED

Several years ago, the department established a Board of Associates, alumni and former faculty members who were available as an external advisory group. During the past spring, the concept of an external advisory board was revived with the appointment of a larger group, alumni and friends of the department. The board has had two meetings, but it will conduct most of its business by mail and phone. A directory of members of the Advisory Board appears elsewhere in the Round Up. The board is presently considering three issues: (1) the image and prestige of the department within the University, (2) department planning in the context of present needs in the geosciences, and (3) fund raising for departmental programs. All alumni are invited to communicate ideas to members of the board. A special initiative in establishing a co-op program for current students has already begun. Alumni who have contacts with particular prospects for co-op arrangements are asked to inform Steve Sullivan, who is coordinating the co-op program, or the Department.

MICROPROBE LAB

The electron microprobe laboratory continues to grow and improve! In addition to the software and automation upgrade completed in 1991, successful funding of an NSF equipment proposal permitted us to add a fourth wavelength dispersive spectrometer and a new light-element energy dispersive spectrometer. Now the probe is virtually a state-of-the-art instrument. We have also installed a laboratory sink (so we don't have to run down to the men's room) and a marker board and desks for holding seminars. In addition to the research of Profs. David Moecher and Kieran O'Hara and Dr. Neel Chatterjee (lab manager), a number of graduate students and a senior undergrad are using the microprobe for their thesis research. We are pursuing a collaborative research project with Dr. K.W. Ng in physics, analyzing Y-Ba-Cu superconducting compounds, and visiting scientists from Eastern Kentucky, the University of Cincinnati, and the University of Louisville have used the instrument in their research as well.

FACULTY NEWS

Frank Ettensohn

The second year of our resurrected geology field camp in the Gunnison, Colorado, area was again successful, only this year we nearly doubled our enrollment from five to nine. Nine students is certainly a nice number to work with, but we look forward to a little larger group next summer. I think that most will agree that the highlight of our summer was the regional national parks trip. In view of the current dinosaur craze accompanying the release of Jurassic Park, our trip to Dinosaur National Monument took on new meaning. Not only was Jurassic Park playing in Gunnison when we arrived, but we were fortunate to visit an actual dinosaur excavation in the Morrison Formation east of Gunnison.

Another outgrowth of our return to Colorado will be a symposium on the geology of the Elk Mountains. Some of the other professors running field camps in the Gunnison area and I have been talking for two years about convening such a symposium, and we have finally agreed to try at the upcoming Durango meeting of the G.S.A. Rocky Mountain Section in the Spring. Two others and myself will convene the symposium.

In addition to some of the old-timers who are trying to finish up theses and dissertations, a new student from Juniata College, Mark Kulp, is working on his master's degree with me. Mark is working on possible structural control of depositional environments in the Brannon Member of the Lexington Limestone.

My research on stratigraphy, black shales, and paleontology continues "full blast." A paper on the possible flexural controls on Mississippian ooid deposits was just published in A.A.P.G. Studies in Geology #35, and I am now using flexural models to help explain the origins of many Paleozoic black shales. One of our undergraduate students, Phil Shine, found a carpoid, a rare and atypical type of echinoderm, which is one of only two ever found in the state of Kentucky. We are currently working it up for publication. In addition, I have contributed to the Geological Society of Kentucky Annual Field Trip Meeting on the Falls of the Ohio area and will contribute to the upcoming Alabama Geological Society Annual Field Trip Guidebook.

All in all, I have been keeping very busy with my teaching and research, but when that slows down I have been doing a lot of work with local grade-school children - trying to teach some simple principles of geology and paleontology and encouraging them to go on in geology.

J.C. Ferm

One of my main projects last year was supervision of completion of three Ph.D. students - Steve Greb who generated a very comprehensive description and interpretation of a complex outcrop of the Lee Formation, Yuejin Liu who successfully applied statistical methods in diagnosing sedimentary problems in Harlan County, and Reza Bayan who compared illite crystallinity and vitrinite reflectance in an area extending from Logan County, West Virginia, and Pulaski County, Virginia.

Aside from these three students who have finished their degree work, I continued to work with Donny Lumm and Zhengping Wang who hope to finish their Ph.D. work in the coming year. I will also help Scott Johansen to finish his M.S. which was begun under Steve Moshier.

I also began to develop a new "home place" approach for teaching elementary geology in community colleges in eastern Kentucky. I topped off the year examining roof fall problems in coal mines in the Bowan Basin in northeastern Australia. I worked with former student, Joan Esterle, who now works with CSIRO, roughly equivalent of the U.S.G.S. in Australia.

Paul Howell

Hi! I've only been here at UK for a few weeks, but it seems like home already (or it will be when the fourth wall in my office is finished, promised "real-soon-now"). I'm immersed in three large sections of Physical, Historical, and Environmental Geology at the moment and a graduate level seminar in "Teaching Geology" for the teaching assistants. I owe a special Big Thanks to Dave Moecher, Sue Rimmer, and grad students Chris Elvrum and Mark Kulp (and all the other TA's) for helping me get off to a running start this semester.

In addition to my teaching, when my new computer arrives, I'll resume my development efforts on educational software that I began two years ago at Allegheny College. The Nextstep operating system provides the ability to easily develop programs with

advanced graphics and sound capability beyond anything currently offered on other computer systems. The M. I. King Library has a NeXT computer lab that is set up for teaching with just the sort of applications I am working on. Partially completed projects include a simulator for isostasy (students can build mountain ranges within minutes of starting up for the first time) and for slope stability prediction (with Mark Lord of Allegheny College). Future efforts include a variety of programs designed to help students visualize geological phenomena and processes in ways impossible with paper and pencil, including a small scale GCM (general circulation model) for investigating global climate change.

My other research front is in the tectonics of basin evolution. I travel with Bill Thomas to Ann Arbor, Michigan, this fall to present my latest work on the evolution of the Michigan basin at the AAPG Hedberg Research Conference on Basement and Basins of Eastern North America. Along with several manuscripts on sequence stratigraphy and the Michigan basin that require attention these next few months, I plan to initiate a new research project on the interplay of sedimentation and flexural loading in the Gulf of Mexico, involving seismic stratigraphy, Late Tertiary and Quaternary depositional models, and elastic plate flexure models. It's beginning to look like another busy year.

David P. Moecher

The past year has been productive and exciting. The high point was an April trip to the seventh biennial meeting of the European Union of Geosciences in Strasbourg, France. I presented invited papers at Union Symposia on fluid-rock interaction in the lower crust and application of laser heating techniques for stable isotope analysis. There was also time to visit colleagues at the University of Lausanne in Switzerland (but, unfortunately, not enough time to see any alpine geology).

Much of the past year has involved finishing old research projects and initiating new ones. Four papers have been submitted for publication since January of '93, with a fifth to be submitted by publication of the Round Up. These papers outline various aspects of scapolite phase equilibria and carbon isotope techniques as applied to fluids in high grade rocks. New projects include a study of carbonatite-like rocks in the Bancroft, Ontario, area and their role in the formation of regionally distributed skarns. The latter are important sites of REE, U, and Th mineralization. Eric Anderson, a VPI alumnus and new graduate student in petrology, will be employing stable isotope and microprobe techniques in order to characterize the petrology of these unusual "carbonatites".

Teaching continues to be a priority. This past summer I had the opportunity to teach physical geology lecture and lab. In the latter we took a number of field trips to illustrate geological principles, rather than studying "rocks in a box." For example, we drove out the Mountain Parkway as far as Red River Gorge to look at sedimentary rocks. Students had only good things to say about the lab. We need to work more of these field trips into the GLY 101 curriculum.

The microprobe lab continues to be a source of excitement and satisfaction (see Department News). We are getting incredibly good analyses from the probe (knock on wood)! However, we need to work on obtaining permanent funding of the lab manager position, which is due to expire in March of 1994 unless a pending NSF proposal is approved. Keep your fingers crossed!

Bruce R. Moore

Ongoing research and development of a new low altitude airborne method of microfracture detection in rocks through soil and vegetation cover, and the application of the method to mineral and hydrocarbon exploration.

I have been active in mineral exploration in Australia in the Mt. Isa-Cloncurry area where a large copper gold ore body is expected to be developed. I am involved in exploration for methane gas from coal in the Bowen Basin of Queensland. I am developing a program for the organic geochemistry of hydrocarbons in petroleum exploration, and also the migration of toxic organic compounds from waste dumps.

Kieran O'Hara

Last year I was on sabbatical leave and spent most of the time at University College Dublin, Ireland. This was where I received my B.Sc. degree and so I was able to get reacquainted with many of my undergraduate teachers. While there I got involved in some local geological projects and I am now in the process of writing up these manuscripts. The sabbatical break also gave me a chance to branch out into areas that would ordinarily be difficult to find time for—I brushed up on my rusty computer modeling skills and delved into the field of fractal

geometry and how it applies to the earth sciences. It appears everything in geology these days is a fractal, from earthquake size distribution to rock porosity; I hope to update my courses in the future by including these topics. Some preliminary ideas along these lines were published in the June issue of Highlights, one of the publications of the Institute for Mining and Minerals Research here at UK. The highlight of my sabbatical was a three week trip to the University of Lausanne in Switzerland to collect oxygen isotope data on fault zone samples using their laser microprobe facility. With this setup, very small samples are vaporized by laser and then analyzed for oxygen isotopes. The goal is to identify the type of fluids which passed through the shear zone (for example, meteoric, connate or metamorphic fluids). Although weekdays consisted of twelve hour shifts in the laboratory, I did find time at the weekend to ride my bike in the Jura Mountains. After returning from sabbatical this summer, I eased myself into the role of Director of Graduate Studies in the Department with the help of Sue Rimmer who passed on her acquired wisdom to me.

This Fall semester I am teaching one of the sections of the physical geology course and the Saturday field course for majors and am also trying to stay ahead of the paperwork from the Graduate School. In the Spring, I hope to teach a new graduate course on the topic of crustal fluids which will examine the role of fluids in crustal processes in different geologic settings. If time permits, I will pursue a pet project of mine, which is to incorporate real-time satellite imagery into the introductory geology classes.

Nicholas Rast

This year Nicholas Rast completed his assignment as the Chairman of Technical Sessions at the annual GSA meetings in Cincinnati and became the Chairman of the Program Committee of GSA. The Cincinnati meeting was judged as a success by those who attended it.

Rast's cooperation with Dr. J.W. Skehan, S.J., continued and at the GSA meeting in Boston in October, 1993, they are due to contribute a paper on the evolution of the Boston Proterozoic rocks that have a geologically African connection. Rast also attended the Penrose Conference on strain held in Nova Scotia, Canada, in September, 1992. His presentation on mylonite zones in western Massachusetts was well received.

At present Rast, in collaboration with Peter Goodmann, one of his research students, is preparing a paper on the relationships of the basement and cover rocks in Kentucky involving a new interpretation of the Cincinnati arch, to be presented at a professional meeting held at the Northeast Science Foundation, Troy, New York.

It is pleasant to reflect that research students, including Michelle R. Bell, M. Reza Bayan, and P. Greg Mudd, have graduated and are gainfully employed. This confirms the capacity and reliability of students working with Rast.

Lyle V. A. Sendlein

This past year has been another productive year. My administrative duties included directing the Institute for Mining and Minerals Research (IMMR) and the Kentucky Water Resources Research Institute (KWRRI). I taught Groundwater Evaluation, Planning, and Policy (a graduate-level course), and as part of my KWRRI duties, I was responsible for five courses in the Environmental Systems Program (a graduate-level series of courses leading to a certificate in Environmental Systems). I also directed the research for 18 graduate students (15 M.S. and 3 Ph.D.) in hydrogeology.

My research program is a joint effort with James Dinger of the Kentucky Geological Survey. Together, we have four funded projects including one study of groundwater movement in the Eastern Kentucky Coal Field, two projects related to the impact of agricultural chemicals on groundwater in several regions in Kentucky, and a study of the impact of coal ash disposal on groundwater. Both Jim and I have directed the research for the graduate students involved with these projects, as well as the professional staff hired as part of these projects.

Two M.S. students, John Whitler and John Bonita, and two Ph.D. students, Shelley Minns and Birinder Shergill, graduated this past year. Minns, Shergill and Whitler's studies were related to our funded research projects, while Bonita struck off on his own to look at the use of electrical resistivity in karst terrains. Three other students working on funded projects, Steve Hampson, Jeff Snell, and Krista Gremos, should finish their programs during Fall Semester, 1993. Four M.S. students are currently working on their degree programs part-time. Three students were new this past year and started their research projects this summer. Two more students started this semester.

My research has focused on groundwater movement in the steep terrains of eastern Kentucky, groundwater movement and chemistry in coal ash

deposits, and most recently, groundwater movement in karst terrains. Shelley Minns was able to construct a conceptual model of the groundwater flow in the steep terrains in eastern Kentucky. The model she developed goes a long way to help define the "aquifers" present in this region. Birinder Shergill's work helped explain the complex chemistry that occurs in coal ash disposal sites. He helped define the chemistry of high arsenic concentrations associated with old ash landfills with high groundwater tables. Steve Hampson and Jeff Snell, along with Philip Conrad and Dwayne Keagy (project staff in the KGS), have expanded our understanding of the movement of agricultural chemicals in sediments and karst systems. Carl Peterson and Philip Conrad are following up our agricultural chemical studies in the Purchase with the continued monitoring and the development of a groundwater model to explain the relationship between the perched surface system and the deeper aquifer. Krista Gremos, Chris Elvrum, and Joey Cupp are working on karst-related projects. Krista mapped sink holes from air photos and has developed quantitative data on 89 sink holes for an area that was previously mapped by USGS topo maps to have only 12 sinkholes. Chris Elvrum and Joey Cupp are following up on other sites to work on the geomorphology and hydrogeology relationships.

A very demanding project for which I am the team leader is the setting of cleanup standards for petroleum underground storage tanks in Kentucky. This project includes faculty members and researchers from Biological Sciences, Civil Engineering, Preventive Medicine and Environmental Health, Toxicology, Law, Chemistry, and the Kentucky Geological Survey (all from UK); a Public Health faculty member from Western Kentucky University; and an Agricultural Engineer from Murray State University. We are very close to producing a final report that will spell out our recommendations not only for standards of petroleum products that can be left in the ground, but also for risk-based procedures for cleaning up leaking underground storage tank sites.

Ron Street

The geophysics program has changed significantly from what it was just a few short years ago. For the first time, all of the geophysics students in the Department are involved in what has come to be known as near-surface geophysics. In our case, near-surface means shallow seismic. The change in direction is related to the job market, the research priorities in the State and federally funded research programs, and in the interests of incoming students. We still operate the Seismic and Strong-Motion networks and are still involved with studies in the New Madrid seismic zone, but the emphasis has shifted to high-resolution, near-surface, SH- and P-wave seismic studies. Perhaps the most innovative study completed during the past year was our first CDP SH-wave reflection profile that was completed over the Lake County uplift in northwestern Tennessee. Based on the results from that study, which were published in the Geophysical Research Letters by Edward Woolery, we believe that there is considerable potential for these types of studies elsewhere. We are well equipped for doing the acquisition and processing of the data, and I am looking forward to applying our experience to other environmental studies.

In recent years, funding has been a major problem. Last year the College of Arts and Sciences terminated all funding for the lab, and a new source for general operating funds had to be found. With the help of Drs. Don Haney and John Kiefer, funding for the lab is now being provided by the Kentucky Geological Survey, the Kentucky Division of Disasters and Emergency Services, and the Kentucky Finance Cabinet.

Bill Thomas

The "administrative chores" part of my job seemed to increase substantially this past year, leaving less time for what I hope I really do, teach and work with students. Most of the administrative effort went into the things that are described in the Chairman's letter and in Department News, but special mention must be given to departmental planning. We have gone through numerous iterations of a department plan in an attempt to define ourselves, and we are conscious of the need to see ourselves in the context of the geological sciences in the nation and world. We must also consider the special problems of higher education in general, as well as the continuing problem of the state budget. So what might seem a simple task is really a very complex one. Without a clear plan, we cannot compete successfully for University support, nor can we provide the best programs for our students. The "department plan" has taken on a life of its own, and it consumes a lot of time and energy.

During the past spring, I taught GLY 555 Stratigraphy, a new course for this department, but derived from a graduate-level stratigraphy course I taught for many years at the University of Alabama.

Teaching a familiar graduate course for a class of both undergraduate and graduate students was an interesting change. This is now a standard course in our curriculum for the undergraduate majors in the geology and geophysics emphases. I have also spent some time planning a new seminar, "Geologic controls on groundwater flow." The intent is to integrate observations from stratigraphy and structural geology with hydrogeologic data in order to develop better understanding of the systems through which groundwater moves.

My greatest satisfaction continues to come from work with graduate students in thesis/dissertation research. I received a new grant from the Petroleum Research Fund of the American Chemical Society to support research on the reactivation of basement faults. That grant is designed mainly to support student research. During the past summer, I continued work on the Southwest Montana transverse zone in the Cordilleran thrust belt, working with Chris Schmidt of Western Michigan University to set up a graduate field seminar on internal geometry of lateral ramps. Jim Montgomery completed field work for his M.S. thesis on curvature of the Idaho-Wyoming thrust belt south of the Teton basement fault block, and he is currently in an advanced stage of writing. Joe Allen has just completed field work for his Ph.D. dissertation on reactivation history of a basement shear zone across the Sawatch Range near Leadville, Colorado. Jay Sims, who assisted Joe in the field this past summer, is planning an M.S. thesis on the northeast boundary fault of the Uncompahgre uplift, primarily mapping in the northern Gunnison County, Colorado. I spent several days in the field with Joe and Jay in July. The highlight of that work was re-examining measured sections from my own M.S. thesis at Mount Tilton and North Italian Mountain at the head of Cement Creek. Lyle Mars is designing computer applications for his Ph.D. dissertation on sequence stratigraphy in the Black Warrior basin in Alabama and Mississippi.

Our major research effort continues to be three-dimensional analysis of basin subsidence, using the Black Warrior basin as an example. Brian Whiting, a post-doctoral Research Associate, is working on subsidence modeling from a data base of more than 2,500 well logs. We received a grant from Landmark/Zycor for a complete set of software, and that software will be the basis for a set of isopach, isolith, and derivative maps showing decompacted thickness, total subsidence, and subsidence rates. The objective is to understand basin subsidence through time in which the site of maximum subsidence shifted through time. The computer mapping laboratory also supports the dissertation project Lyle Mars is doing. We hope to expand the operations of the laboratory to investigate other types of basins, as well, and we are currently seeking to establish an industrial associates group to help support the lab.

RESEARCH FACULTY

Frank E. Huggins

As a first-time contributor to Round Up, it might be appropriate to include some background information about myself. My position at the University of Kentucky is that of Research Professor and because I received my Ph. D. degree in Earth and Planetary Sciences (M.I.T., 1975) and some of my current research interests are in mineralogy and geochemistry, my appointment is in the Department of Geological Sciences.

My main interests are in the application of Mössbauer and X-ray absorption fine structure (XAFS) spectroscopies to the characterization of minerals and elements in coal and their behavior during coal utilization. Much of the time, I would classify my research as non-geological, but recently we have been using XAFS spectroscopy as a direct and nondestructive probe for the determination of how potentially hazardous trace elements occur in coal. As a result, we have been obtaining some results that are also of significance to the geochemistry of such trace elements in coal.

Another project I am involved in is the use of fine particle iron-bearing materials as catalysts for coal liquefaction. Although from the title, it would appear that there would be little of geological relevance in this project, we find ourselves having to examine the low-temperature mineralogy of iron oxides and oxyhydroxides in order to understand the phase stability of ferrihydrite. Not only is this phase an important low-cost catalyst for coal liquefaction, but it is also often the amorphous precursor for the formation of crystalline iron oxides and oxyhydroxides in soils and other low-temperature environments.

Being a practitioner of XAFS spectroscopy, much of the experimental research has to be done at the synchrotron radiation facilities at Stanford University and at Brookhaven National Laboratory, and it is necessary to spend up to two weeks at a time at these labs several times a year. These trips are not the fun and games they might appear to be; after ten 12-hour days in a row wrestling with various experiments, I can assure you they are not! However, we generally

get a wealth of data from these trips and spend the rest of the year on campus performing detailed analysis of the XAFS spectra.

Although I might appear to be outside the Department's main stream, I would be pleased to explore possible interactions with other faculty, students, and alumni that will lead me to a stronger relationship with the Department.

ADJUNCT FACULTY

James C. Cobb

The course I am now teaching is Environmental Systems 610. This is a multidisciplinary course with engineering titled, "Earth Science and Engineering in Environmental Systems." The Environmental Systems is a relatively new multidisciplinary graduate program for students seeking additional credits in environmental subjects to compliment their degree programs.

I have recently joined the AGI Geotimes Editorial Board.

Dr. Donald C. Haney and I were presented the Energy Minerals Division award for the best paper at the Association of American Petroleum Geologists Northeastern Section meeting at Williamsburg, Virginia. The paper was titled, "Coal resources investigations for Kentucky: Traditional versus coal availability investigations," and it discussed methods for determining availability of coal resources in Kentucky for future development.

James S. Dinger

It has been an extremely busy year concerning hydrogeology projects carried on between the Department of Geological Sciences, the Institute for Mining and Minerals Research (IMMR), and the Kentucky Geological Survey of which I am the director of the Water Resources Section. Lyle Sendlein (of the Department and director of IMMR) and I have directed two doctoral and two masters students to completion of their degrees and three more masters should be completed by December. I presently have one more M.S. student who is still collecting data and should graduate in Spring, 1994. Unfortunately, I am presently not able to accept any new students because there is no full-time hydrogeologist teaching in the Department. At present, the Department is advertising for a tenure-track low temperature aqueous geochemist, and I hope that this position will become the new nucleus for a revived hydrogeology program.

There are plenty of projects for students to work on. Over the past year, and continuing on in the foreseeable future, efforts have been directed towards studies concerning fate and transport of pesticides and nutrients related to agricultural activities. In cooperation with the College of Agriculture, we are studying in detail six farm sites across the state in various hydrogeologic terranes. Students have gained valuable experience in installation of monitoring wells and lysimeters, stream gaging, and water-quality sampling. Our recent graduates tell us that these skills have made the difference in getting jobs of their choice rather than any job in the tightening market of hydrogeology (yes, in several parts of the country hydrogeologists have been laid off their jobs due to the slow down in the economy and the subsequent loss of environmental monitoring work).

Other major work is concentrated on the hydrologic and geochemical characteristics of ash waste disposal sites at electric power generation stations, and the effects of large surface mines and longwall coal mining on the hydrologic system. The latter program will become very exciting in the next year as a longwall panel will pass directly beneath our study site which has 22 monitoring wells and 3 strain gages. We hope to measure the collapse of the overburden and the concomitant changes in both the surface- and ground-water systems.

INTERRUPTION! As I sit here composing this letter, in walks Dr. John Thrailkill fresh from the beach and his boat in St Augustine Beach, FL. He looks good and, after a year of re-doing his boat, is now looking forward to sailing the Bahamas this winter.

In closing, I hope that all the "puddle puppies" who have graduated from the program in recent years are becoming "water dogs" with their continued education in the real world. If you can't stop by, please write. We like to hear what you're doing and where you are doing it.

James A. Drahovzal

This is the beginning of my fifth year at the Kentucky Geological Survey (KGS) where I am heading up the Petroleum and Stratigraphy Section (P&S). Our program is one of petroleum and regional geologic research as well as service to the oil and gas industry of the State.

As time permits, I am continuing my KGS research on seismic interpretation and Cambrian and Proterozoic geology of Kentucky and adjacent areas as part of the Illinois Basin Consortium, the

Cincinnati Arch Consortium, and the P&S program.

In the Department of Geological Sciences, I continue to serve on student thesis committees. This past year, I served on four Ph.D. and one M.S. committee. Both James B. Harris and Zhenming Wang received their Ph.D. degrees this year in seismology. I continue as a member of John C. Mars's (stratigraphy) and Jennifer Thompson's (organic geochemistry) Ph.D. committees, and as a member of Richard T. Hendrix's (paleontology and stratigraphy) M.S. committee.

As part of KGS's four-year, DOE-sponsored Appalachian Gas Atlas research project, I hired two of the Department's undergraduate students this year. Chris Martin and Kevin Wente worked full-time for us this summer and are continuing with part-time positions this fall.

Bill Thomas and I continue our cooperative research project on the geology of the thrust faulted and folded Appalachians of Alabama.

Jim Hower

Our primary research at the Center for Applied Energy Research has shifted somewhat from the study of regional coal quality, with an emphasis on the petrology of the coals, to the investigation of coal-combustion by-products such as fly ash. I continue to work with the geologists at the Kentucky Geological Survey on coal investigation and also supervised Drew Andrews in a number of undergraduate research projects. Starting this fall, I am serving a year term as President of the Society for Organic Petrology; I am also First Vice Chairman of the Coal Geology Division of the Geological Society of America.

1992-1993 DEGREES AWARDED

BACHELOR OF SCIENCE

William M. Andrews
Eric K. Nicholas
Thereseann C. Dowdy
Daryl B. Hines
Meor Meor-Harun
Claren D. Sheets
Nicholas S. Sirek
Mark F. Thompson
Mark J. Warrell

MASTER OF SCIENCE

Jon B. Armstrong
M.S. thesis: Analysis of agricultural non-point source impact on the ground water in Hickman County, Kentucky
Advisor: Lyle V.A. Sendlein

John Bonita
M.S. thesis: An electrical resistivity and fracture trace study in the Inner Bluegrass Karst region of north central Kentucky
Advisor: Lyle V.A. Sendlein

Calbert C. Butler II
M.S. thesis: Metamorphism of the Arvonia Formation, Piedmont Province, central Virgina.
Advisor: William Blackburn

P. Greg Mudd
M.S. thesis: Structural analysis and comparison of three major thrust sheets in the Gatlinburg, Tennessee, area
Advisor: Nicholas Rast

Zhenming Wang
M.S. thesis: Q_c estimation for unconsolidated sediments and site amplification of strong ground motion in western Kentucky
Advisor: Ron L. Street

John D. Whitler
M.S. thesis: The effects of fly ash disposal on groundwater in an upland valley in northern Kentucky
Advisor: Lyle V.A. Sendlein

Edward W. Woolery
M.S. thesis: A high-resolution SH-wave seismic investigation of near-surface deformation in the Lake County uplift area of northwestern Tennessee
Advisor: Ron L. Street

DOCTOR OF PHILOSOPHY

Stephen F. Greb
Ph.D. dissertation: Sedimentology of a Pennsylvanian sandstone (Lower Breathitt Formation) from bedding-plane exposures at the Laurel River Dam Spillway, Whitley County, Kentucky
Advisor: John C. Ferm, Bruce R. Moore

James B. Harris
Ph.D. dissertation: Site amplification of seismic ground motions in the Paducah, Kentucky, area
Advisor: Ron L. Street

Yuejin Liu
Ph.D. dissertation: A quantitative analysis of vertical and horizontal lithic variation in some

coal-bearing rocks in southeastern Kentucky
Advisor: John C. Ferm

Shelley A. Minns
Ph.D. dissertation: Conceptual model of local and regional ground-water flow in the eastern Kentucky coal field
Advisor: Lyle V.A. Sendlein

Birinder Shergill
Ph.D. dissertation: Geochemical and numerical modeling of groundwater associated with coal ash disposal in an alluvial setting, Kentucky
Advisor: Lyle V.A. Sendlein

GRADUATE STUDENT RESEARCH

Liane B. Alessi (B.S., Arizona)
M.S. thesis: Mineralogical and chemical composition of brecciated clay-carbonate sequences associated with No. 13 coal, western Kentucky: Implications for origin.
Advisor: Sue M. Rimmer

Jacek Amudzidis (M.Sc., Wroclaw, Poland)
M.S. thesis: Problems of Pine Mountain overthrust.
Advisor: Nicholas Rast

Joseph L. Allen (B.S., Michigan State; M.S., East Carolina)
Ph.D. dissertation: Early Paleozoic synsedimentary tectonics of central Colorado: Interaction of a basement shear zone and pre-Pennsylvanian sedimentation.
Supported by Petroleum Research Fund of America Chemical Society.
Advisor: William A. Thomas

Brian K. Baker (B.S., Kentucky)
M.S. reports: An hydrogeologic investigation of the Cobhill Quandrangle, Kentucky; and An investigation of the environmental aspects of coal processing refuse fills in eastern Kentucky.
Advisor: Lyle V.A. Sendlein

Steve F. Barnett (B.A., Covenant; M.S., Loma Linda)
Ph.D. dissertation: Nature, origin, and age of the Portwood Member of the New Albany Shale in central Kentucky.
Advisor: Frank R. Ettensohn

Reza M. Bayan (Ph.D., Soil Science, Kentucky)
Ph.D. dissertation: The relationships between illite crystallinity and index and metamorphic grades in eastern Kentucky and southwestern Virginia.
Advisors: Nicholas Rast and John C. Ferm

Michelle R. Bell (B.S., Millersville)
M.S. thesis: The nature of the Martic Line, southwestern Pennsylvania.
Advisor: Nicholas Rast

Denny J. Cantrell (B.S., Kentucky)
M.S. thesis: Organic maturation of the Devonian black shales in eastern Kentucky.
Advisor: Sue M. Rimmer

James F. Coble (M.S., East Carolina)
Ph.D. dissertation: Migmatitic development in the Ocoee Supergroup in western North Carolina.
Advisor: Nicholas Rast

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

Joseph O. Cupp (B.S., Kentucky)
M.S. thesis: Geomorphic analysis as a predictive tool in determining groundwater flow patterns in a Mississippian age karst region.
Advisor: Lyle V.A. Sendlein

Garland R. Dever (B.S., Notre Dame; M.S., Kentucky)
Ph.D. dissertation: Syntectonic sedimentation in Mississippian carbonates near the Irvine-Paint Creek fault system in the Rome trough, east-central Kentucky.
Advisor: Frank R. Ettensohn

Christopher D. Elvrum (B.S., Wisconsin-Eau Claire)
M.S. thesis: Relationship of fracture traces and sinkhole alignments to stratigraphy and groundwater occurrence in the Inner Bluegrass, Kentucky.
Advisor: Lyle V.A. Sendlein

Peter J. Goodmann (B.S., Iowa; M.S., Temple)
Ph.D. dissertation: Numerical models of basin analysis in the autochthonous Appalachian basin in Kentucky, Cumberland Plateau region.
Advisor: Nicholas Rast

Krista Gremos (B.S., Indiana)
M.S. thesis: Determination of the direction and flow of a conduit using analysis of surface karst features.
Advisor: Lyle V.A. Sendlein

Steve K. Hampson (B.S., Kentucky)
M.S. thesis: Characterization of shallow groundwater in a limestone terrain in an agricultural setting.
Supported by grant from Kentucky Legislature Senate Bill 271 to College of Agriculture, University of Kentucky.
Advisor: Lyle V.A. Sendlein.

Richard T. Hendricks (B.S., Louisville)
M.S. thesis: Paleontology and paleoenvironments in the Laurel Dolostone, west-central Kentucky.
Advisor: Frank R. Ettensohn

Michael W. Hiett (B.S., Middle Tennessee)
M.S. thesis: Characterization of groundwater flow and quality of Big Springs, Rutherford County, Tennessee.
Advisor: Lyle V.A. Sendlein

Brian A. Higgins (B.S., Morehead)
M.S. thesis: Site responses due to seismic loading for Henderson, Kentucky.
Advisor: Ron L. Street

Mark Kulp, (B.S., Juniata College)
M.S. thesis: Paleoenvironmental/stratigraphic analysis of the Brannon Member of the Lexington Limestone.
Advisor: Frank R. Ettensohn

Scott Johansen, (B.S., Kentucky)
M.S. thesis: The Carboniferous limestone in southeastern Kentucky.
Advisor: John C. Ferm

Dennis G. Lewellen (B.S., Oregon State; M.S., Eastern Washington)
Ph.D. dissertation: Control of sedimentation by contemporaneous structure, Pocahontas Formation, Buchanan County, Virginia.
Advisor: John C. Ferm

Donald Lumm (B.S., Illinois; M.S., Vanderbilt)
Ph.D. dissertation: Re-examination of the Pennsylvanian-Mississippian unconformity in southern Illinois.
Advisor: John C. Ferm

John C. Mars (B.S., M.S., Alabama)
Ph.D. dissertation: Facies architecture and evolution of sandstones in the Parkwood Formation in the Black Warrior basin.
Supported by ARCO.
Advisor: William A. Thomas

James A. McHugh (B.S., Kentucky)
M.S. thesis: Geology of the Chilhowee Mountain and vicinity, southeastern Tennessee.
Advisor: Nicholas Rast

James M. Montgomery, Jr. (B.S., Montana)
M.S. thesis: Basement-fault-related stratigraphic controls on internal structures that contribute to curvature of thrust belts.
Advisor: William A. Thomas

Angela Moore (B.S., Edinboro [Pennsylvania])
M.S. thesis: Physical and chemical characterizations of the ground water flow system in the Inner Bluegrass karst region.
Supported by Presidential Fellowship and Quality Achievement Award
Advisor: James S. Dinger

G. Todd Mullins (B.S., Kentucky)
M.S. thesis: A P-wave reflection investigation of Mississippi embayment sediments along the northern edge of the Tiptonville dome.
Advisor: Ron L. Street

Roger J. Paulson (B.S., Wisconsin-Plattville)
M.S. reports: Revision of input and output for Prickett, Naymik, and Lonnquist random walk solute transport modeling program; and Contaminant hydrogeology of a site in Jefferson County, Kentucky.
Advisor: John Thrailkill

Carl Peterson (B.S., Northeastern)
M.S. thesis: Groundwater modeling of a non-point source pollution in Hickman County.
Advisor: Lyle V.A. Sendlein

Jeffrey Snell (B.S., South Alabama)
M.S. thesis: Agricultural non-point source pollution in the western coal field region of Kentucky.
Supported by Kentucky Geological Survey
Advisor: Lyle V.A. Sendlein

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

Jennifer A. Thompson (B.S., Smith)
Ph.D. dissertation: Organic facies in the Devonian shales, central Kentucky.
Supported by Center for Applied Energy Research.
Advisor: Sue M. Rimmer

Christopher Toles (B.S., Eastern Illinois; M.S., Missouri-Columbia)
Ph.D. dissertation: Carbon synthesis for coal and maceral concentrates: Petrographic and *in-situ* FTIR studies.
Supported by Kentucky/Department of Energy EPSCoR Program.
Advisor: Sue M. Rimmer

Patrick D. Vogler (B.S., Kentucky)
M.S. thesis: Coal petrology and depositional setting of the Pond Creek coal, southeastern Kentucky.
Advisor: Sue M. Rimmer

Zhengping Wang (B.S., Wuhan; M.S., Beijing)
Ph.D. dissertation: Comparison of macroscopic and microscopic coal lithotypes.
Advisor: John C. Ferm

Zhenming Wang (B.S., Peking; M.S., Kentucky)
Ph.D. dissertation: Source characteristics of earthquakes in the New Madrid seismic zone.
Supported by Martin Marietta Energy Systems, Inc.
Advisor: Ron L. Street

Anna E. Watson (B.S., Kentucky)
M.S. thesis: Stratigraphy and depositional environments of the Pennington Formation, southeastern Kentucky.
Advisor: Frank R. Ettensohn

Edward W. Woolery (B.S., Eastern Kentucky; M.S., Kentucky)
Ph.D. dissertation: P-wave investigations of large scale faulting in the New Madrid seismic zone.
Supported by U.S. Geological Survey.
Advisor: Ron L. Street

NEW GRADUATE STUDENTS

Eric Anderson (B.S., Virginia Polytechnic Institute)
Thereseann Dowdy (B.S., Kentucky)
Alan Gentry (B.S., Louisville)
Daryl Hines (B.S., Kentucky)
Brian Panetta (B.S., South Carolina)
Jay Sims (B.S., Arkansas-Little Rock)
Nicholas Sirek (B.S., Kentucky)
Mark Warrell (B.S., Kentucky)
Lei Zhang (B.S., Beijing University)
Yunhe Zhang (B.S., Huainan Mining Institute; M.S., China University of Mining and Technology)

TEACHING ASSISTANTS

Jacek Amudzidis
Eric Anderson
Thereseann Dowdy
Christopher Elvrum
Daryl Hines
Mark Kulp
Brian Panetta
Carl Petersen
Jay Sims
Nicholas Sirek
Zhengping Wang
Mark Warrell
Lei Zhang
Yunhe Zhang

RESEARCH ASSISTANTS AND FELLOWS

Joseph L. Allen, Chevron Fellowship; Petroleum Research Fund
Joseph O. Cupp, Kentucky Geological Survey
John C. Mars, ARCO; Chevron Fellowship
Angela Moore, Presidential Fellowship; and Graduate School Quality Achievement Fellowship
Jennifer A. Thompson, Center for Applied Energy Research (CAER)
Christopher Toles, Kentucky EPSCOR Traineeship
Zhenming Wang, Martin Marietta Energy Systems, Inc.
Edward W. Woolery, U.S. Geological Survey

STUDENT AWARDS

Best Student Paper Award, 1992 Eastern Section Meeting, American Association of Petroleum Geologists

Todd Hendricks

McFarlan Fund, Research

Mark Kulp
Liane B. Alessi
Michael W. Hiett

McFarlan Fund, Travel

John C. Mars
Joseph L. Allen
James M. Montgomery, Jr.
Tony L. Cooley
Brian O. Higgins
Zhenming Wang

Hudnall Award, Field Camp

William M. Andrews, Jr.
Keith M. Goins
David T. Scates
William T. Schick
Nicholas S. Sirek
Brian K. Slone
Michael M. Steen
Matthew D. Varney
Kevin J. Wente

Tarr Award (Sigma Gamma Epsilon) - outstanding graduating senior
William M. Andrews, Jr.

Pirtle Award - outstanding junior showing promise in geology
Sara D. Baxter

STUDENT PRESENTATIONS

Joe Allen, Cambrian-Mississippian reactivation history of the Homestake shear zone, central Colorado: Cordilleran and Rocky Mountain Joint Section Meeting of Geological Society of America, Reno, Nevada, May, 1993.

John Bonita, The use of electrical resistivity techniques to detect an underground conduit in the karst regions of the Inner Bluegrass: North-Central Section Meeting of Geological Society of America, Rolla, Missouri, March, 1993.

Krista Gremos, Use of aerial photos and field reconnaissance to predict groundwater flow of a karst area in the Inner Bluegrass region of Kentucky: North-Central Section Meeting of Geological Society of America, Rolla, Missouri, March, 1993.

Steve Hampson, The impact of agricultural practices on shallow groundwater in the Bluegrass region of Kentucky: North-Central Section Meeting of Geological Society of America, Rolla, Missouri, March, 1993.

Brian Higgins, Site amplification of earthquake ground motions in unconsolidated sediments: Henderson, Kentucky: American Geophysical Union, Baltimore, Maryland, May, 1993.

Yuejin Liu, Spatial thickness variation of Carboniferous coal-bearing sequences: A sedimentological response to varying levels of compational and structural control: Geological Society of America, Cincinnati, Ohio, October, 1992.

Yuejin Liu, Separating sedimentary effects of differential compaction and structural control in a foreland basin: Canadian Society of Petroleum Geologists, Calgary, Alberta, August, 1993.

James Montgomery, Controls on thrust belt curvature, Wyoming-Idaho thrust belt: Cordilleran and Rocky Mountain Joint Section Meeting of Geological Society of America, Reno, Nevada, May, 1993.

Todd Mullins, Near-surface faulting on the Tiptonville dome as documented by shear-wave seismic investigations: Geological Society of America, Cincinnati, Ohio, October 1992.

Jeff Snell, Agricultural non-point source pollution in the western coal field region of Kentucky: North-Central Section Meeting of Geological Society of America, Rolla, Missouri, March, 1993.

Zhenming Wang, Q, estimates for unconsolidated sediments in the upper Mississippi embayment: Seismological Society of America, Eastern Section, Richmond, Virginia, October, 1992.

Zhenming Wang, Site conditions and response of weak ground motions in western Kentucky: American Geophysical Union, Baltimore, Maryland, May, 1993.

John Whitler, Effects of ash disposal on groundwater quality in northern Kentucky: North-Central Section Meeting of Geological Society of America, Rolla, Missouri, March, 1993.

Edward Woolery, Investigation of structural deformation in unconsolidated sediments using high-resolution SH-wave seismic methods: 62nd International Meeting of the Society of Exploration Geophysicists, October, 1992.

FACULTY RESEARCH SUPPORT

Arch Mineral Company, J.C. Ferm

U.S. Department of Energy, "Consortium for fossil fuel liquefaction science," Frank E. Huggins

U.S. Department of Energy (subcontract through PSI Technology, Inc.), "Transformations of inorganic coal constituents in combustion systems," Frank E. Huggins

Electric Power Research Institute, "Comprehensive investigation of inorganic constituents in coal and coal derivatives," Frank E. Huggins

U.S. Department of Energy/Commonwealth of Kentucky EPSCoR Project: "Characterization of potentially hazardous trace elements in Kentucky coals, cleaning wastes and combustion products," Frank E. Huggins

National Science Foundation, "Upgrade of the University of Kentucky electron microprobe," David P. Moecher

Eastern Kentucky Power Cooperative, Inc., "Utility solid waste study: Field study of leaching characteristics at a flue-gas desulfurization sludge/ash disposal site," Lyle V.A. Sendlein and James Dinger.

Electric Power Research Institute, "Groundwater movement in a dry ash landfill and prediction of leachate movement," Lyle V.A. Sendlein and James Dinger.

Kentucky Department of Surface Mining and Reclamation, "Hydrologic impact of below drainage underground mining in Kentucky," James Dinger and Lyle V.A. Sendlein.

Kentucky Legislature (Senate Bill 271), College of Agriculture, University of Kentucky, "Groundwater research on potential impacts of agricultural practices," Lyle V.A. Sendlein and James Dinger.

U.S. Department of Agriculture, "Agricultural BMPs and surface water-groundwater interaction in karst terrain," Lyle V.A. Sendlein and James Dinger.

U.S. Department of Energy, "High volume-high value usage of dry gas desulfurization (FGD) by-products in underground mines," Lyle V.A. Sendlein and James Dinger.

Martin Marietta Energy Systems, Inc., "Far-field ground motions study of engineering interest at the Paducah Gaseous Diffusion Plant," Ron Street

U.S. Geological Survey, "Investigation and documentation of subsurface conditions at free-field accelerometer sites in the upper Mississippi embayment," Ron Street

Commonwealth of Kentucky, "Seismic monitoring," Ron Street

Kentucky Department of Transportation, "Seismic hazard evaluation for western Kentucky, with emphasis on design response spectra," Ron Street

Petroleum Research Fund of American Chemical Society, "Causes of reactivation of intracratonic basement faults," William A. Thomas

PUBLICATIONS

UK faculty
UK student or former student

Allen, J.L., 1993, Cambrian-Mississippian reactivation history of the Homestake shear zone, central Colorado: Geological Society of America Abstracts with Programs, v. 25, no. 5, p. 2.

Allen, J.L., 1993, Lithofacies relations and controls on deposition of fluvial-deltaic rocks of the upper

Pocahontas Formation in southern West Virginia: Southeastern Geology, v. 33, no. 3, p. 131-147.

Andrews, W.M., Jr. and Hower, J.C., 1992, Fire Clay coal and sandstone washouts: Geological Society of America Abstracts with Programs, v. 24, p. A164-A165.

Andrews, W.M., Jr., Sirek, N.S., Warrell, M.J., Baxter, S.D, Ferm, J.C., and Hower, J.C., 1993, Quality variations in the Taylor coal bed, Johnson and Martin counties, Kentucky: Geological Society of America Abstracts with Programs, v. 25, in press.

Buffler, R.T., and Thomas, W.A., in press, Crustal structure and tectonic evolution of the southeastern margin of North America and the Gulf of Mexico basin: Geological Society of America, The Geology of North America.

Cobb, J.C., and C.B. Cecil (eds.), in press, Modern and ancient coal-forming environments, Geological Society of America Special Publication 286, 262 p.

Drahovzal, J.A., 1992, The origin and geologic evolution of the East Continent Rift Basin (abs.): Geological Society of America Abstracts with Programs, v. 24, no. 7, p. A330.

Drahovzal, J.A., and D.C. Harris, 1993, A billion-year-old sedimentary basin discovered in central North America: University of Kentucky Institute for Mining and Mineral Research, Highlights, v. 12, no. 3, p. 1-2.

Drahovzal, J.A., D.C. Harris, L.H. Wickstrom, Dan Walker, M.T. Baranoski, B.D. Keith, and L.C. Furer, 1993, The East Continent Rift Basin: A new discovery: Kentucky Geological Society, Spec. Pub. 18, 25 p.

Drahovzal, J.A., and B.C. Nuttall, 1992, Kentucky Geological Survey is working on a major Appalachian gas plays atlas: University of Kentucky Institute for Mining and Mineral Research, Highlights, v. 11, no. 5, p. 1, 4.

Eble, C.F., Calder, J.H., and Hower, J.C., 1993, A palynologic, petrographic and geochemical comparison of the Manchester coal bed (Central Appalachian Basin, USA) and the No. 3 coal bed (Cumberland Basin, Nova Scotia): Geological Society of America Abstracts with Programs, v. 25, in press.

Eble, C.F., Hower, J.C., and Andrews, W.M., Jr., 1993, Paleoecology of the Fire Clay coal bed in a portion of the Eastern Kentucky coal field: Palaeogeography, Palaeoclimatology, Palaeoecology, in press.

Ettensohn, F.R., 1992, Controls on the origin of the Devonian oil and gas shales, east-central United States": Fuel, v. 71, p. 1487-1492.

Ettensohn, F.R., and Hendricks, R.T., 1992, Development of a core-logging manual for the eastern oil and gas shales: Abstracts, 1992 Eastern Oil Shale Symposium: U.K. Institute for Mining and Minerals Research and Center for Applied Energy Research, Lexington, p. 50.

Ettensohn, F.R., and Norby, R.D., 1992, Stratigraphy and biostratigraphy of the New Albany Shale (Devonian-Mississippian) in the Illinois basin (abs.): A.A.P.G. Bulletin, v. 76, p. 1282.

Ettensohn, F.R., 1993, Possible flexural controls on the origins of extensive, ooid-rich, carbonate environments in the Mississippian of the United States, *in* Keith, B.D., and Zuppan, C.W., eds., Mississippian oolites and modern analogs: A.A.P.G. Studies in Geology #35, p. 13-30.

Ettensohn, F.R., and Hendricks, R.T, 1993, Development of a core-logging manual for the eastern oil and gas shales, *in* Proceedings, 1992 Eastern Oil Shale Symposium: Institute for Mining and Minerals Research, Lexington, p. 287-293.

Ettensohn, F.R., in press, Tectonic control on formation and cyclicity of major Appalachian unconformities and associated stratigraphic sequences: S.E.P.M. Contributions to Sedimentology and Paleontology, v. 4.

Ferm, J.C., Application of automated image analysis and microlithotype and lithotype characterization of coal: IMMR 1991-1992 Annual Report, p. 5-7.

Ferm, J.C., and Moore, T.A., 1992, Composition and grain size of an Eocene coal in southeastern Kalimomton, Indonesia: Int. Journ. of Coal Geology, 21, p. 1-30.

Ferm, J.C., Graese, A.M., Baynard, D.N., Hower, J.C., and Liu, Y., 1992, Stratigraphic and regional variation of petrographic and chemical properties of the Tradewater Formation coals and surrounding rocks

in western Kentucky: Int. Journ. Coal Geol. 21, p. 237-259.

Givens, E., Robl, T., and **Hower, J.C.**, 1992, A survey of coal combustion by-products in Kentucky: Current usage and future directions: Kentucky Coal Ash Utilization Workshop, November 4-5, 1992, Lexington, KY.

Graese, A.M., Baynard, D.N., **Hower, J.C., Ferm, J.C.,** and **Liu, Y.,** 1992, Stratigraphic and regional variation of the petrographic and chemical properties of the Tradewater Formation coals and surrounding rocks in western Kentucky: Int. J. Coal Geology, v. 21, p. 237-259.

Graham, U.M., **Hower, J.C.**, Rathbone, R.F., and Spears, M.M., 1993, Pyrolysis processing characteristics of Kentucky cannel coals: The Society for Organic Petrology, Tenth annual meeting, Abstracts and program.

Griswold, T.B., and **Hower, J.C.**, 1992, A discussion of coal quality considerations relative to the utilization of low sulfur coal in the Appalachian region of Kentucky: Examples from the Pond Creek and Upper Elkhorn No. 3 coal beds, *in* Platt, J., Price, J., Miller, M., and Suboleski, S., One point two—New perspectives on Central Appalachian low-sulfur coal supplies: Coal Decisions Forum, Tech Books, p. 171-193.

Harris, J., and **Street, R.**, 1992, Shallow common-offset seismic profiling of a sub-Pennsylvanian paleovalley, western Kentucky: Southeastern Geology, v. 32(4), 215-227.

Helbe, J.J., **Huggins, F.E.**, Senior, C.L., Srinivasachar, S., Shah, N., and Huffman, G.P., 1992, The fate of chromium during pulverized coal combustion: Proceedings, Ninth Annual Pittsburgh Coal Conference, Pittsburgh Energy Technology Center, (U.S. DOE), Pittsburgh, PA, p. 928-933.

Henricks, R.T., **Ettensohn, F.R.**, Stark, T.J. and Grebs, S.F., 1993, Geology of the Devonian strata of the Falls of the Ohio area, Kentucky-Indiana: stratigraphy, sedimentology, palentology, structure, and diagenesis, Field Guide, Annual Field Conference of the Geological Society of Kentucky: Geological Society of Kentucky, Lexington, p.28.

Howell, P.D., 1992, Styles of subsidence in the Michigan Basin and implications for lithospheric rheology and behavior: Geological Society of America, Abstracts with Programs, v. 24, no. 7, p. A289-A290.

Hower, J.C., and Gibian, G.P., 1993, Review: Coal Production Prospects in the European Community, by Martin Daniel and Eric Jamieson, IEA Coal Research 48, 1992: Organic Geochemistry, v. 20, p. 117.

Hower, J.C., and **Rimmer, S.M.**, 1993, Introduction: Collected papers from the eighth annual meeting of the Society for Organic Petrology, Organic Geochemistry, v. 20, no. 2, p. v.

Hower, J.C., and Robl, T.L., 1993, Production of coal-combustion by-products in Kentucky: Trends and prospects: Journal of Coal Quality, v. 12, in press.

Hower, J.C., and Wild, G.D., 1992, Maceral partitioning in the Herrin (Western Kentucky No. 11) and Springfield (Western Kentucky No. 9) coals: Influence of fine-coal cleaning: Journal of Coal Quality, v. 11, p. 50-55.

Hower, J.C., and Wild, G.D., 1993, Petrology of Jurassic (Kimmeridgian) coals, Atlantic continental shelf, New Jersey (abs.): American Association of Petroleum Geologists Bulletin, v. 77, in press.

Hower, J.C., Anderson, K.B., Mackay, G., Lemos de Sousa, M.J., Pinheiro, H., and Flores, D., 1993, Inter-laboratory comparisons of petrography of liquefaction residues from three Argonne premium coals: The Society for Organic Petrology, Tenth annual meeting, Abstracts and program.

Hower, J.C., Eble, C.F., and Rathbone, R.F., 1993, Petrology and palynology of the No. 5 Block coal bed, northeastern Kentucky: International Journal of Coal Geology, in press.

Hower, J.C., Graham, U.M., and Eble, C.F., 1993, High-sulfur coals in the Eastern Kentucky coal field (abs.): American Association of Petroleum Geologists Bulletin, v. 77, in press.

Hower, J.C., Graham, U.M., Rathbone, R.F., and Robl, T.L., 1993, Retorting potential of lignite overburden from clay mining, American Chemical Society, Fuel Chemistry Division Preprints, v. 38, p. 953-958.

Hower, J.C., Helfrich, C.T., and Williams, D.A., 1992, Palynologic and petrographic cycles in the McLeansboro Group, Western Kentucky: Geological Society of America, Abstracts with Programs, v. 24, p. A163.

Hower, J.C., Keogh, R.A., and Davis, B.H., 1992, Petrology of liquefaction residues: High-vitrinite, high-sulfur Davis (Western Kentucky No. 6) coal: Energy & Fuels, v. 6, p. 614-618.

Hower, J.C., Keogh, R.A., Taulbee, D.N., and Rathbone, R.F., 1993, Petrography of liquefaction residues: Semifusinite concentrates from a Peach Orchard coal lithotype, Magoffin County, Kentucky: Organic Geochemistry, v. 20, p. 167-176.

Hower, J.C., Levine, J.R., Skehan, J.W., Daniels, E.J., Lewis, S.E., Davis, A., Gray, R.J., and Altaner, S.P., 1993, Appalachian anthracites: Organic Geochemistry, v. 20, in press.

Hower, J.C., Lewis, S.E., and Bayan, M.R., 1993, Central Appalachian coal metamorphism: Geological Society of America Abstracts with Programs, v. 25, in press.

Hower, J.C., Rathbone, R.F., and Eble, C.F., 1992, No. 5 Block coal bed, northeastern Kentucky: Paleoclimate controls on Carboniferous sedimentation and cyclic stratigraphy in the Appalachian basin, Geological Society of America, Coal Division field trip guidebook, U.S. Geological Survey, Open File Report 92-546, p. 135-145.

Hower, J.C., Rathbone, R.F., and Wild, G.D., 1993, Reflections on the use of R_{max} vs. R_{mean} for high volatile bituminous coals: The Society for Organic Petrology Newsletter, v. 10, no. 2, p. 6.

Hower, J.C., Robertson, J.D., Graham, U.M., Thomas, G.A., and Wong, A.S., 1993, Characterization of Kentucky coal-combustion by-products: Compositional variations based on sulfur content of feed coal: Pittsburgh Coal Conference, 10th, in press.

Hower, J.C., Trinkle, E.J., Pollock, J.D., and Helfrich, C.T., 1992, Influence of penecontemporaneous tectonism on thickness and quality of Breathitt Formation coals, eastern Kentucky, *in* Platt, J., Price, J., Miller, M., and Suboleski, S., One point two—New perspectives on Central Appalachian low-sulfur coal supplies: Coal Decisions Forum, Tech Books, 143-170.

Huggins, F.E., Huffman, G.P., and Shah, N., 1992, Determination of organic sulfur forms in coal by XAFS spectroscopy: Elemental Analysis of Coal and Its By-Products, (Proceedings, 2nd International Conference on Elemental Analysis of Coal, Barren River Resort, KY), (ed. G. Vourvopoulos), World Scientific Publishing, Singapore, p. 165-184.

Huggins, F.E., Vaidya, S. V., Huffman, G. P., Mill, T., and Youtcheff, J., 1992, Analysis of sulfur forms in asphalts using sulfur K-edge XAFS Spectroscopy: Preprints, ACS Div. Fuel Chem., v. 37, no. 3, p. 1376-1382.

Huggins, F.E., Shah, N., Zhao, J., Lu, F., and Huffman, G. P., 1993, Nondestructive determination of trace element speciation in coal and ash by XAFS spectroscopy: Energy & Fuels, v. 7, no. 4, p. 482-489.

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DEPARTMENTAL SEMINARS 1992-1993

Devonian breccias and their tectonic implications - Frank R. Ettensohn, Department of Geological Sciences

Polyphase mylonitization in Precambrian rocks of the northern Appalachians - Nicholas Rast, Department of Geological Sciences

Stratigraphy and Holocene evolution of Mobile Bay - John C. Mars, Department of Geological Sciences

Influence of a basement shear zone on stratigraphy of the Sawatch Quartzite, Colorado - Joe Allen, Department of Geological Sciences

An episodically reactivated transcontinental basement fault - William A. Thomas, Department of Geological Sciences

Fly ash disposal and groundwater: Three Kentucky case studies - Lyle Sendlein, Department of Geological Sciences

Organic facies in Devonian shale - Jennifer Thompson, Department of Geological Sciences

The effects of ash disposal on groundwater quality in the Fairview and Kope formations near Marysville, Kentucky - John Whitler, Department of Geological Sciences

Hypertext and graphics in geology instruction - Philip Sandberg, University of Illinois

Characteristics and controls on the Fire Clay coal in the vicinity of sandstone washouts - William Andrews, Department of Geological Sciences

Investigation of the impact of agricultural practices on groundwater of the inner Bluegrass - Steve Hampson, Department of Geological Sciences

Activated carbons from bituminous coal - Chris Toles, Department of Geological Sciences

Relation of karst features to conduit-controlled groundwater flow direction - Krista Gremos, Department of Geological Sciences

Geomorphologic and tectonic models for coal-bearing rocks in the Appalachian Plateau - John C. Ferm, Department of Geological Sciences

A stratigraphic model for coal-bearing strata in the Appalachian basin - Donald R. Chesnut, Kentucky Geological Sciences

Geology of Poland - Jacek Amudzidis, Department of Geological Sciences

Dogma and the quality of progress in tectonics - Nicholas Rast, Department of Geological Sciences

Rock fences of the Blue Grass - Karl B. Raitz, Department of Geography, University of Kentucky

Earth science aspects of waste disposal and remediation at Oak Ridge - Steven Stow, Oak Ridge National Laboratory

Effects of longwall mining on hydrology of Eastern Kentucky - Shelley Minns, Department of Geological Sciences

Controls on the thrust belt curvature, Wyoming-Idaho thrust belt - Jim Montgomery, Department of Geological Sciences

Missing mass in the universe - Thomas Troland, Department of Physics and Astronomy, University of Kentucky

The use of electrical resistivity techniques to define the boundary between basin and interbasin areas in karst terrain - John Bonita, Department of Geological Sciences

The Chilhowee of York County, Pennsylvania - Michelle Bell, Department of Geological Sciences

1993 McFarlan Lecture - Pennsylvanian-Permian stratigraphy and tectonics of the Rocky Mountains and Colorado Plateau - D. L. Baars, Kansas Geological Survey

Investigations in the Taylor coal to Haddix coal interval, Martin County, Kentucky - William Andrews, Sara Baxter, Nick Sirek, and Mark Warrell, Undergraduate Field Seminar, Department of Geological Sciences

Applications of organic petrology - Sue Rimmer, Department of Geological Sciences

High-resolution SH-wave seismic methods - Ed Woolery, Department of Geological Sciences

Site effects in the Henderson, Kentucky, area - Brian Higgins, Department of Geological Sciences

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

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- support of the departmental seminar program
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- operation of the Hudnall Geological Sciences Museum

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- undergraduate research grants, to support senior theses

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Bruno, Anthony C.
Brunsman, Mark J.
Caudill, John F.
Chang, David
Collins, James
Coskren, Thomas D.
Couch, David L.
Crawley, Richard
Dohm, Francis
Durham, Jon A.
Elizalde, Leonardo
Ellis, John H.
Evans, Amelia A.
Fisher, Mary A.
Fouts, John D.
Freeman, Lawrence I.
George, J.S.
Gerace, Christine
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Graham, George M.
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Head, Roger B.
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Jaehnig, Mary
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Jost, Toni F.
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Lamb, Steve
Lewellen, Daniel
Lindsay, Richard
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Lucas, David S.
Luttrell, Erwin J.
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Noel, Daniel
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Pierson, Bernard
Powers, Kenneth
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Rockwell, Pamela
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