

This publication is paid for in part by dues-paying members of the Indiana University Alumni Association

Indiana University College of Arts & Sciences Alumni Association

HOOSIER GEOLOGIC RECORD

Alumni Newsmagazine of the Department of Geological Sciences



Indiana University Geologic Field Station, 1950

Winter 2000

HOOSIER GEOLOGIC RECORD

Table of Contents

Chair's Greeting	1
Departmental News	2
Colloquium Series and Presentations	9
Other Presentations	10
Geologic Field Station Update	11
Indiana Geological Survey Update	13
Faculty News	16
Department of Geological Sciences Faculty and Staff	17
Faculty Research Grants	19
Student News	20
Advisory Board Update	21
Alumni News	24
Alumni Receptions	27
Class Note Form	28
Donors	26
Department Photo	inside back cover



Editor's note: We urge alumni and friends to send us prints, photos, or slides that would interest our readers. Please be sure to provide a complete caption and label the material with your name and address so that it can be returned. We can't promise to include all submissions, but we can promise to return them.

One year and counting!

It seems like only yesterday that I first walked into the chair's office in the Department of Geological Sciences. Yet, when I look at the calendar, I realize that I have been here for a year now. The faculty, staff, and students have accomplished much during this first year, and many more changes are in the works. Some of these changes and plans are outlined below.

We now have paint in the hallways, which makes the halls look far bigger and brighter than with the previous shades of green! Our endowment campaign has been successful beyond our wildest dreams (please see **Lee Suttner's** contribution to the newsmagazine for details). You, our alumni, are directly responsible for this success!! The loyalty, dedication, and warmth exhibited by our alumni are the greatest strength of the Department. I have been to many institutions throughout the United States, and have worked directly in several geology departments, and I can tell you that our alumni are unparalleled in their support and generosity. Consequently, our department stands on the brink of great things. A little about what has occurred and what is in the works is below.

First, as of this writing, we are advertising for three positions in Geological Sciences. These three are the Robert R. Shrock Professorship in Sedimentary Geology, the Malcolm & Sylvia Boyce Professorship in Geological Sciences (which is being used initially in hydrogeology), and an assistant-professor, tenure-track position in geophysics that will emphasize linkages of our active, dynamic geophysics group with other areas of the Department. In addition, we are closing in on completion of an endowed chair in clay mineralogy and will be advertising for the Judson Mead Professorship of Geophysics within the next couple of years. Beyond all of this, we are attempting the recruitment of two absolutely stellar faculty from another institution, with the hopes that we will be able to put together a package attractive enough to entice them to join our department next fall. All in all, we have some exciting opportunities ahead and more changes planned in a short period of time than the Department has undergone in quite a while.

Recent visitors to the Department may have noticed our painted hallways and the new furniture in Patty's and Kim's

office. What you may not have noticed is the new software package, compliments of Landmark Graphics Corp., being used by students and faculty in various research and teaching endeavors. We owe Landmark, in general, and Advisory Board member John Gibson, in particular, a great deal of thanks for this important donation of software, all of which is valued at more than \$700,000.

Recent visitors to the Department also may have noticed a few more graduate students (49) and undergraduates (77) than before. We have our faculty to thank in part for increases in both of these numbers. Their excitement about teaching and research is contagious; consequently, we have been very successful in our recent graduate-student recruitments and in attracting undergraduate majors to our program. In addition, **Bruce Douglas**, working in conjunction with SPEA, is doing a terrific job as coordinator of our fledgling BS in environmental science program, which has almost 40 majors and had its first graduate in December. Also, special thanks go to **Jim Levens** in the College of Arts and Sciences for increasing our AI support in the Department this past year from 18 to 21! The College of Arts and Sciences has been very supportive of us in recent years, thanks in part to the leadership of **Lee Suttner** as department chair, the presence of **Lisa Pratt** in the College as a half-time associate dean for science, and our incredible support from alumni and friends.

Not all was completely rosy for us, however. It is with a heavy heart that I note the passing of two of our most dedicated and loyal supporters. **Alan Horowitz**, my friend and one of my mentors during my graduate years here, died in February of last year. We all miss Alan's presence in the Department. **Dan Tudor** died in November. Dan was able to attend our most recent Advisory Board meeting in October, and we were all delighted to see him at our gala celebration. Dan's loyalty to the Department and to Indiana University are legendary, and he too will be missed greatly. Although not in our midst, neither of these great and kind gentlemen will be forgotten by our department in the coming years. We have initiated the Dan Tudor Lecture Series, which will bring in a speaker from the industry on a yearly basis for a special lecture in Dan's memory.



We have something in the works to honor Alan Horowitz as well, and I will be able to elaborate more on this next year.

As for me, all I can say is, "Whew!" Sara (my wife) and I arrived here a year ago, and it has been nonstop ever since. This has been a wonderful year filled with learning, meeting new people, renewing old friendships, and getting my feet on the ground in a new job. I will never be able to sufficiently express my excitement at being here and my gratitude to the faculty for allowing me to return! The warmth and openness with which I have been received are incredible. I have been on the road quite a bit this past year, mostly attending meetings (at which I am getting a reputation of shamelessly showing the IU flag and extolling the virtues of our alumni) and talking with potential employers of our students. I co-taught classes and seminars this past year with **Erle Kauffman**, **Lee Suttner**, and **Lindsey Leighton**. In addition, Lindsey and I co-led a couple of informal field trips for students out to Kansas. (Yes, there really are exposures in Kansas).

As you read through the pages of our yearly update to you and take a moment to hearken back to your own experiences at IU, please keep one thing foremost in your mind: Our doors are open to you! We would love to see you, and I suspect that you would enjoy visiting with us. So, if your travels bring you in our general direction, know that our door is open and our hallways, new paint and all, await your visit. To our students, staff, faculty, alumni, and friends, Sara and I express our deepest thanks. After a year and counting, I can only say that it seems more like a week and counting. We welcome all of you to share in our excitement as we build upon our rich past and embrace our future. Thank you most sincerely for your support—our best wishes go out to all of you for many happy and successful years to come.

— Christopher Maples

Endowment campaign continues to be a huge success

If there is a geoscience department in the country with more supportive and loyal alumni than ours, we are unaware of it. Thanks to the generosity of more than 800 alumni, the Department's historic "5-Year, \$5 Million" endowment campaign has become a sensational success. All should be proud to hear the wonderful news that more than \$5 million in gifts, pledges, and bequests have been received in just the first three and a half years of the campaign. Matching funds from a special program established by President Brand to encourage major gifts from single donors will add an equivalent of \$2.9 million to the endowment. On behalf of the faculty and scores of students who will benefit from the generosity of our alumni and friends, the Department extends sincere gratitude and thanks. What you have achieved for us is truly remarkable.

The immensity of success of the campaign is a lot like the immensity of geologic time — measuring it is far easier than comprehending it. Some comparative numbers might help comprehension. In the concurrent five-year universitywide campaign, the goal of the College of Arts and Sciences was to raise \$35 million. We are one of the smaller of nearly 40 departments and programs in the College, yet 15 percent of this total

will come from geology alumni, faculty, and friends. Prior to the start of the major campaign, the College had seven endowed faculty positions. Geological Sciences has already added *five* new endowed positions to this total. Since the idea for the campaign was conceived in 1995, the Department's overall effective endowment has grown by 400 percent, and the spendable income has increased 700 percent. Few will disagree that these are most impressive numbers.

What have been the unique ingredients in the recipe for this extraordinary success? Obviously, the support of hundreds of our alumni and friends has been a key one. Among this group, special mention must be made of the members of the 1995 Advisory Board, who initially pledged more than \$550,000 to kick off the campaign. We owe a debt of gratitude to the vision and generosity of the Board members in 1995 who initiated the campaign. This group included **Stanley Anderson, Robert Blakely, Malcolm Boyce, Robert Boyer, Michael Cowen, Thomas Dobecki, Marcia Engle, Ferol Fish, Derek Fullerton, Richard Gibson, Michael Graham, Stephan Graham, Helen McCammon, Richard McCammon, Judson Mead, Michael Mound, George Nevers, Ann Marie Petricca, Frank Pruett, Thomas**

Straw, Daniel Sullivan, Glenn Thompson, Jerome Thornburg, Daniel Tudor, Steven Young, and Kenneth Vance. Additional contributions from Board members have since added well over \$1 million. The Department's faculty also deserves praise. Every member of the faculty pledged their personal financial support. And last, but certainly not least, President Brand's innovative and forward-looking matching plan on individual contributions exceeding \$500,000 has been an incredibly effective catalyst in attracting several major gifts.

Even though we have exceeded our goal, we have no intention of ceasing our fund-raising and development efforts. If anything, the success has intensified our resolve to do even more. We will continue to ask for your support. Many of the major gifts and pledges received to this point are for the endowed faculty positions. Although it is important that we continue to attract additional major gifts to support more endowed positions, our fund-raising focus will now broaden to address other needs. We must elevate the level of our student research and scholarship support so as to enhance the recruitment of top students to work with the outstanding existing and new faculty whose addition was made possible by the endowment. We intend to

mount special efforts to establish at least a \$100,000 endowment to underwrite a program of international field trips for our students, led by distinguished scientists from other institutions. Many of our alumni's fondest memories surround the field trips in which they participated as students. We hope to propagate far more of those memories.

Through the generosity of its alumni, friends, and faculty, Geological Sciences at Indiana University has been given both an historic opportunity and a daunting challenge. Few, if any, other departments have the good fortune of confronting both opportunity and challenge of this magnitude. This is an exciting and exhilarating time for our faculty and students.

— Lee J. Suttner



Take a look at the geobiology group

Faculty and students in our geobiology group bridge the interface among paleontologic, stratigraphic, and sedimentologic studies in determining all facets of depositional environments. Our classroom teachings span topics from traditional paleontology to the evolution of ecosystems, the evolution of form and function, through hot new topics in paleobiology. We are supported by courses in cycle and sequence stratigraphy, basin analysis, and advanced readings in stratigraphy, sedimentology, and paleontology. As a faculty, we study Precambrian through Cenozoic faunas and utilize quantitative and geochemical techniques in their analyses.

We are currently a group of three faculty, one post-doctoral fellow, four PhD students and five MS students. Our recent MS graduates are enrolled in PhD programs across the country or are employed by the petroleum industry. We actively maintain geobiology collections, and the number of requests for these collections—including those from international researchers—has been increasing in recent years.

Claudia Johnson

Claudia Johnson and MS students continue to integrate paleontologic, stratigraphic, and sedimentologic data in order to understand evolutionary and depositional processes in the Caribbean Basin. The warm, "greenhouse" world of the Cretaceous and the cold, "icehouse" world of the Pleistocene and today are the end-members for comparison of these Caribbean tropical databases. Claudia is collecting and analyzing the paleolatitudinal distribution of Cretaceous corals in order to plot an ancient reef line of a "greenhouse" world for comparison to the coral reef line formed in today's "icehouse" world. In an ancient, warm world it is hypothesized that the tropics expanded over the latitudinal extent of the icehouse tropics. Perhaps the study of the rates and processes of change from warm to cold worlds can assist in forecasting the future of our tropics.

MS student **Chris Willan** is putting the final touches on his degree. His work focuses on the depositional geometries of small reefs formed during glacial times in comparison to those well-studied, spectacular reefs formed during interglacial times when sea level was high. The balance between sea-level, sediment input and island uplift are geologic factors to tease apart. Chris's database comes from



New geobiology graduate students, wide-eyed with amazement: from left, Natalie Uschner, Warren Bigelow, Russell House, Leigh Fall, and James Van Alstine

Pleistocene reefs of Barbados. Chris has been accepted into our PhD program and has expressed an interest in Cretaceous Western Interior research for his dissertation topic. MS graduate **Todd Ventura** investigated coral diversity and coral cover on disturbance-induced patches as a study of the intermediate disturbance hypothesis for the Pleistocene Key Largo Formation of the Florida Keys. Todd was with Schlumberger in Houston, Texas, during the last year, but recently entered the PhD program at the University of Illinois at Chicago.

MS graduate **Kristin Wood** integrated paleontologic and stratigraphic field data to reconstruct Pleistocene reef development in the southeastern section of Barbados. Kristin is employed by Shell Oil in New Orleans, La.

The geobiology group welcomes the new chair, **Chris Maples**; a new post-doc, **Lindsey Leighton**; and the return of **Erle Kauffman** into the graduate teaching circle. Geobiology continues to celebrate the beginning of the fall semester with its annual cookout at Draper Cabin and the fall spaghetti dinner. The tradition of the geobiology group lunchtime get-together continues each week, during which time paleontology, geology and biology information and stories are shared. Drop by if you have a chance.

Erle Kauffman

This has been a banner year for Erle, after a serious heart attack and long recuperation. He moved into a beautiful fifth-floor office (517), enabling him to become more integrated with the paleo/

sed/strat group. He's back in the classroom and is having a wonderful time. Erle notes that with eight new students, this has been a great recruiting year for paleontology.

Erle has one active grant (NSF) and is currently writing three (PRF, NSF, National Geographic). He is co-teaching two courses—Processes Influencing Earth's Surface and Advanced Topics in Paleontology—both of them at the 600-700 level, and is enjoying them very much.

Erle has published one paper in the *Journal of Paleontology* (v. 73, n.1) dealing with a Decapod and Stomatopod mass mortality Lagerstätten, Turonian (Cretaceous) of Columbia. He has also submitted four other papers for formal review: Machovoe and Kauffman, "Cretaceous Stratigraphy of the Colorado, New Mexico Front Range"; Johnson and Kauffman, "Cretaceous Evolution of Rudist Ecosystems: A Regional Synthesis of the Caribbean Tropics"; Kauffman, et al., "The Ecology of Cenomanian Lithistid Sponge Frameworks, Regensburg Area, Germany"; and Kauffman and Leanza, "Nodomytilus; A New Genus of Jurassic Bivalve from Argentina; a *Trigonia Mimic*."

Lindsey Leighton

Lindsey is the current postdoctoral scientist in the paleontology group at IU. He deferred a National Science Foundation postdoctoral fellowship to come to Indiana for a year, and although he only has been here for a few months, he's very

(continued on page 4)

Departmental news

(continued from page 3)

pleased that he chose to come to IU. Lindsey believes that the paleo group at Indiana has achieved a "critical mass" of quality faculty and graduate students that will generate a wealth of new and interesting ideas for years to come. He's really excited to be back here, having received his MS degree from IU in 1995 before doing his doctoral study at the University of Michigan.

Lindsey thinks of himself as an evolutionary paleoecologist, and his current research interests include Paleozoic marine predator-prey interactions and functional morphology. He's particularly interested in the evolution and ecology of brachiopods with spines. Brachiopods are bivalved, sessile marine organisms (unrelated to modern clams) that were among the dominant organisms of the Paleozoic. Subsequent to the Devonian, an increasing proportion of brachiopods possessed spines, and Lindsey is interested in determining the process behind this pattern. Much of his work has focused on spines as a retardant to predation by drilling. He's working on different projects with Chris Maples (IU), Peter Roopnarine (California Academy of Sciences), Arnold Miller (University of Cincinnati), Sandra Carlson (U.C. Davis), and Tom Baumiller (University of Michigan). The past year has been a good year for Lindsey's research. He published four papers during 1999, including one in *Science* and one in *Geology*, and currently has one paper in press and another in review.

Chris Maples

Chris is pleased to be back at his alma mater and is glad to know that the tradition of paleo/sed/strat is still strong at IU. He plans to uphold that tradition and will continue to take students to the field whenever possible. His research interests are varied, but generally involve field- and literature-based studies of invertebrates or invertebrate traces. He uses these data to address questions that link paleontology and geology. Chris enjoys working with other people, so the vast majority of his projects are collaborative and co-authored. Current research includes: 1) several projects on Late Devonian through Permian echinoderm extinctions, extinction rebound, and biogeography from various parts of the world (with Johnny A. Waters [State University of West Georgia], N. Gary Lane [Indiana University], Sara A. Marcus [University of Kansas], Gary Webster [Washington State University], George

Sevastopulo [Trinity University, Ireland], and colleagues from the Chinese Academy of Science [Hou Hong-fei and Wang Jin-xing] and Nanjing Institute of Paleontology [Liao Zhou-ting and Liu Luo-jon]); 2) paleontology and paleoecology of Carboniferous cyclothem deposits in the Midcontinent and Appalachian basins; and 3) trace fossil distribution and use of trace fossils for reconstruction of paleoenvironment, paleoecology, and stratigraphy (with Luis Buatois and Gabriela Mángano [University of Tucumán, Argentina]). In addition to the projects listed above, Chris also has interests in the origins and stratigraphic significance of biotic events (epiboles) in the rock record.

Geophysics news

The geophysics group has had a busy year. Graduate students **Scott Neal** and **Cathy Thibault** completed their master's theses and left the fold for greener (and warmer) pastures with Chevron in New Orleans. **Brent Foshee** started a new job as a seismologist with the Geophysical Institute at the University of Alaska. Post-doctoral associate **Tony Lowry** has taken a new position at the University Corporation for Atmospheric Research (UCAR) in Boulder, Colo., where he will be working on atmospheric applications of GPS measurements, while he continues work with IU collaborators on solid-earth applications.

The geophysics group also bid a sad farewell to the first three undergraduate

geophysics majors — products of the new "tracked" curriculum. **Mark Panning** completed an undergraduate thesis with **Al Rudman** on ground-penetrating radar studies of karst structure in southern Indiana and is now starting graduate work at U.C. Berkeley. **Adam Haulter** completed a project with **Al** and **Gary Pavlis** on seismic data analysis from the Wabash Valley seismic array. Adam has started graduate work at the University of Washington. Finally, **Amy Tieman** completed her thesis on analysis of seismic data from Taal Volcano and has been working with an environmental consulting firm in Chicago.

At the same time, the group welcomed a new graduate student, **Naomi Boness**, from the University of Leeds (England), who will be working with **Tony Lowry** and **Michael Hamburger** on geodynamic studies of the continental lithosphere. Also joining the IU geophysicists is **Bingming Shen-Tu**. Bingming recently completed his PhD degree with **William Holt** at the State University of New York at Stony Brook, with a thesis titled "Deformation Kinematics along Oblique Convergent Plate Boundaries," involving seismic, geodetic, and geological observations in Japan, the western United States, and China. He will be working at IU on crustal deformation projects in the Tien Shan, the Philippines, and the U.S. midcontinent.

What's new on the research front? **Gary Pavlis** is working with graduate student **Christian Poppeliers** on analysis of crust and mantle structure using

(continued on page 5)



Michael Hamburger works with colleagues from the Philippine Institute of Volcanology and Seismology to install a new GPS volcano monitoring system at Taal Volcano, Philippines.

Johnson receives Richard Owen Award

In October 1999, the Richard Owen Award, which honors a graduate of the Department who has distinguished himself or herself in industry, government, or academia, was awarded to Professor **Gerald H. Johnson** of the College of William and Mary. Gerald received a BS degree in 1960, an MA degree in 1962, and a PhD degree in 1965, all in geology from Indiana University. Johnson joined the faculty at William and Mary as an instructor in 1965 and rose through the ranks to full professor in 1977. He has shown outstanding versatility and breadth in terms of teaching, research, and service.

An incomplete list of awards that Gerald Johnson has received includes the Thomas Jefferson Teaching Award, College of William and Mary, 1978; American Federation Scholarship Foundation Distinguished Achievement Award, 1984; Outstanding Faculty Award, Virginia State Council of Higher Education, 1991; and Outstanding Educator Award, American Association of Petroleum Geologists Eastern Section, 1994.

Gerald has taught some 13 courses at William and Mary, including, among others, introductory physical and historical geology, stratigraphy, paleontology, paleoecology, environmental geology, geomorphology, hydrogeology, and several special topics courses. Beyond the college, he has performed truly exceptional outreach services to the public, including to both primary and secondary education and the community. This includes public television programs (both instructional and documentary), mentoring of students, field trips, etc. He also has served as a consultant for various firms, individuals, county, state, and federal agencies on lake sedimentation, building foundation stability, dam and golf course construction, mineral resource exploration, marine dredging, groundwater contamination, solid waste disposal, and wetland litigation.

Johnson's research has resulted in nearly 100 authored or co-authored papers, abstracts, and monographs covering a wide variety of subjects. He has been supported by 18 grants, which have been awarded by, among others, the Environmental Protection Agency, Virginia Division of Mineral Resources, NASA, U.S. Geological Survey, U.S. Park Service, Virginia Water Resources Research Center, and the Virginia Soil and Water Conservation Commission.

On Oct. 4, Gerald Johnson received the Owen Award and presented the Richard Owen Lecture at the Department, which was titled "The Chesapeake Bay Impact and its Lingering Effects." Following his address, a reception was held for Gerald and his wife, Marilyn.



Gerald H. Johnson

Departmental news

(continued from page 4)

data from dense, broadband seismic arrays in Colorado and Central Asia. **Michael Hamburger** and graduate student **Beth Bartel** are working on a research project that involves real-time crustal deformation measurements around Taal Volcano in the Philippines. They were joined by **Naomi Boness**, IU graduate **Emmanuel Ramos**, PhD'95, and scientists from the UNAVCO Consortium and Philippine Institute of Volcanology and Seismology for an ambitious field experiment this past summer around Pinatubo and Taal volcanoes.

Graduate student **Shannon Jock** is the first recipient of the Indiana Geological Survey's new graduate fellowship and will be working on a collaborative geophysical/hydrogeological project with **Ray Rene** and **Noel Krothe**. Also, **David Millen** is completing his PhD thesis on "The Seismotectonics of Subduction Zone Terminations" with a detailed study of seismicity of the Tonga subduction

zone. **Vlad Rybakov** continues his work on GPS study of crustal deformation in the Wabash Valley seismic zone.

The geophysics group has also made big efforts in the area of public outreach with a highly successful science education program. The program, known as the Princeton Earth Physics Project, was the brainchild of Princeton geophysicist **Guust Nolet** and involves introduction of state-of-the-art seismic research instruments into America's high school physics and earth science classrooms. As part of the PEPP project, **Gary Pavlis** and **Michael Hamburger**, together with electronics tech **Terry Stigall**, hosted 20

teachers for an intensive, week-long workshop involving seismic instrumentation, digital data analysis, curriculum projects, and an exciting field trip to look at southern Indiana geology. IU's involvement in the nationwide project has grown considerably, with major grants from NSF's Education Directorate, the Indiana Commission for Higher Education, the IRIS Consortium, and IU's Office of Information Technologies. Based largely on Terry Stigall's herculean efforts, Indiana has now been named the PEPP Instrument Center for the national program, with plenty of signs that this exciting program will grow further in the coming year.

Come visit our World Wide Web pages



- Department of Geological Sciences: <http://www.indiana.edu/~geosci/>
- Geologic Field Station: http://www.geology.indiana.edu/field_station.html
- Geology Library: <http://www.indiana.edu/~libgeol/>
- Indiana Geological Survey: <http://www.indiana.edu/~igs>

Jim Brophy dives two miles deep into the Pacific Ocean!

During the early spring of 1999, Jim Brophy participated in a month-long research cruise on the ship *Atlantis*, the “mother ship” of the deep sea submersible *Alvin*. The cruise went to the Hess Deep, located a few hundred miles to the southeast of the Galapagos Islands. The Hess Deep is a major rift in the Pacific Ocean floor that exposes a vertical cross-section of oceanic crust. Several deep-sea dives in *Alvin* sought to directly study various parts of a “typical” oceanic crustal cross-section, including the lower gabbros, the sheeted dike complex, and the overlying lavas. Jim participated in one of these dives (to the sheeted dike complex) and lived to tell the tale! Below is an excerpt of an e-mail message that Jim sent to his family describing the dive:

“... *Alvin* is ABSOLUTELY tiny. It typically goes down with three people, the trained pilot and two scientific observers. I went down with the biggest pilot and the biggest scientist, not leaving much room inside. There are no seats because the pressure hull is a perfect sphere. At least half of the interior is taken up with electronic equipment and oxygen tanks. The pilot sits on a small stool and the scientists wedge themselves in as best as possible and crane their necks to look out a tiny circular window — one on each side. My feet would be in Steve Hurst’s (my co-scientist) stomach and his were in my chest — very cozy!

“Once in the water, *Alvin* free-falls at a rate of about one mile per hour. We went to a depth of 3,200 meters — almost exactly two miles — so it took almost two hours to reach the bottom. After two hours of absolute darkness outside, the pilot throws a switch, the exterior is lit, and suddenly you see bottom. My first impression was that it looked like a moonscape, and in many regards, I felt like I was in the lunar lander throughout much of the dive. (The fact that the electronics are of the same vintage as the ones in the lunar lander certainly encouraged that feeling.)

“The moment we hit bottom, we had to go to work, and for the next five hours I did nothing but describe the rocks, take pictures, take

notes, suggest sample areas (though Steve Hurst, the other — and much more senior — scientist did most of this), and just try to keep everything straight.

“During all of this, digital cameras started failing, strobe lights that are electronically linked to 35 mm SLR cameras inside the sub started failing, etc. There are at least four different levels of cameras on the sub so the fact that our hand-held digital cameras and 35 mm SLR cameras started flaking out didn’t jeopardize our documentation of the dive. All it meant was that there would be more post-dive work (for yours truly), going back through all sorts of video records to try to reconstruct the dive. The sampling is done entirely with robotic arms. The pilot is trained to do this, though some pilots are better than others. On this cruise (and our dive) we were also taking oriented samples for later paleomagnetic work. Was I ever in danger? Absolutely not! The pilot wants to live as much as the scientists do, so at the very first hint of danger, they would head for the surface.

“By the end of our dive the walls were ‘sweating’ condensation, the CO₂ level was getting high (but still within acceptable bounds) and the first oxygen tank was getting low. (There are two full tanks used as emergency reserve and these are NEVER used for routine diving. If the first tank is getting low you go to the surface!) At 3 p.m., the pilot said that it was time to go. At this point, he dropped

all of the iron weights, and suddenly *Alvin* started rising towards the surface. The bottom disappeared, and suddenly there was nothing but blackness again. The pilot turned off the outside lights, and we had two hours to ascend to the surface.

“By this time, my legs were very cramped (they had not been straightened out for seven hours) and I was anxious to get to the surface. At about 1,000 meters depth, we started to see all sorts of phosphorescent sea life. At 600 meters (almost 2,000 feet), one could start to see the first bit of light. This tells you how incredibly clear the water is. Suddenly, the sub pops up to the surface and there is real sunlight. *Alvin* is not exactly a surface ship, so it was bobbing and rolling in the sea swells. Once on the surface, we had to wait for a small motor boat with two divers to motor out to us and hook us up to the *Atlantis*, which then reeled us in like a big fish.

“About sea life: There is not all that much at the bottom. There were some fish, a few eels, and numerous ‘sea stars’ attached to the bottom rocks. I’m surprised that anything could live down there — the pressure is in excess of a thousands pound per square inch of surface area — but I suppose they would say the same thing about us living at the surface!

“Well, so ends the saga of my dive. Would I do it again? Absolutely ...”



The deep-sea submersible research vessel Alvin provided an adventure for Jim Brophy.

Departmental news

(continued from page 7)

Two university equipment grants awarded

Erika Elswick and a group led by Michael Dorais (including Bob Wintsch, Ed Ripley, Jim Brophy, and Abhijit Basu) were recently awarded substantial equipment grants from the university's Research Facilities Fund. Erika's award of \$40,000 was for ancillary equipment in support of mass spectroscopy. Mike's group was provided with nearly \$60,000 for support of the electron microprobe.

Department history to be published this year

For the past several years, Emeritus Professor Gary Lane has been working on a history of the Department of Geological Sciences. The text has been professionally edited and revised and the text and illustrations have been delivered to the design editor. The book should be available sometime in early 2000 and will be titled *Geology at Indiana University: 1840-2000*.

Sun computer stations attract students

The Sun computer laboratory is now officially designated as the Nations cluster, housed in Geology 226. The cluster is attracting a marked increase in use by students in the Department. To promote use of these Unix-based machines, Gary Pavlis organized a spring 1999 seminar using the cluster. This was particularly important in promoting the use of the Sun computers so that the large software grant by **Landmark Graphics Corp.** (of tools used in the oil and gas industry) can be used effectively. Topics included and planned were "Introduction to the Xwindow System on Solaris"; "Unix Shell Basics"; "Processing Data with Shell Scripts"; "Datascop (A Public Domain Relational Database System)"; "Datascop Seismology Data Processing Tools"; and "Generic Mapping Tools."

Haq presents Horizons of Knowledge Lecture

Bilal Haq, program director of oceanography at the National Science Foundation and widely known

for his sea level curves produced while he was at Exxon, was invited by the Horizons of Knowledge Lecture Program to present one of their distinguished lectures in Bloomington. The Department of Geological Sciences organized his presentation, which was co-sponsored by Sigma Xi; the anthropology, chemistry, geography, and physics departments; SPEA; and the Workshop on Political Theory.

On April 19, 1999, Haq presented a talk titled "Gas Hydrates — A Major Carbon Sink: Are They a New Energy Frontier?" to a large audience in Woodburn 100. Following his lecture, a reception was held in the Federal Room of the Indiana Memorial Union, at which

Chris Maples welcomed Bloomington faculty from other departments. Faculty and graduate students of the Department of Geological Sciences had the opportunity to meet with Haq at the reception.

GSO at IUB awards Remak Fellowship

The Remak Fellowship is awarded by the Graduate Student Organization on the Bloomington campus to bring a former graduate student back to a department to talk to students about jobs in industry and academia and the choices awaiting them after graduation. Bloomington graduate student Mark

(continued on page 8)

A moment in time ...

Lane remembers tragic fire of 50 years ago

The following guest column, written by Professor Emeritus N. Gary Lane, appeared in the Bloomington Herald-Times on Aug. 24, 1999, and is printed with the permission of the H-T and Gary Lane.

I was interested in your story on the Mann Gulch forest fire in Montana, which was 50 years ago this month. This fire killed 13 smoke jumpers in the worst tragedy the Forest Service had ever experienced. I fought that fire.

At the time I was 19 years old, between my freshman and sophomore years at Oberlin College in Ohio. I saw a notice on a bulletin board at the college about summer jobs with the Forest Service, applied, was accepted, and went to a Forest Service station outside of Orofino, Idaho. There we received basic training in forest fire containment and control of the genus *Ribes*, wild gooseberry, the intermediate host of white pine rust. We spent most of our time on daily searches for the *Ribes*, but we did fight several forest fires, all started by lightning strikes, some of which were extremely dangerous and exciting.

We suddenly got a call that the entire camp was being transported into Orofino to be trucked to Spokane to go to Helena, Mont., to fight on a major fire that had killed Forest Service personnel. That was all we knew. We loaded into trucks, were driven to Spokane, and were put on an old military DC-3 with bucket seats along both sides of the plane. All we had was our basic equipment — hobnail forest boots, black jeans with suspenders, a mattock/axe, shovel, a canteen, one pair of extra socks, a toothbrush and paste, and that was it. Flying from Spokane was very rough and bumpy. Several men got sick and one passed out. When we arrived in Helena, we were loaded into trucks and driven to the fire site. By that time it was afternoon. We formed into the standard fire-fighting line mode, each one cutting down through forest duff to mineral soil, with hundreds of other fire fighters coming in from all over the northwest. We stayed about 10 feet apart, and we could cut miles of fire barriers in short time.

As the first afternoon wore on and it began to get dark, we gradually were herded up onto the top of a large bare hill. There, old Forest Service Ford Tri-Motor aircraft came flying across the hill and dropped supplies for us. These included sleeping bags, water, GIC-rations for both dinner that night and breakfast the next morning, toilet paper, and other necessities.

We spent the night there and left early the next morning. We spent the next day and night in a similar situation, and by that time we had the fire contained. We walked out and were picked up by a truck and taken back to Orofino. As we worked, we gradually found out about the terrible deaths of the smoke jumpers. At first, we thought that it was just a big fire that needed more fighters.

I was pleased to read the book by Normal McLean, *Young Men and Fire*, a true story of the Mann Gulch fire. If there is anyone in the Bloomington area who also fought on that fire, I would be pleased to be in contact with them.

Three faculty members/staff are fondly remembered

Alan S. Horowitz 1930-1999

Alan S. Horowitz, curator of paleontology, emeritus senior research scientist, and part-time professor of geological sciences at Indiana University, died in Bloomington on Feb. 18, 1999.



Horowitz was born on June 12, 1930, in Ashland, Ky., the son of Samuel and Irene Strous Horowitz. Alan was an Eagle Scout and graduated Phi Beta Kappa from Washington and Lee University in 1952. He completed a master's degree on igneous rocks of Greenland at Ohio State University in 1953 and a PhD degree specializing in the fauna of the Late Mississippian Glen Dean Formation at Indiana University in 1957.

Alan was a research geologist with Marathon Oil Co. in Denver, Colo., from 1957 to 1965, where he served as paleontologist with a team studying carbonate rocks. He came to IU as curator of paleontology in 1966 and served in that capacity until his retirement in 1996.

An expert on the geology of Indiana and the south-central United States, Alan specialized in Late Mississippian (Chesterian) rocks and fossils. He was an internationally known authority on fossil bryozoans and blastoids. He was author or co-author of 53 papers, 57 abstracts, one field trip guidebook, five bulletins and monographs, and one book. He was a member of many scientific and scholarly organizations and was a recognized bibliophile, with a library exceeding 3,000 books.

Alan collaborated extensively with a number of fellow geologists and paleontologists, including especially Joseph Pachut, Johnny Waters, John B. Droste, Paul Potter, and James Stratton. He was recipient of grants from the National Science Foundation and the Petroleum Research Fund of the American Chemical Society. In 1971-72, he was visiting professor at Aarhus University in Denmark. He attended many meetings of the International Carboniferous Congress and the International Bryozoological Society.

Alan is survived by two sisters, Carol Picker of Washington Crossing, Penn., and Ann Itkin of Brookland, N.Y.; four step-children, Paula Jarrett, Peter Perry, Michael Perry, and John Perry; and 12 grandchildren. He was preceded in death by his wife, Lillian Perry Horowitz.

Wayne R. Lowell 1906-1999

Wayne R. Lowell, professor emeritus of economic geology, died in Ormond Beach, Fla., on June 10, 1999. He was born in Palouse, Wash., on March 21, 1906, was raised in Washington state, and received his undergraduate training at Washington State University, where he received a bachelor of science degree in 1936. Following undergraduate study, he attended graduate school at the University of Chicago, where he received a master's degree in 1939 and a PhD degree in 1942.

Wayne's first academic position was at the University of Montana, where he was assistant professor in the Department of Geology from 1942 to 1946 and became acting chair. He was promoted to associate professor and chair of the department



in 1946 and full professor a year later. Wayne worked summers for the U.S. Geological Survey beginning in 1944, studying phosphate deposits. Subsequently, he served as a consultant on phosphate exploration and mining for Victor Chemical Co.

Wayne joined the faculty of the Department of Geology at IU in 1950. Here he taught economic geology, field geology, and the large introductory geology course for non-majors. He was always active in the field, whether it was during his service as the first director of the IU Geologic Field Station (1950-1960) or doing mapping and consulting in western Montana and beyond. Even after his retirement in 1976, Wayne remained active in economic mineral exploration and mining ventures, particularly in South America, including Colombia, and later, French Guiana.

Mildred, his first wife and a librarian at IU, died in 1970. Wayne is survived by his second wife, Kay, and sons, Brent, Sim, and Seth.

Maynard E. Collier 1915-1999

Maynard E. Collier, retired analytical chemist of the Department, died in Bloomington on Nov. 4, 1999. Born in Bowling Green, Ohio, on Jan. 23, 1915, he was raised in that city by his parents, Arthur and Olive (Van Buskirk) Collier and graduated from Bowling Green Se-

(continued on page 9)

Departmental news

(continued from page 7)

Buehler, a member of the Student Advisory Committee of the Department, applied for and received the GSO Remak Fellowship on behalf of the Department of Geological Sciences. **Steven Baedke**, now on the faculty at James Madison University, visited the Department in April 1999 as the GSO Remak Fellow.

Senior geology major named All-American

Senior geology major **Tom Chorny** has had a marvelous senior year in track, culminating in his being named All-American and qualifying for the Olympic Trials. Last April, Chorny won the steeplechase at the 105th Penn Relays in

Philadelphia, where he finished first in the collegiate event with a time of 8:37.18, which broke the IU record. It was the best American time for the year by a collegiate runner at that time and easily qualified him for the NCAA meet in early June in Boise, Idaho. There he finished eighth, but followed this with an impressive performance at the USA Track and Field Championships in late June, where he ran 8:30.9 in a trial run, which broke his own IU record by seven seconds and was the best time by a collegian this year (by some four seconds). Here Chorny was the only collegiate runner to advance to the finals, where he again finished eighth. This past fall, Chorny completed his IU track career in cross-country and will train this spring for the Olympic Trials to be held in Sacramento, Calif., in July.

Department presents 1998-99 Colloquium Series

• Sept. 8, **Samarendra Nath Bhattacharya**, Indian Statistical Institute, Calcutta: "Early Compressional Tectonics and Granulite Facies Metamorphism in the Eastern Ghats, India"

• Sept. 14, **Abhijit Basu**, Indiana University: "Metal Pollution and Land Erosion near Venice, Italy"

• Sept. 21, **Michael Leshner**, Laurentian University, Sudbury, Ontario, Canada: "Genesis of Magmatic Ni-Cu-(PGE) Sulphide Deposits" (Society of Economic Geologists Thayer Lindsley Distinguished Lecture)

• Sept. 22, **Juergen Schiber**, University of Texas at Arlington: "Results of Recent Sequence Stratigraphic Studies in the Chattanooga Shale of Tennessee: Implications for Regional Correlations"

• Oct. 1, **Glenn Bear**, Exxon Produc-

tion Research: "Exxon Production Research Colloquium"

• Oct. 5, **Phil Stevens**, SPEA, Indiana University: "The Chemistry of Isoprene in the Atmosphere: A Radical's View of Photochemical Smog"

• Oct. 12, **Barry Maynard**, University of Cincinnati: "Using Sulfur Isotopes to Trace Pollution Sources: A Case Study from South Texas"

• Oct. 19, **Carl J. Smith**, West Virginia Geological and Economic Survey: "A Memoir of the Gulf War: Another Conflict over Economic Geology" (Richard Owen Award Address)

• Nov. 2, **Todd Thompson**, Indiana Geological Survey: "The Rise and Fall of a Great Lake: Late Holocene Lake Level and Paleoclimate of Lake Michigan"

• Nov. 9, **Amos Nur**, Stanford Uni-

versity: "Earthquakes, Armageddon, and the Dead Sea Scrolls"

• Nov. 16, **Erika Elswick**, Indiana University: "Should Sulfur Solely Stipulate Syngenetic Sulfide Synthesis?"

• Nov. 19, **Mike D. Lewan**, U.S. Geological Survey: "Material-Balance Approach to Petroleum Systems: New Albany Shale/Chesterian of the Illinois Basin"

• Nov. 23, **Erik Kvale** and **Maria Mastalerz**, Indiana Geological Survey: "Geochemical and Sedimentological Analyses of Ancient Low Salinity Marine Deposits and Implications for Paleoclimate and Paleogeography"

• Nov. 30, **Bradley Sageman**, Northwestern University: "Controls on Organic Carbon Burial in Ancient Mudrocks"

(continued on page 10)

In memoriam

(continued from page 8)

rior High School. He then matriculated to Bowling Green State University, where he graduated in 1937. Here Maynard met the love of his life, Ruth Winifred Wolfe, whom he stole from her date at a dance in Cygnet, Ohio. They were soon married. In his marriage proposal, Maynard promised to "dress you like a queen." All of us who have known Maynard and Winnie know that he kept his promise, and Winnie has always looked elegant.

Have tag, will travel



Send us your business card — or just your business information — and we'll send it back to you laminated and attached to a leather strap, perfect for your traveling pleasure. (One tag per graduate, please.)

Your luggage tag show will that you are proud of your connection to the College of Arts & Sciences at IU and will improve our alumni database.

Mail your card or information to Luggage Tags, College of Arts & Sciences, Kirkwood Hall 208, 130 S. Woodlawn, Bloomington, IN 47405

Maynard then moved on to Columbus, Ohio, to begin graduate work at Ohio State University, where he received a master's degree in chemical engineering in 1938 while also working as a page at the state legislature.

After graduation, he took a job at Armco Steel in Middletown, Ohio, and in 1949, he moved his family to Bloomington, where he became the analytical chemist for the Department of Geology at IU. During his tenure at IU, Maynard was president of the IU Staff Council, which created scholarships for staff children through their sponsorship of the IU Fun Frolic. He was one of the co-founders of the IU Credit Union and also served as a Monroe County councilman. He was a member of Tau Beta Pi Chemical Engineering Honor Society and First Presbyterian Church.

Maynard will be warmly remembered by scores of students and faculty, for whom he was a dedicated, generous, and patient provider of assistance with chemical analyses of geological materials for



Maynard Coller, left, and Gerald Carpenter in a house boat on Kentucky Lake during an annual fishing expedition.

their research. He will also be remembered as an avid fisherman and undeniably IU's number one fan (second to Winnie, of course). He appreciated a good joke, a good game of poker, a good dance, a good bowl of ice cream, and a good tomato. But above all, nothing was more important to Maynard than his family and friends. Coller, Maynard, Dad, Grandpa — no matter what one called him, all who knew Maynard loved him and will miss him. He is survived by his wife, Winnie; three children, Donald M. Coller of Bloomington, David A. Coller of Norman, Ind., and Mary Anne Olsen of Orlando, Fla.; 10 grandchildren; and four great-grandchildren.

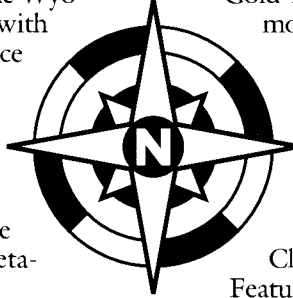
Colloquium

(continued from page 9)

- Dec. 7, **Samuel Savin**, Case Western Reserve University: "Kaolinite in Tropical Laterites: How Stable Is It, really?"
- Jan. 25, **Evan K. Franseen**, Kansas Geological Survey: "Evolution of Upper Miocene Carbonate Complexes in the Western Mediterranean: A Record of Global, Regional and Local Controls"
- Feb. 2, **Martin Goldhaber**, U.S. Geological Survey, Denver: "Consequences of Late Paleozoic Hydrothermal Fluid Flow through the Illinois Basin"
- Feb. 8, **Katherine McIntyre**, University of California, Santa Barbara: "North Atlantic Deep Water Sources and Climate in the Late Pliocene and Early Pleistocene"
- Feb. 11, **Michelle Kominz**, Western Michigan University: "Cenozoic Eustasy: Can We Nail the Magnitudes?"
- Feb. 15, **Sue Welch**, University of Wisconsin, Madison: "Geomicrobiology of Silicate Mineral Weathering I: Tales from Oz, Weathering of the Bemboka Granite, New South Wales, Australia"
- Feb. 22, **Carl Drummond**, IUPUI Fort Wayne: "Revisiting the Scaling

Structure of Turbidite Successions"

- March 2, **Jane Terranes**, University of Michigan, Ann Arbor: "Climatic Interpretations of Continental Oxygen Isotopic Records"
- March 4, **Lois Roe**, University of California, Berkeley: "When Whales Left the Beach: Isotopic Insights into a Physiological Transition in the Fossil Record"
- March 5, **Peter Dahl**, Kent State University: "When Did the Wyoming Province Collide with Laurentia? New Evidence from Garnet Geochronology"
- March 30, **Tony Simo**, University of Wisconsin, Madison: "The Evolution of the Pyrenees during the Cretaceous"
- April 5, **Bruce Fouke**, University of Illinois, Urbana: "Travertine Deposition and Isotopic Geochemistry, Mammoth Hot Springs, Yellowstone National Park"
- April 19, **Bilal Haq**, National Science Foundation: "Gas Hydrates — A Major Carbon Sink: Are They a New Energy Frontier?" (Horizons of Knowledge Lecture)
- April 26, **Scott Bair**, Ohio State University: "Contamination of Woburn Wells G and H — What the Experts Said at the Trial, What We Know Now"
- April 29, **Katherine Freeman**, Pennsylvania State University: "Biomarker Proxies of CO₂ and Climate: Lessons from the Miocene"
- May 6, **Mark Patzkowsky**, Pennsylvania State University: "Episodic Change in the History of Life"



University of Arkansas at Little Rock: "Infrasonic Array Detectors in Support of the CTBT"

- Jan. 26, **Evan K. Franseen**, Kansas Geological Survey: "Pinning Points: How They Work"
- Feb. 2, **Martin Goldhaber**, U.S. Geological Survey, Denver: "Extreme Arsenic Enrichment in Alabama Coals; Possible Links to Southern Appalachian Gold Deposits and Regional Metamorphic Fluid Flow"
- Feb. 8, **Derek Fullerton**, Exmin Corp.: "Diamond Occurrences and Exploration"
- Feb. 9, **Katherine McIntyre**, University of California, Santa Barbara: "Millennial-Scale Oceanic and Climatic Variability as Pervasive Features of the Last 2.0 Ma"
- Feb. 12, **Michelle Kominz**, Western Michigan University: "Meter Scale Cyclicity: Can We Nail the Periodicity?"
- Feb. 16, **Sue Welch**, University of Wisconsin, Madison: "Geomicrobiology of Silicate Mineral Weathering II: Effect of Bacteria and Microbial Metabolites on Mineral Dissolution"
- Feb. 23, **Carl Drummond**, IUPUI Fort Wayne: "Recognizing Allocyclical Depositional Processes from Bed-Thickness Analysis"
- March 3, **Jane Terrane**, University of Michigan, Ann Arbor: "Controls on the Nitrogen Isotopic Composition of Organic Matter from Eutrophic Lake Baldegg"
- March 5, **Lois Roe**, University of California, Berkeley: "Understanding Diagenesis and Physiology: Frontiers in Phosphate Oxygen Isotope Work"
- March 30, **Toni Simo**, University of Wisconsin, Madison: "Cyclicity and the Record of Accommodation Space, Pennsylvanian, Paradox Basin"
- April 5, **Brad Sageman**, Northwestern University: "Source Rock Development and the Condensed Section Concept: Application in Deep Water Deposits, Permian Brushy Canyon Formation"
- April 21, **Jere H. Lipps**, University of California, Berkeley: "The Vendian — Cambrian Radiation of Animals"
- April 29, **James Brophy**, Indiana University: "Voyage to the Bottom of the Sea: Slides and Video of a Recent Trip to the Hess Deep, Pacific Ocean"
- April 30, **Katherine Freeman**, Pennsylvania State University: "Going Out on a Limb: Reconstructing Climate Events in the Paleozoic"
- May 5, **Mark Patzkowsky**, Pennsylvania State University: "Models for Simulating the Fossil Record"

Hoosier Geologic Record

This newsmagazine is published annually by the Indiana University Alumni Association, in cooperation with the Department of Geological Sciences and the College of Arts and Science Alumni Association, to encourage alumni interest in and support for IU. For membership or activities information, call (800) 824-3044 or e-mail iualumni@indiana.edu.

Department of Geological Sciences
 Chair Christopher Maples
 Editor David Towell
 Editorial Assistant Kim Schulte
 Photography Barbara Hill

College of Arts & Sciences
 Acting Dean Russell Hanson
 Executive Director for Development & Alumni Programs Susan D. Green

IU Alumni Association
 University Director for Alumni Affairs Jerry F. Tardy
 Assistant Allison Scott
 Alumni Director Allison Scott
 Assistant Editor for Constituent Publications Julie Dales
 Editorial Assistant Cassie Pence



Other presentations

- Sept. 21, **Barbara Rassmann** and **Nathan Way**, Exxon Exploration Co.: "Business Stages for the Geoscientist at Exxon"
- Sept. 24, **Carole Rock** and **Scott Adams**, Chevron Oil Co.: "Development Opportunity Assessment, Campos Basin, Brazil"
- Sept. 30, **Mark Richardson**, Exxon Production Research: "Exxon Production Research Presentation"
- Oct. 8, **Tom Moore**, Phillips Petroleum: "Worldwide Prospects for Coalbed Methane"
- Oct. 12, **Darryl K. Willis**, Amoco Exploration and Production Co.: "Amoco Exploration and Production Presentation"
- Oct. 27, **Haydar Al-Shukri**, Uni-

Geologic Field Station update

Geologic Field Station celebrates its 50th anniversary

This past summer was an eventful one at the Field Station. The best news is that things are really looking up on the academic front. Enrollments in G429 and G429e were up significantly over previous years, and G329, the new course in environmental field science, boasted a second-year enrollment of 21, up from a first-year enrollment of seven! For the first time in a long time, almost every seat was occupied in the dining room during the latter half of the summer. These are numbers that both the Field Station and the College of Arts of Sciences are happy to see.

The most exciting news of this summer, however, was the celebration of the 50th anniversary of the Field Station, culminating in the renaming of the station as the Judson Mead Geologic Field Station of Indiana University. The celebration seemed to go on forever, but really centered around a two-weekend period in early July. The celebration was kicked off with "Landowners Day" on July 4, a day during which all of the landowners with whom the Field Station "does business" were invited to a good-old-fashioned pig roast and fireworks display. Between our own faculty and students, the landowners and their families, and a number of alumni and their families, it is estimated that close to 150 people were in attendance that day. The fireworks display was unparalleled in the annals of IUGFS history, largely because Dave Towell, Susan Swapp, and Jim Brophy took a several-hour "leave of absence" from the caravan during the third day of the Option I Glacier Park trip to purchase some "heavy duty" fireworks on a nearby reservation.

Following a

brief lull during which the Option I students wrapped up their final study projects and headed home, the second major phase of the celebration kicked into gear the next weekend with another pig-roast and fireworks display. This time, the honorees were all of the former faculty, staff, and alumni who have been involved with the Field Station since 1949. On Friday night, a number of "dignitaries" started arriving, most notable of whom were Jud and Jane Mead (with their sons, Jud Jr., Tom, and John, their wives, and several of their children), and Dorothy and Charles Vitaliano (with their daughter, Judy, and son, Peter). Many current and former faculty members and families were also present, including Lee and Ginny Suttner, Tom and Nina Hendrix, John and Susie Utgaard, Bob and Marion Cassie, Dave and Lindsay Towell, Susan Swapp and Stan Trueblood, Sue MacDonald and Dale Griffith, Tom and Odessa Straw, Jim and Peggy Meyers, Bob and Joann Dodd, Bob and Eleanor Weidman, Jim and Gladys Brown, Dean Brown and his daughters, Robin and Shelly, Marv and Vicki Miller, Pete and Susie Dahl, and Chris Carlson. Also present for the Saturday pig-roast were

special guests including long-time resident manager Gene Hinton and his wife, Lois, along with Gene's brother, Clovis Hinton. When it was known that "Doc" Mead was going to be at the Station, several of the local ranchers and townspeople made a special effort to drop by as well. During the festivities, six student dormitories were named in honor of people who have made truly significant contributions to the Field Station, including **Wayne Lowell**, **Tom Hendrix**, **Tom Straw**, **Lee Suttner**, **Garry Anderson**, and **Bob Cassie**. The lecture hall was named after **Charles Vitaliano**, the first faculty member of G429, and the lodge was named in honor of **Charles Deiss**, the founder of the Field Station. Finally, the day culminated with the announcement that the IU Board of Trustees had unanimously approved that the Field Station be re-named to recognize and honor **Jud Mead's** selfless contributions to the Field Station and its educational program. All in all, it was a great summer, and one that will live in the memories of a lot of truly special people for a very long time.

—James G. Brophy



Alumnus remembers summer '49 at the Field Station

Recently, we heard from E. Clay Warren, BA'49, MA'52 of Reno, Nev. He was one of the students who attended the station during the first summer (1949). He notes that there were at least 13 vehicles that

left Bloomington that summer, mostly GM "carryalls," the precursor to the Suburban of today. There was a minor(?) flaw with them, however; they developed small fuel leaks from the gas tanks!

At the station, construction was incomplete upon the day of their arrival, and a worker earlier in the morning had shot a bear, resulting in fresh bear meat being on the dinner menu. Construction continued for almost the remainder of that summer. Within minutes of arriving at the station, at least two rattlesnakes were discovered in close proximity to the dormitory building. Although locals seemed to indicate that rattlesnakes were not that common, upwards of 1,000 of these snakes were killed by the students that summer. After lengthy persuasion, the camp cook agreed to cook some of the rattlers, but once she put them in the skillet,

she threw up her hands and ran from the kitchen. Some of the students responsible for this entree being available then finished the cooking. Clay says that "fried rattlesnake isn't that bad at all."

Clay also recalls that late one Saturday night, two students persuaded one of the drivers to give them the ignition key to the truck so that they could drive to Pony. During the wee hours of Sunday morning upon their return to camp, they failed to negotiate one of the many switchbacks. The truck remained upright, there were no injuries, and they were able to drive back to the station. The front running gear, however, was to require extensive repairs. Deiss was justifiably furious and declared that henceforth Pony was to be off limits to all university vehicles. This ruling was met with a lot of unhappiness because a "going away" celebration had been planned for Pony on the final Saturday night of the course. Fortunately, just after dinner that night, a cattle truck drove up in front of the mess hall. All those desiring to attend the Pony celebration climbed onboard the cattle truck and were delivered to the party in Pony.

[Clay didn't tell us how they returned!]



Field Station directors and resident manager, past and present, are, from left front, Gene Hinton and Jud Mead; rear, Lee Suttner and Jim Brophy.



Past and present faculty and spouses attended the Field Station anniversary celebration in July 1999: 1. Dick Gibson 2. Lee Suttner 3. Peggy Meyers 4. Jim Meyers 5. Ginny Suttner 6. Lois Hinton 7. Gene Hinton 8. Jud Mead 9. Jane Mead 10. Charles Vitaliano 11. Dorothy Vitaliano 12. Vicki Miller 13. Joann Dodd 14. Odessa Straw 15. Nina Hendrix 16. Marion Cassie 17. Dean Brown 18. Sue MacDonald 19. Susie Utgaard 20. John Utgaard 21. Bob Weidman 22. Eleanor Weidman 23. Marvin Miller 24. Tom Straw 25. Bob Dodd 26. Tom Hendrix 27. Dave Towell 28. Lindsay Towell 29. Bob Cassie 30. Pete Dahl 31. Susie Dahl 32. Susan Swapp 33. Jim Brophy 34. Jim Brown



Indiana Geological Survey update

What a busy year! The staff of the Indiana Geological Survey has been doing a great deal, so the following section gives only a quick overview of some representative IGS activities.

Selected Research Projects

Ned Bleuer and **Steve Brown** are administering a study funded by the Indiana Department of Environmental Management, in cooperation with the Indiana Department of Natural Resources Division of Water, to develop a database of water-well records that will be used in graphics and GIS software applications. Headed by **Nancy Hasenmueller** and **Noel Krothe**, a team of IGS geologists, in cooperation with several state and federal agencies, is conducting a study of water quality in the Spring Mill Lake drainage basin. The geochemistry section, headed by **John Comer**, is conducting a four-year project monitoring water quality at the Midwestern abandoned mine land reclamation site in Pike County. Also, **Todd Thompson** and **John Johnston** are directing a global climate change program for Great Lakes research for the Department of the Interior, in association with the University of Wyoming and Northland College.

John Rupp is leading a study of Indiana's energy consumption and energy reserves for the Indiana Department of Commerce. In addition, **John Rupp** and **Carol Conolly** are conducting a USGS-funded project titled "Availability of Danville Coal Resources for Mining in the Indiana Portion of the Illinois Basin." **Carol Conolly** and **Alex Zlotin** completed their comprehensive USGS-funded study titled "The Availability of the Springfield Coal Member for Mining in Indiana" in August, in which they document the size of the remaining accessible

reserves of Springfield Coal in Indiana. Also, **Maria Mastalerz** and **Erik Kvale** are working on determining coalbed gas potential of the Illinois Basin coals in cooperation with the Black Beauty Coal Co. In addition, Maria completed a study on the application of Indiana coals in the steel industry in a joint project of the IGS, Black Beauty Coal Co., and Inland Steel, sponsored by the Indiana Department of Commerce.

Of Bones and Whetstones

Sam Frushour is conducting shear testing and photo documentation of deer and sheep bones for **Patrick Munson** of the Department of Anthropology. Their study suggests that previous workers may have overestimated the proportion of "middle-aged" adult prey (as opposed to young and old prey) chosen by predators at archeological and paleoecological sites. **Erik Kvale** and **Richard Powell**, along with Illinois archeologist **Michael McNerney**, are mapping the distribution of whetstone gravestones in Indiana, gravestones that in addition to their obvious historical importance hold compelling paleoastronomical information.

Selected Mapping Projects

Norman Hester, in a USGS-funded study, is compiling reports on geologic mapping needs for the Central Great Lakes Geological Mapping Coalition. **Ned Bleuer**, **Steve Brown**, **Walt Hasenmueller**, **Jennifer Olejnik**, and **Holly Jones** are conducting the STATEMAP project, funded by the USGS, which involves field mapping. In addition, **Nathan Eaton** produced digitized maps of Indiana's abandoned mines that will assist the IDNR, Division of Reclamation, Abandoned Mine Lands Program to analyze the distribution of

abandoned coal mines; these digitized maps are invaluable not only to IDNR, but also to real estate agents, insurance companies, and coal geologists. **Denver Harper** is producing digitized maps categorizing different types of surface coal mining in Warrick County; these maps will be extremely useful to the Division of Health and the Division of Reclamation. **Ned Bleuer** has a grant from IDEM for a two-year accelerated glacial geological mapping project. Also, **Sam Frushour** is surveying and mapping Wyandotte Cave. **Ray René** is surveying and mapping coal mines in Clark County, using SCUBA and the submarine underwater subterranean self-leveling electromagnetic transmitter, in collaboration with IU's Department of Recreation and Park Administration. In addition, **Chris Dintamin** is conducting a mapping project, funded by IDEM, which is producing digitized maps of hazardous waste sites in Indiana; Chris's maps will allow IDEM to reduce environmental and health costs to Hoosiers, which will help lower their taxes and improve the state's economic efficiency.

Meetings

The IGS hosted the Illinois Basin Consortium winter meeting in New Har-

(continued on page 16)



Digital physiographic map of Indiana by Denver Harper and Alex Zlotin

Field Station family



family celebrates
50th
anniversary



Faculty news

Abhijit Basu continues to serve as editor for books of the Committee on Publications of the Geological Society of America. He also served this past year as chair of the Patten Foundation Committee at IU Bloomington. The Patten Foundation provides generous funds to bring to the Bloomington campus people of extraordinary national and international distinction.

David Dilcher, formerly professor of biology and geology at IU, was featured in the Dec. 8, 1998, issue of *Newsweek*, along with colleague **Sun Ge** of Nanning, China for their discovery of what Dilcher says is "the world's oldest flowering plant." The twigs and pods of the 140-million-

year-old plant had been fossilized, but amazingly, when opening the stony pods, out tumbled seeds—actual organic seeds, not the fossilized counterparts!

Bob Dodd has been doing lots of traveling during his retirement. Summer and fall 1999 included trips to Peru, New Zealand, and Lord Howe Island. Bob remains very much involved in volunteer work for the Red Cross and the First Presbyterian Church. He still comes regularly to the Department for coffees, colloquia, and geobiology lunches.

Don Hattin, not surprisingly, is busy in retirement. He continues his railroad interest at French Lick, Ind. For the past two years, he has been painting

steam locomotive 208, which was featured last winter in the poster *Preserve our Heritage*, published by the National Trust for Historic Preservation. Don and Marge took a three-week tour of Australia, New Zealand, and Fiji, in February 1999, highlighted by a day on the Great Barrier Reef and an hour at the helm of the square-rigged ship *Bounty* at Sydney. Don still leads the fall field trip for incoming graduate students, and Marge is heavily involved in activities of the University Women's Club. Don is continuing work on a biography of Marge's grandfather, New England artist W. Ferdinand Macy.

(continued on page 17)

Survey

(continued from page 13)

mony, Ind. In July, 10 IGS employees fine-tuned their expertise with Geographic Information Systems technology by attending the Environmental Systems Research Institute conference in San Diego. Last fall, the IGS hosted both the 28th annual meeting of the Eastern Section of the American Association of Petroleum Geologists in Indianapolis and the 33rd annual meeting of the Association of Earth Science Editors in Bloomington. In 2000, the IGS will host the annual meeting of the Society for Organic Petrology.

Education/Outreach

A small sampling of the educational activities of IGS members follows. Last summer, **Maria Mastalerz** worked with **Erin May**, a high school student from Brownstown, Ind., on a project titled "Anthropogenic Organic Matter in the Great Marsh Area and its Implications." Erin was one of seven high school students selected to conduct summer projects with IU researchers. **Nelson Shaffer** gave a talk at the Monroe County Public Library titled "Geodes and Mineral Mysteries" and also a talk in Richmond, Indiana on biological inclusions in minerals. In addition, **Paul Irwin** spoke to a group of seventh to 12th graders in Madison, Ind., about maps and mapping, and **Jeff Kirby** gave presentations to two Bloomington Montessori School groups. **Jeff Kirby** and **Jerry Burton** also hosted a visit to the IGS by students from Bloomington's

St. Charles Elementary School. **Todd Thompson**, **Erik Kvale**, and **Jeff Kirby** designed and staffed an IGS display at the Ellettsville Elementary School Math and Science Fun Night. **Barb Hill** and **Kim Sowder** helped to create a large floor map of Indiana, which has been installed at the Indiana Historical Society in Indianapolis for use in educating children about Indiana's geography.

Field Trips

Field trip leaders included **Maria Mastalerz**, who led a field trip to Indiana Dunes, where she discussed the IGS's research on the Great Marsh area of the Dunes. Also, **Nelson Shaffer** led a field trip on mineral identification to a Cub Scout troop in Bloomington. **Tracy Branam** and **Kevin Spindler** led a field trip to the Midwestern abandoned mine land reclamation site in Pike County. As part of Earth Science Week, **Todd Thompson** led a two-day field trip to the Indiana Dunes for the National Council on Geographic Education, and **Erik Kvale** ran a field trip to the Hindostan Whetstone beds in Orange County for the Indiana Earth Science Teachers Association.

IGS Web Site

The IGS Web site has been dramatically expanded this year by the IGS Web Development Team. The new site provides users with an enhanced ability to find information of interest. The new Web site has been popular, averaging more than 16,000 page requests per month! One of many highlights of the site will be the Internet map server, engineered

by **Denver Harper** and **Alex Zlotin**. Check out the site at the following address: www.indiana.edu/~igs.

In Other News

IGS Director **John Steinmetz** founded the Director's Graduate Research Assistantship. The first of these assistantships was awarded to **Shannon Jock**, an IU graduate student, who will work with **Ray René** on a geophysical field and laboratory study of Jackson County groundwater. Shannon and Ray will conduct the project with **Ed Hartke** and **Noel Krothe**.

Maria Mastalerz is co-editor of *Coalbed Methane: Scientific, Environmental, and Economic Evaluation*, published by Kluwer Academic Publishers (1999). The multidisciplinary book details the resource availability, exploration, evaluation, emissions, regulatory environment, and economic feasibility of coalbed methane reserves. Maria's other book, *Organic Matter and Mineralization: Thermal Alteration, Hydrocarbon Generation and (its?) Role in Metallogenesis*, also published by Kluwer, became available in late 1999.

In addition, this year **Nelson Shaffer** was re-elected president of the Friends of Mineralogy, and **Mark Buehler** was awarded the John B. Patton Award, which will support Mark's work on the source of sulfate from Whistling Cave Spring in Spring Mill State Park. Also, the Professional Geologists of Indiana elected **Charley Zuppann** president of its board of directors and elected **Maria Mastalerz** a member of its board.

— John Roche

Faculty news

(continued from page 16)

John M. Hayes, past chair and professor in the Department, was the 1998 recipient of the Alfred E. Treibs Award and Medal of the Organic Geochemical Division of the Geochemical Society. Introduction and tribute at the presentation to John was made by former student and distinguished researcher, **David J. Des Marais**, MA'72, PhD'74.

Lois Heiser, geology librarian, has served the past year as the vice president and now president elect of the Geo-science Information Society.

Erle Kauffman has returned to graduate teaching (see *Department news*) and research. In the meantime, he continues to enjoy his children and grandchildren immensely. He has three children, Don, Robin, and Erica, and they are involved in three very different professions. Don, the oldest, is head of an English language institute in New Zealand. Robin is in Maine, where she is painting, potting, and raising a large garden. Erica is in business, designing and selling children's clothes and toys.

Erle is physically active. Learning how to canoe again, fishing, hiking, playing music (learning how to play banjo again), and discovering Bloomington are his pastimes.

Evelyn S. Krull, postdoctoral research associate, joined the biogeochemical group after finishing her doctoral dissertation at the University of Oregon in 1998. She continues to study past and present carbon cycle dynamics in terrestrial settings employing detailed stratigraphic field work, carbon isotopic analysis of organic matter and pedogenic carbonates, and biomarker analysis. Evelyn is collaborating with professors **Lisa Pratt** and **Jeff White** on the interdisciplinary mesocosm project of the University of Minnesota on the effects of climate change on methane cycling in peatlands. Central to the study is the investigation of the carbon dynamics associated with methanogenesis, microbial methane oxidation, and the role of associated plant communities.

Gary Lane was planning to travel with **Chris Maples** to northwest China for field work last Aug. 6-28. A week before they were to depart, they received an e-mail message from their Chinese colleagues saying that access to the sensitive areas in eastern Xinjiang-Uygur region was being denied to all citizens of NATO countries. This was due to the accidental bombing of the Chinese embassy in Belgrade. Lane and Maples hope to re-

schedule the trip during 2000.

Enrique Merino spent the past academic year first in Spain, attached to the University of Salamanca and a materials science and research institute in Madrid, then in New Zealand, where he was foundation fellow of the University of Auckland at the Geothermal Institute (hosted by recent IU visitor **Patrick Browne**), and finally in Iceland, where he gave a keynote talk on weathering dynamics at a geochemistry of Earth's surface meeting. Enrique returned to Salamanca last fall to give much of a mini-course (Sept. 27-Oct. 2) on geochemical dynamics organized while he was there last year. His wife, Consuelo, was also on sabbatical last year and did research in two Spanish libraries. Their 13 year-old son, Miguel, loved school and school-mates in Madrid so much that they extended their stay there. Miguel even played drums with a jazz combo of 25-year-olds in two night clubs until 2 a.m.!

Haydn Murray, although retired since 1994, still has four graduate students who will finish their PhD degrees by this August. Last fall, he was asked to teach clay mineralogy, and he informs us that he had eight excellent graduate students in the course, which made it an enjoyable experience. Haydn also notes that a new differential thermal analyzer-thermal gravimetric analyzer unit and digital brightness meter for measuring reflectivity and color of white mineral samples have been purchased for the clay minerals laboratory.

Last year, Haydn organized a symposium and presented the introductory lecture titled "New Developments in the Traditional Industrial Applications of Clays" at the Euroclay '99 clay conference held in Cracow, Poland. Former students, colleagues, and one current student presented papers, including **Jessica Elzea-Kogel**, MS'87, PhD'90, **Robert Pruett**, MS'88, PhD'93, **Tom Dombrowski** (MA'82, PhD'92), **Colin Harvey**, PhD'80, **William Moll**, MA'58, **Karan Keith**, MS'89, **Emilio Galan** (Spain), who is president of the European Clay Group, **Eduardo Dominquez** (Argentina), and **Fernando Cravero** (Argentina). Also in attendance were **Roland Merkl**, MS'85, PhD'89 (Germany), **Peter Brandlein** (Germany), and **Krystof Szamalek** (Poland), who now heads the environmental affairs for the Polish government.

On the personal side, Haydn reports that his wife, Juanita, and he are busy grandparenting their six grandchildren. Their son, Steve, is now general manager

(continued on page 18)

Department of Geological Sciences faculty & staff

Professors: Abhijit Basu, Simon Brassell, James Brophy, Jeremy Dunning, Michael Hamburger, Norman Hester, Claudia Johnson, Erle Kauffman, Noel Krothe, Christopher Maples (chair), Enrique Merino, Greg Olyphant, Gary Pavlis, Lisa Pratt, Edward Ripley, Lee Suttner, David Towell, and Robert Wintsch

Part-Time Professors: Henk Haitjema (SPEA), Brian Keith (Survey), Peter Ortoleva (Chemistry), Carl Rexroad (Survey), and Jeff White (SPEA)

Professors Emeriti: Robert Blakely, J. Robert Dodd, John Droste, Donald Hattin, N. Gary Lane, Judson Mead, Haydn Murray, Albert Rudman, and Charles Vitaliano

Visiting Assistant Professor: Michael J. Zaleha

Research Scientists: Michael Dorais, Bruce Douglas, Erika Elswick, Arndt Schimmelmann

Postdoctoral Fellows: Evelyn Krull, Lindsey Leighton, Anthony Lowry

Librarian: Lois Heiser

Library Staff: Dennis Scoville (technical services), Linda Stewart (circulation/reserves)

Staff: Kim Schulte, administrative assistant, chair's office; Patty Byrum, administrative secretary, chair's office; Lorie Canada, secretary, fourth floor; Ruth Droppo, secretary, third floor; Tricia Miles, secretary, fifth floor; Richard Gibson, resident manager, Geologic Field Station, Montana; Cindy Hale, office services assistant, business office; Mary Iverson, student records; Candace Franz, senior administrative secretary, Geologic Field Station; Brian Snow, computer systems manager; Terry Stigall, geophysics electronics technician; Steve Studley, manager, mass spectrometry lab

Faculty news

(continued from page 17)

of offshore exploration for SONAD Inc. in Houston. Their grandson, Mark, is a senior majoring in geology at Colorado State. Juanita says that geology must be in their genes! Their granddaughter, Samantha, is a first-year graduate student in SPEA at IU, and they are pleased to have her in Bloomington for a couple of years.

Lisa Pratt has completed her term (1997–1999) as chair of the Committee on Nominations of the Geological Society of America. She continues to serve as associate dean for science and research in the College of Arts and Sciences.

Ed Ripley reports that he is busy with two NSF grants on the Duluth Complex, Minn., one involving isotopic studies of hydrothermal flow systems above and below the complex and the other a study of Re-Os isotopic systematics accompanying the conversion of organic-rich, pelitic country rocks to hornfels, magma contamination, and sulfide ore genesis. Doctoral student **Tim Johnson** has finally found a solution to ^{18}O fractionation in the CO_2 laser extraction system that he built and should complete his thesis in early 2000. **Iskandar Taib** has submitted a draft of his PhD dissertation on sulfide mineralization in the Duluth Complex. Postdoctoral student **Young-Rok Park** is visiting the lab at Monash University, Australia, where he is doing Re-Os isotopic measurements for the NSF-funded project on the Duluth Complex country rocks and ores. Young-Rok and Ed are also involved in a couple of studies in Montana near the IU Geologic Field Station that focus on isotopic systematics of melt-country rock interaction and fluid flow in Archean metamorphic rocks. They continue their collaborative work with **Jim Miller** of the Minnesota Geological Survey. These studies are aimed at understanding magmatic fractionation and the relationship between plutonic and extrusive rocks in the Midcontinent Rift.

Jim Brophy and Ed are continuing their experimental work on Cu solubility in basaltic magmas, using Jim's furnace assemblies. The elemental analyzer attached to the new sulfur isotope ratio mass spectrometer is now working nicely,

thanks to the efforts of **Steve Studley** and **Jan Fong**. Efforts are now being turned to interfacing the laser microprobe to the mass spectrometer.

Arndt Schimmelmann was promoted to the position of senior scientist, effective Aug. 1, 1999. Arndt has received a new research grant from NSF-OCE, Earth Systems History, titled "Reconstructing Extreme Southern California Flood Events from Gray Flood Deposits in Santa Barbara Basin, since 5000 B.P."

Lee Suttner is enjoying his return to full-time teaching and research following the end of his second term as department chair. Friends and foes now refer to him as the department "stool." He is in his final year of nearly eight years of NSF support for his studies of tectonic controls of facies architecture in the Rocky Mountain foreland. One of the students on this project, **Carrie Nolan**, received the prestigious Weimer Research Grant from SEPM to support her research on

The birth of his daughter, Lori's, first child raises the total of Suttner grandchildren to five. His daughter, Lisa, was engaged earlier in the year and will be wed next June. After paying for the weddings of three girls, Lee is looking to a "free" one as soon as his son, Jim, completes his search for the right mate. Jennifer, the oldest of the Suttner family, has moved back to Evansville with her spouse and family, giving Lee and Ginny far more opportunity to see them on a regular basis. The highlight of the year for all was the reunion at the Field Station in July, where they were able to re-ignite memories with the Towell, Cassie, and Meyers families.

Dave Towell once more edits the *Hoosier Geologic Record*, which, upon the suggestions of others, has been raised in status from newsletter to newsmagazine. He hopes that readers believe this is warranted. Certainly, in volume, it is larger than what might be thought of by most as a newsletter.

Dave continues to teach in G429 at the Field Station (unfortunately, just one more to go) and four courses in Bloomington each year. He also remains very involved with assignments related to his position on the University Athletics Committee, particularly with regard to student athlete welfare and NCAA legislative issues. Dave and **Abhijit Basu** presented a paper on the potential occurrence of

Now available on the Web

Readers can now obtain the following documents in the Geology Library from the Web at <http://www.indiana.edu/~libgeol>:

- *First Annual Report of the Indiana Geological Survey*, 1869
- *Second Annual Report of the Indiana Geological Survey*, 1870
- *Report of the Naturalist of the Wabash Academy of Science*, 1855, by Ryland T. Brown.
- *Collection of Crinoids from the Sub-Carboniferous Keokuk Group, Montgomery County, Indiana*, 1873, by Fred Braun.
- *Guide to Indiana caverns*, 1939
- *Formations of Ordovician, Silurian, and Devonian rocks in the vicinity of Hanover, Indiana*
- *Some geological aspects of the Carboniferous of Southern Indiana*

this project (see *Student news*). She joins doctoral student **Bill Elliott** and master's student **Shayne Wiesemann** as the students actively engaged in this work. **Mike Zaleha**, who joined the group in a postdoctoral position in 1995, continues to play a key role in the research as part of his current appointment as visiting assistant professor. The focus of this work has shifted from understanding the paleohydraulic significance of coarse-grained nonmarine facies in the Lower Cretaceous of Wyoming and South Dakota to the geochemistry and sedimentology of the fine-grained younger nonmarine facies in the Bighorn and Wind River Basins of Wyoming.

Lee was elected president of the Geological Society of America Foundation this past year. Coupled with his role as director of development for the Department, he remains busy soliciting support for both the Society and the Department.

zeolite cement in Martian volcanoclastic rocks at the Fifth International Conference on Mars held at Caltech in Pasadena on July 18–23. It was a special treat for Dave to go back to Caltech, where he was a postdoctoral fellow some 35 years ago. The highlight of the year, however, was the 50th anniversary celebration at the Field Station, where so many dear friends, colleagues, and families returned for the reunion celebration.

Back in Bloomington, Dave and his wife, Lindsay, keep pinching themselves to remind them how very lucky they are that their three granddaughters, Jessica, 7, Abigail, 5, and Rachel, 3, live right here in town. A trip to Walt Disney World with the entire family in January 1999 (including Dave's sons, Garrett and Brian, their wives, and children) was an especially exciting and pleasurable experience. In retrospect, renting a motor home for that trip was a smart decision.

Faculty research grants 1998-99

- A. BASU (NASA) – “Petrologic Evolution of Lunar and Meteorite Parent Body Regolith.”

- M. DORAIS (NSF) – “History of Terrane Assembly, Eastern New England.”

- B. DOUGLAS (NSF) – “Curriculum Development for Interdisciplinary Field Courses in Environmental Geosciences.”

- B. DOUGLAS (NSF) – “Field and Laboratory Equipment Support for Student Training in Interdisciplinary Environmental Sciences.”

- M. HAMBURGER (USGS) – “GPS Measurement of Crustal Deformation in the Wabash Valley Seismic Zone.”

- M. HAMBURGER (NSF) – “Collaborative Research: GPS Measurement of Crustal Deformation at Pinatubo and Taal Volcanoes, Philippines.”

- M. HAMBURGER (IRIS) – “Teacher Training Workshop Conducted in Support of the Princeton Earth Physics Project.”

- M. HAMBURGER (NASA) – “GPS Measurements of Localized Deformation in the Tien Shan.”

- M. HAMBURGER (IND. COMM. HIGHER EDUC.) – “Teacher Training and Curriculum Development in Earthquake Studies.”

- M. HAMBURGER (NASA) – “Lithospheric Rheology and Geodynamic Processes from Integration of Geodetic, Gravity and Topography Data.”

- N. HESTER (CUSEC) – “Earthquake Hazard Program.”

- E. KAUFFMAN (NSF) – “Testing the Hypothesis of a Cretaceous Supertropical Climate Zone in the Caribbean Province: Do Climate Simulations and Observational Data Support the Concept of Tropical Stability?”

- N. KROTHER (CBS CORP.) – “Determining the Amount of Groundwater Storage in the Phreatic and Epikarst Zones in the Karst Aquifer at the Lemon Lane Landfill: A Stable Isotopic Study.”

- N. G. LANE (NSF) – “Echinoderm Rebound and Diversification after the Late Devonian Extinction: Evidence from Asian Carboniferous and Eurasian Famennian Echinoderm Faunas.”

- G. OLYPHANT (GREAT LAKES COMM.) – “Lake Michigan Tributary Monitoring Project.”

- G. OLYPHANT (EPA) – “Measuring Outfalls of E. Coli Contaminated Streamflow at Burns Ditch, South Shore

Lake Michigan.”

- G. OLYPHANT (IDEM) – “Development of a 3-D Aquifer Visualization Ground Water Flow Model in the Upper Reaches of the Lake Michigan Basin, NW Indiana and Creating a GIS for the Lake Michigan Drainage Basin in Indiana.”

- G. OLYPHANT (IDEM) – “Development of the Three-Dimensional Shallow, Ground-water Flow Model for the Grand Calumet/Indiana Harbor Watershed, Northwest Indiana.”

- G. OLYPHANT (IDEM) – “Hydrologic Monitoring and Watershed Modeling Associated with the Great Marsh Restoration Project.”

- G. OLYPHANT (IDEM) – “Hydrologic Suitability of Mine Spoil as a Medium for Septic-tank Absorption Fields.”

- G. OLYPHANT (IDEM) – “Development of a Statistically Valid Program for Monitoring Pesticides in Groundwater in the State of Indiana.”

- G. OLYPHANT (IDNR) – “Creating a GIS for the Lake Michigan Drainage Basin in Indiana.”

- G. PAVLIS (USAF) – “Innovative Seismic Array Analysis for Studies of Wave Propagation in the Earth.”

- G. PAVLIS (IRIS) – “Event Location and Array Processing Software Developments for the IRIS Broadband Array System.”

- G. PAVLIS (NSF) – “Collaborative Research: Geodynamics of Intracontinental Mountain Building in the Tien Shan, Central Asia.”

- L. PRATT (TEXAS A&M) – “Distribution of Sulfur Compounds and Stable Isotopic Composition of Organic and Inorganic Sulfur in Sediments from Leg 175 Benguela Current: Paleoceanographic Implications.”

- E. RIPLEY (NSF) – “Isotopic Studies of Hydrothermal Flow Systems above and below the Duluth Complex, Midcontinent Rift System, Minnesota.”

- E. RIPLEY (NSF) – “Acquisition of a Sulfur Isotope-Ratio Mass Spectrometer.”

- E. RIPLEY (NSF) – “Re-Os Isotopic Systematics Accompanying the Conversion of Organic-Rich, Pelitic Country Rocks to Hornfels, Magma Contamination, and Sulfide Ore-Genesis, Duluth Complex, Mid-Continent Rift, Minnesota.”

- A. RUDMAN (USGS) – “A Com-

prehensive Geophysical Investigation to Assess Seismic Hazards in the Wabash Valley Seismic Zone: A Case Study of the New Harmony Fault.”

- A. SCHIMMELMANN (WHOI) – “High-Precision Hydrogen Isotopic GCMS, a Subcontract Proposal to Woods Hole Oceanographic Institution.”

- A. SCHIMMELMANN (NSF) – “Reconstructing Extreme Southern California Flood Events from Gray Flood Deposits in Santa Barbara Basin since 5000 B.P.”

- A. SCHIMMELMANN (NASA) – “Isotopic Biogeochemistry, Subcontract Proposal to Woods Hole Oceanographic Inst.”

- L. SUTTNER (NSF) – “Effects of Intra-Basinal Structures on Early Cretaceous Fluvial Systems (Lakota/Cloverly Formations), Central Cordilleran Foreland Basin.”

- R. WINTSCH (AM CHEM PRF) – “Isotopic Responses and Exchange of Hydrogen and Nitrogen in Kerogen During Thermal Alternation Across the Oil Window.”

- R. WINTSCH (STATE of CONN.) – “Bedrock Geology Mapping of the Rockville 7.5 “Minute” Quadrangle, Connecticut.”

- R. WINTSCH (NSF) – “History of Terrane Assembly, Eastern New England.”

Help Make a Difference

Hoosiers for Higher Education (H.H.E.) is a statewide organization of Indiana citizens wanting to raise public awareness about the importance of higher education for Indiana's future. We need your nonmonetary support. Please call (800) 824-3044 for more information.

We want to hear from you!

Please use the enclosed form to send us your class note. While you're at it, become a member of your alumni association today!

Student news

The following companies sent representatives to the Department to recruit both full-time employees and interns during 1998-99:

- Exxon Exploration Co., Houston, Texas (Barbara Rassmann and Nathan Way)
- Chevron Oil Co., La Habra, Calif. (Carole Rock and Scott Adams)
- Exxon Production Research, Houston, Texas (Mark Richardson and Glenn Bear)
- Phillips Petroleum Co., Bartlesville, Okla. (Tom Moore and Ken Sundberg)
- Amoco, New Orleans, La. (Darryl Willis)
- Schlumberger Oilfield Services, Sugarland, Texas (Kirk Trujillo)

Awards and Grants

Undergraduate

- Phi Beta Kappa: Catherine Brownlee Talbot (Reid, Australia)
- N. Gary Lane Beginning Geologist Award: Melissa Gibson (Fortville, Ind.)
- Junior Award: Ralph Millikin (South Bend, Ind.)
- Professional Development Award: Monica Tatera (Madison, Ind.) and Adam Haulter (Russiaville, Ind.)
- Chevron Geophysics Award: Amy Tieman (Barrington, Ill.)
- Faculty Scholarship (Senior) Award: Jeff Dick (Hammond, Ind.)
- Field Station Scholarships (IU): Monica Tatera (Deiss Award) (Madison, Ind.); Suzanne Gerteisen (Mead Scholarship) (Monroe, Ind.)

Graduate

- Estwing Award and Outstanding Academic Achievement: William Elliott (Latrobe, Pa.)
- Department of Geological Sciences Award for Academic Achievement: Carrie Nolan (Carpentersville, Ill.)
- Outstanding Associate Instructor: Brandon Watts (Johnson City, Tenn.)
- Chancellor's Fellowship: Matthew Campbell (Spartanburg, S.C.)
- Shell Oil Fellowship: Shayne Wiesemann (Rolling Prairie, Ind.)
- Amoco Fellowship in Geophysics: Beth Bartel (Redmond, Wash.)
- Doctoral Student Grant in Aid of Research Award: Sally Letsinger (Greenfield, Ind.)
- SEPM Robert Weimer Research Grant: Carrie Nolan (Carpentersville, Ill.)

• Rocky Mountain Section of SEPM 1998 Fluvial Sedimentology Award: Carrie Nolan (Carpentersville, Ill.)

• John B. Patton Award: Mark Buehler (Bloomington, Ind.)

• Sigma Xi Associate Membership: William Elliott (Latrobe, Pa.); Scott Neal (San Bernadino, Calif.)

Degrees Awarded

Bachelor of Arts

Margaret G. De Saeger (Greenwood, Ind.)

Bachelor of Science

- Ivan Almeida (Fort Wayne, Ind.)
- Roger A. Cohen (Zionsville, Ind.)
- Martin L. Drury (Milltown, Ind.)
- Adam E. Haulter (Russiaville, Ind.)
- Christina L. James (Logansport, Ind.)
- Malyia F. Malik (Indianapolis, Ind.)
- M. Michael Novotny (Bloomington, Ind.)
- Mark P. Panning (Columbus, Ind.)
- Sue Ellen Riegsecker (Noblesville, Ind.)
- Owen R. Schwartz (Fort Wayne, Ind.)
- Noreehan Shahud (Bachok, Kelantan)
- Christi S. Snedegar (Bloomington, Ind.)
- Catherine Brownlee Talbot (Reid, Australia)
- Jill K. Taylor (Bloomington, Ind.)
- Amy K. Tieman (Barrington, Ill.)
- Ricardo Van Deste (Angola, Africa)

Master of Science

- Jennifer Ayers Coats; Claudville, Pa. (1998), "Carbon Isotopic Variation In Terrestrial Organic Matter across the Jurassic-Cretaceous Boundary in the Wind River and Big Horn Basins, Wyo."
- Jennifer L. Eigenbrode; New Cumberland, Pa. (1999), "Sedimentological, Carbon- Isotopic, and Molecular Records of Late Holocene Climate in the Sediments of Soda Lake, Carrizo Plain, Calif."
- Bryan A. Eklund; Nicholasville, Ky. (1999), "An Investigation of a PCB Contamination Point Source within a Karst Terrain Using the Stable Isotopes of Sulfur and Deuterium to Perform a Three-Part Hydrograph Separation on a Karst Spring in Monroe County, Ind."
- Yuming Fei; Zheng Dong Hebei, PRC (1999), Research paper: "Chemical and Stable Isotope Analysis of the Illinois Central Spring Groundwater System, Lemon Lane Landfill, Bloomington, Ind."

Ind."

• James Jacobson; Crystal Lake, Ill. (1999), "³⁴S of Sulfate from the Beech Creek Aquifer Underlying the Ammunition Burning Ground, Crane Naval Surface Warfare Center, Crane Subdivision, Ind."

• Brian M. Pope; Whitewater, Mo. (1999), "Phased Array Studies of Seismicity in the Wabash Valley, Ind. and Ill."

• Kevin M. Spindler; St. Louis, Mo. (1999), "Application of Shallow Geophysical Methods to an Evaluation of the Hydrologic Impacts of Reclamation Using Coal-Combustion Byproducts: AML Site 1087 ("Midwestern"), Ind."

• Brandon G. Watts; Johnson City, Tenn. (1999), "Geochemistry of Early Devonian Calc-Alkaline Plutons in the Merrimack Trough: Implications for Mid-Paleozoic Terrane Relationships in the New England Appalachians"

• Kristin D. Wood; Windsor, N.Y. (1999), "Reconstructing Pleistocene Reef Development, Barbados, West Indies"

• Christopher E. Yokoyama; Wooster, Ohio (1999), "Paleochannel Geometries, Hydraulics, and Stratigraphy of Early Cretaceous Fluvial Systems, (Cloverly Formation) Alcova Reservoir, Wyo."

Doctor of Philosophy

• John C. Hohman; Brookport, Ill. (1998), "Depositional History of the Upper Ordovician Trenton Limestone, Lexington Limestone, Maquoketa Shale and Equivalent Lithologic Units in the Illinois Basin: An Application of Carbonate and Mixed Carbonate-Siliciclastic Sequence Stratigraphy"

• Dorothy F. Payne; Berkeley, Calif. (1998), "A New, Fully Coupled, Reaction-Transport-Mechanical Approach to Modeling the Evolution of Natural Gas Reservoirs in the Piceance Basin"

• Dmitriy Repin; Moscow, Russia (1998), "Study of Small-Magnitude, Delayed Multiple Events and Interactive Three-Dimensional Visualization of Seismic Data"

• Lisa R. Rhoades; Evansville, Ind. (1999), "Stratigraphic and Sedimentologic Analysis of Rhythmic Physical, Biological, and Geochemical Signatures in Two Cores of the Mississippian (Osagean) Borden Group, Harrison County, Ind."

• Douglas J. Schnoebelen; Iowa City, Iowa (1999), "The Silurian-Devonian

(continued on page 21)

'Over-the-top' celebration highlights annual meeting

The annual meeting of the Department's external Advisory Board was held on campus on Oct. 14-16, 1999. It was highlighted by a gala dinner with faculty, staff, spouses, and friends to celebrate formal announcement that the Department's \$5 million endowment campaign had gone "over the top" with more than a year to go in the campaign. Special guests at the dinner included Chancellor **Herman B Wells**, **Russell Hanson** (acting dean of the College of Arts and Sciences), **Susan Green** (executive director of development for the College), and **Kent Dove** (executive director of the IU Foundation's Capital Campaign).

Three new members were welcomed to the Board this year. They are **Sara Foland** (executive director and CEO of the Geological Society of America), **John Steinmetz** (director of the Indiana Geological Survey), and **Johnny Waters** (chair and professor of geology at West Georgia University). **Richard Gibson** (Gibson Consulting) and **Derek Fullerton** (president of Exmin Corp.) will complete the second year of their two-year terms as president and vice president of the Board, respectively. Members of the Board who attended the meeting were **Robert Blakely**, **Malcolm Boyce**, **Michael Cowen**, **Ferol Fish**, **Derek Fullerton**, **John Gibson**, **Richard Gibson**, **James (Dick) Harris**,

Robert Jones, **Judson Mead**, **Michael Mound**, **George Nevers**, **Frank Pruett**, **John Steinmetz**, **Daniel Tudor**, **Kenneth Vance**, and **Johnny Waters**. Unable to attend the meeting were **John Bubb**, **Thomas Dobecki**, **Sara Foland**, **Michael Graham**, **Stephan Graham**, **Glenn Hieshima**, **Thomas Straw**, **Daniel Sullivan**, **Jerome Thornburg**, and **Steven Young**.

As in past years, the Board met with the Student Advisory Committee following chair **Chris Maples'** state-of-the-Department presentation, which focused on description of completed physical improvements in the Geology Building and the status of recruiting for vacant faculty positions. **Jim Brophy** and **Simon Brassell** reported on recent changes in the undergraduate and graduate curricula, respectively, and **Bruce Douglas** dis-

cussed the status of the new joint SPEA/College BSES degree program in environmental sciences. Other faculty and staff who spoke to the Board included **Lisa Pratt**, who described her collaborative research program with Princeton University on deep Earth microbes; **Ed Ripley**, who summarized the analytical capabilities of our isotope laboratory facilities; and **Erika Elswick**, who spoke of improvements and organization of the analytical geochemistry laboratory. Acting Dean **Russell Hanson** reported on the state of the College of Arts and Sciences and progress being made in the search for the full-time dean of the College. He spent nearly an hour responding to Board questions about the perception of the Department of Geological Sciences in the eyes of the administration,
(continued on page 22)

Student news

(continued from page 20)

Carbonate Aquifer System of Indiana: Delineation of a Saline Boundary with Specific Applications of Hydrogeology and Geochemistry in Parts of Lake and Jasper Counties"

• Matthew C. Warner; Columbus, Ohio (1998), "Geochemical Characterization of Sedimentary Organic Matter and Hydrothermal Petroleum in the Black Shale-Hosted Zn-Pb Deposit at Red Dog Mine, Western Brooks Range, Alaska"



Advisory Board members attending the October 1999 meeting: 1. Chris Maples 2. Robert Jones 3. George Nevers 4. Ferol Fish 5. Bob Blakely 6. Dick Gibson 7. John Gibson 8. Johnny Waters 9. Derek Fullerton 10. Lee Suttner 11. Jud Mead 12. Michael Cowen 13. Frank Pruett 14. Susan Green 15. Ken Vance 16. Michael Mound 17. John Steinmetz 18. Mal Boyce 19. Dick Harris 20. Kim Schulte 21. Dan Tudor



Advisory Board

(continued from page 21)

the potential impact of the growing department endowment on future budget decisions affecting the Department, faculty salaries, and the potential placement of Geological Sciences faculty in the proposed new center for interdisciplinary research in physical and biological sciences on the Bloomington campus.

The Board's major role for the past two years has centered on development and fund raising. **George Nevers**, who has co-chaired the endowment campaign, gave the endowment progress report, which included the first formal announcement of the attainment of the \$5 million campaign goal. **Susan Green** and **Lee Suttner** described the future development efforts they will be undertaking in the final year and a half of the campaign. Board members enthusiastically agreed that the calendar completion of the campaign should not signal the completion of efforts to continue to solicit alumni support for the Department.

The meeting concluded with a report from **John Steinmetz** on current programs in the Indiana Geological Survey. John announced the creation of a new Survey-funded fellowship to support a graduate student working on some aspect of Indiana geology. This will further strengthen the existing Survey-Department relationship, which also is benefiting from monthly meetings between Survey and Department administrators, as well as increased participation by Survey staff in the teaching of graduate courses.

The year 2000 meeting of the Board will be held on the Bloomington campus on Oct. 5-7.

New member profiles

Sara S. Foland, BS'79, joins the Board after recently becoming CEO of the Geological Society of America (see profile under *Alumni news*). She serves as chair of the Board for Farallon Energy Group Ltd. and, prior to that, was its president and CEO. Sara received a BS degree in geology and chemistry from IU in 1979. Following earning an MS degree in geology from the University of Montana, she joined Amoco Corp. and worked there from 1982 until 1998. During this period, she served in numerous roles, among others, exploration manager for the mid-continent, resource manager for the Arkoma Basin and Mid-Continent Business Unit, resource manager-explo-

ration for the Mid-Continent Business Unit, and acquisitions and divestments manager for the Western Business Unit. During that period, she also returned to IU, where she received the executive MBA degree in 1992. Currently, she is completing a doctoral degree in geology at the University of California, Santa Cruz. Sara has served in numerous service roles for industry, education, and the public including, to name a few: member of the Research Advisory Board of the Tulsa Research Center; chair of the Denver Organization Effectiveness Advisory Board on Career Development; member of the Women's Employee Network Advisory Board for Amoco Corp.; chair of the Denver Outreach Committee for Elementary Science Education; board member for the Prehistoric Journey Exhibition, Denver Museum of Natural History; member of Board of Directors, Lambda Literary Foundation; member of the Board of Trustees of the University of Montana Foundation and chair of the Planning Committee; member of the Board of Trustees of the Colorado AIDS Institute Foundation and co-chair of the Development Committee. Sara lives in Aurora, Colo., and generally spends weekends at a second home in Steamboat Springs.

John Steinmetz joins the Advisory Board after completing his first year as director and state geologist of the Indiana Geological Survey. John was profiled in last year's newsmagazine, where it was noted that he received his BS and MS degrees in geology from the University of Illinois in 1969 and 1975, respectively. Subsequently, John earned the PhD degree in marine geology and geophysics from the University of Miami in 1978. From 1977 to 1982, he taught at the Department of Marine Science, University of South Florida, St. Petersburg. From there, he moved to the Marathon Oil Co., Littleton, Colo., where he served as an advanced research geologist at the Denver Research Center. Prior to coming to Bloomington, John was the director and state geologist, Montana Bureau of Mines and Geology in Butte from 1994 to 1998. Professionally, he serves as treasurer, Association of American State Geologists; vice president, Paleontological Research Institution; ad hoc member, Governor's Groundwater Task Force; chair, Indiana Board of Licensure for Professional Geologists; and chair, Micropaleontology Press Board of Advisors. John notes that during most of his professional career, he has been involved in applied or "directed" research. That is probably why he finds the state geologi-

cal survey environment so stimulating. Being in the proximity of the Department of Geological Sciences here at IU brings fresh ideas and (youthful) enthusiasm to the Geological Survey as well, according to John. He says that perhaps most rewarding, however, is the prospect of providing meaningful answers and solutions to societal questions or problems utilizing earth science information. John believes that one of the largest challenges faced today is disseminating this information to those who can most readily use it in a medium that is easily understandable and immediately usable. John and his wife, Sally, have two elementary-school-age daughters. He enjoys woodworking, running, and reading (i.e. "keeping up").

Johnny A. Waters, AM'76, PhD'78, comes to the Advisory Board as chair of the Department of Geology at the State University of West Georgia, Carrollton. He was born in northern Alabama to parents who had active interests in archeology, local history, and paleontology. Johnny says he had the good fortune also to be born in an area with a rich scientific and cultural history even though it was economically depressed, as he would discover later. His first contact with the Department of Geology at IU was in 1965, when, at age 14, he conducted field work with the late **Alan Horowitz** and **Brad Macurda Jr.**, then at the University of Michigan. Alan was a regular visitor to Johnny's household over the next four years as they collected together and collaborated on paleontological projects. Alan brought Johnny to the IU campus in the summer of 1967, where he worked on *Pterotocrinus* and listened to WFIU (the only radio station he could pick up in the paleo lab). He came back to Bloomington again in the summer of 1968 as a part of an NSF-sponsored summer science institute, continuing the research on *Pterotocrinus* (and again listening to WFIU). Johnny subsequently did undergraduate study at Auburn University, graduating with the baccalaureate degree in 1973. In the meantime, he and Alan continued to correspond, collaborate, and published their first paper together.

Johnny came to IU for his graduate work, earning his AM degree in 1976 under **Gary Lane**. He adds that he completed his PhD degree in 1978, but not without "incident." A job in Georgia became available in 1977, and Johnny took it, much to the dismay of Lane, who told him that he would never finish his degree under such circumstances. He did

(continued on page 23)

Advisory Board

(continued from page 22)

finish, but only with the great support of both Lane and his longtime friend, Alan Horowitz. Johnny remains at that school (West Georgia) and still maintains close ties to the IU Department. Gary and Johnny "remain close friends and will continue to do so as long as I get the next monograph on Chinese echinoderms completed soon." Johnny also is one of scores of IU graduates who deeply appreciated Alan Horowitz and his contribution to IU geology. **Chris Maples** and Johnny have been close friends for many years.

In memoriam

Daniel S. Tudor of Willis and Houston, Texas, retired president of Chevron Exploration and Production Services, distinguished alumnus of the Department, and charter member of the Alumni Council (later to become the Advisory Board), died on Nov. 20, 1999. Survivors include his wife, Janet E. (Widerberg) Tudor, daughter Elizabeth J. Tudor of Houston, Texas, sister Mary K. (Tudor) Nichols of Hemet, Calif., and numerous nieces and nephews.

Dan was born on May 14, 1930, in Hammond, Ind., the son of Carlos and Jennie (Strain) Tudor. His academic training was at IU, where he earned his BS degree (geology) in 1955 and AM degree (geophysics) in 1957. During a long and distinguished career in the oil industry, he returned to IU and completed his

PhD degree in geophysics in 1972. In 1971, Dan became division geophysicist, Pacific Northwest, of Chevron's California Western Operations Unit. He moved to Houston in 1974 to serve as manager, Chevron Geophysical. He returned to Chevron Oil Field Research Co. in 1977 as manager, Geophysics Division, and became vice president of COFRC's Exploration Research Department in 1980. In 1981, Dan became vice president and manager, Exploration Services for Chevron Geosciences. He was named president of that company in 1984, which was reorganized and renamed Chevron Exploration and Productions Services in 1989, and he continued in that position until his retirement in 1993. Following retirement and until his death, he was active as a consultant in geophysics for

several oil exploration companies and served as a member of the board of directors for GSI. Dan was active in many related organizations, including the European Association of Geoscientists and Engineers, the Geological Society of Houston, the American Association of Petroleum Geologists, and the Society of Exploration Geophysicists (for which he served as a trustee associate), and Sigma Xi.

The Department of Geological Sciences awarded Dan its highest distinction, the Richard Owen Award, in 1989. He was instrumental over the years in obtaining for the Department student fellowship funds, research equipment in geophysics, and funding of the Department Endowment Campaign, for which he was one of the most dedicated organizers. He served continuously on the Alumni Council and later the Advisory Board since their inception and in numerous roles, making those bodies tremendously important to the success of Department in the recent past, the present, and into the future. Dan Tudor was among the most loyal, supportive, and generous of our alumni. He never forgot Indiana University, and IU will never forget him. In his honor, each year the Department will host a guest scientist from industry who will be invited to present a series of lectures linking geophysics to exploration. The lecture series will be titled the Daniel Tudor Lecture Series on Application of Geophysics to the Search for Natural Resources. Indiana University will always honor the memory of this great man, and we will miss him.



Daniel S. Tudor

To commemorate the 50th anniversary of the IU Geologic Field Station, Marion Cassie, wife of former Option I faculty member Bob Cassie, painted a handsome watercolor of the Field Station, copies of which are available for purchase.

Color photographs or digital prints are available in the following sizes and prices: 5"x7", \$10 (photo)/\$5 (print); 8"x12", \$20 / \$10; 11"x14", \$30 / \$15; and 16"x20", \$50 / \$25.

Orders should be sent to IU Geologic Field Station, Department of Geological Sciences, Indiana University, Bloomington, IN 47405.

Please make checks payable to the IU Geologic Field Station. Specify choice of size and photo or print. A black-and-white copy of the painting is shown here.



Watercolor by Marion Cassie

Alumni news

Patrick C. Allen, BA'96, is systems administrator for EDS in Louisville, Ky. His wife, Allison, BS'94, is receiving manager at the Lowe's Distribution Center in North Vernon, Ind. They live in New Albany, Ind.

William I. Ausich, MA'76, PhD'78, has stepped down as chair of the Department of Geological Sciences at Ohio State and has resumed full duties as professor. Next year, he completes his three-year term as a member of the Treatise on Invertebrate Paleontology Advisory Committee of the Geological Society of America. Bill notes that his eldest daughter, Elizabeth, graduated with a BS in English and art history from IU and also served as an Honors Division intern assisting Abhijit Basu in an introductory course in geological sciences.

Steven J. Baedke, MS'90, PhD'98, of James Madison University, visited IU last April and described to graduate students his experiences while making the transition from graduate school into academia. His visit and talk were sponsored by the Remak Fellowship from the Graduate Student Organization at IU.

James W. Bogardus, MS'88, is operations manager for E&P Solutions/Baker Hughes in Houston. His wife, Karen Snyder, completed her PhD in history and philosophy of science and is attending medical school.

Donald L. Brobst, MA'65, retired in May 1996 as an associate professor of geological science and Ulmer Planetarium director. He and his wife, Elizabeth, travel in their motorhome and fly to Costa Rico for a two week elder hostel program. They live in Lock Haven, Pa.

Ann Moss Burger, MA'65, is assistant to the dean of faculty at Amherst College in Massachusetts. Previously, she was dean of Smith College, and prior to that, she was assistant to the president for Special Projects at Smith. She and her husband, **Bob Burger**, MA'64, PhD'66, live in Florence, Mass.

Brian E. Chew, BA'80, is the vice president of Enviro-Equipment Inc., a company started in his basement. Previously, he was a hydrologist with Law Engineering. His wife, Denise, BA'80, is president of their company and they live in Pineville, N.C., and their e-mail

address is www.enviroequipment.com.

Robert C. Earle, BS'87, MSE'91, is project manager for Geological Services Corporation. He and his wife, Kris, BSE'85, MA'88, who is a part-time instructor of French and Spanish at Bryn Athyn College, and their three children, Beth, Colin, and James, live in Huntingdon Valley, Pa.

Sara S. Foland, BS '79, has been selected and appointed as the CEO of the Geological Society of America. Following completion of her MS degree from the University of Montana, she spent more than 15 years with Amoco, and while with Amoco, she returned to IU for the executive MBA degree, which was awarded in 1992. Sara is nearing completion of her PhD at the University of California, Santa Cruz, and for the past three years has been president and CEO of Farallon Energy Group Ltd., where she was in charge of more than 120 employees and \$1.1 billion in investments. Sara is a member of both the President's Advisory Council at the University of Montana and the Board of Trustees of the University of Montana Foundation. In addition, she has lectured worldwide as part of the AAPG-sponsored lecture series.

Katherine H. Freeman, MS'89, PhD'91, is given belated congratulations for receiving the 1997 Peter Schenck Award of the European Association of Organic Geochemists awarded annually to a scientist under the age of 35. Kate was cited for her contributions in compound-specific carbon isotope analyses. At the annual meeting in San Antonio last

April, she was also awarded the James Lee Wilson Medal in Sedimentology from the Society for Sedimentary Geology for "excellence in sedimentary geology by a young scientist."

Humberto A. Guzman, MA'84, is remedial project manager for the U.S. Environmental Protection Agency. He and his wife, Joyce, and two children, live in Loganville, Ga.

Robert D. Hall, PhD'73, is serving during 1999-2000 as chair of the North-Central Section of the Geological Society of America.

Christopher Gellasch, MS'94, a captain in the U.S. Army, was in Korea for two weeks last May, where he conducted a groundwater survey in fractured granite. In December, he had an assignment in El Salvador, Central America, following which he will return to Korea for assessment of a major fuel spill. This summer, Chris will report to the U.S. Military Academy at West Point, where he will commence a three-year teaching assignment that will include running a summer geological field camp in Colorado.

Stephen W. Henderson, BS'70, MA'74, who earned his PhD under the tutelage of **Robert W. Frey**, PhD'69, organized a memorial symposium to honor his mentor in conjunction with the spring 1999 meeting of the Southeastern Section of the Geological Society of America. Steve is professor of geology at Oxford College of Emory University, and with his wife, Kitty, and daughter, Sarah, lives in Covington, Ga.



Students and faculty return from a hard day's work, Florida Keys, 1971: from left, Doug Knab, Neil Immege, Barry Kues, Marty Ruskin, Inda Immege, Walt Hasenmueller, and Bob Dodd.

Alumni news

(continued from page 24)

Darrell G. Herd, BA'71, USGS senior research scientist, received the Intelligence Community Seal Medallion Award, the highest honor that the Central Intelligence Agency can confer on an individual who is not an employee of the CIA or an intelligence community agency. The award recognizes Herd's "sustained, vital, and unique contributions" to the national Measurement and Signature Intelligence Committee in the application of intelligence capabilities to environmental monitoring and environmental hazards.

Gerald H. Johnson, BS'60, MA'62, PhD'65, was presented with the Richard Owen Award by the IU Department of Geological Sciences last October (see *Departmental news*).

Frank E. Kottowski, BA'47, is chair and American Association of State Geologists representative of the GSA and AASG Selection Committee for the John C. Frye Memorial Award in Environmental Geology.

Joe Litehiser Jr., BA'69, is serving as secretary of the Seismological Society of America for 1999-2000.

David L. Mathews, BS'59, MA'60, is a retired geophysicist, but keeps active with historical restoration projects, growing for and exhibiting at the state fair, and playing golf. He and his wife, Betty, live in Palmer, Ala.

William S. McLoda, MAT'69, continues to teach at Mountain View College in Dallas, Texas. He was selected more than 20 years ago to write a television earth science course titled *Earth, Sea and Sky*. He continues to write this program, which is currently the longest running TV course ever produced.

Michael C. Mound, MA'61, PhD'63, is vice president of sales and marketing at Asoma Instruments and Spectro Analytical, companies involved in petroleum, mining, cement, clay, lime, plastics, and wood analytical instrumentation. He and his wife, Elizabeth, live in Austin, Texas. His e-mail address is mcmound@asoma.com.

James F. Murray, BS'78, is general manager of Hunt Midwest Mining, Inc., in Kansas City, Mo. It is the 50th largest crushed stone producer in the United States.

William E. Nellist, MS'86, reports that he is now working on an AA degree in applied geography. The computer mapping classes should be advantageous for his work with the National Imagery and Mapping Agency in Bethesda, Md. Bill and his wife, Catherine Nellist, are planning an adoption for their family.

Norbert A. Parker, BA'36, was the first ski tourist to visit Afghanistan. In 1938-39, he was a geologist for Iraq Petroleum Discovery Well in Ain Zalah Field. He was explor-

atory party chief and mined at Starke, Fla. Parker was also advisor to geological survey of Pakistan in 1967-69. He and his wife, Genevieve, live in Berkely Springs, W.Va.

Raymond N. Pfeifer, BSE'71, MA'72, MA'75, PhD'79, is an associate professor of geology at Eastern Illinois University. He has a U.S. patent on an underwater vehicle recovery method to be applied by emergency rescue teams to recover submerged vehicles and possible occupants. The method results in dramatically improved recovery time and reduces risk imposed on recovery team divers.

Jack Riddell, BS'56, of Griffin, Ind., deserved our acknowledgment and thanks a year ago for his great photo of Professors Mead, Deiss, Perry, Lowell, and Gutschick taken at Many Glacier Hotel in Glacier Park. This picture appeared on page 8 of last year's newsmagazine, and the editor extends his apology for the oversight — a belated thanks, Jack!

Christopher J. Schmidt, MA'68, PhD'75, is a professor in the Department of Geological Sciences at Western Michigan University in

Explorer, July 1999)

Lawrence A. Taylor, BS'61, MA'63, has been honored with publication of *Planetary Petrology and Geochemistry, The Lawrence A. Taylor 60th Birthday Volume, International Book Series, Volume 2*, published in 1999 by the Geological Society of America.

Randall E. Taylor, MS'87, is a satellite Geodesist for National Imagery and Mapping Agency in St. Louis, Miss. He was recently assigned to lead the coordination of the agency's support of the Navy Geosat Follow-On Mission with data from NIMA's GPS network. He is a member of the Satellite Geodesy Support Team. His wife is Susan, BA'86. His e-mail address is taylorre@nima.mil.

John H. Thiele, Jr., BA'79, MSE'82, is program director at Richardson Wildlife Sanctuary. He and his wife, Elma, live near Lake Michigan in Chesterton, Ind. His e-mail address is jntjr@niia.net.

Ronald J. Walton, BS'61, is a broker with Coldwell Banker in Denver. He retired from the U.S. Geological Survey after 34 years. He and his wife, Judith, live in Evergreen, Co.

E. Clay Warren, BA'49, MA'52, has filled us in on some of the fascinating aspects of being a student during the first summer — 1949 — at the Field Station (see *Geologic Field Station update*).

William J. Wayne, BA'43, MA'50, PhD'52, is a professor at University of Nebraska, where he has taught Geography of Latin America. He started to play the flute in the Downtown Seniors Band. He lives in Lincoln, Neb., and his e-mail address is wwayne@unlinto.unl.edu.

Stephen G. Wells, BS'71, is now president of the Desert Research Institute of the University and Community College System of Nevada. Steve previously served three years as executive director of the DRI Quaternary Services Center.

Larry D. Woodfork, BS'64, MA'65, is past president of the American Association of State Geologists and also will serve in 1999-2000 as vice chair of the Southeastern Section of the Geological Society of America.

Annual Daniel Tudor Lecture Series on Applied Geophysics

The Department will honor the memory of Daniel Tudor with an annual lecture and seminar on the general topic of the application of geophysics to the search for natural resources. Speakers will be invited from the industry to deliver the lecture and seminar in conjunction with the annual fall meeting of the Department's Advisory Board.

Friends and classmates of Dan who would like to support this new program can mail contributions to Lee J. Suttner, Director of Development, Department of Geological Sciences at Indiana University.

Kalamazoo, Mich., where he and his wife, Carolyn Rutland, live.

Charles Siemers, PhD'71, is building a home in Kauai, Hawaii, where for several years he has been researching the geological history of the island. In 1998, he and his son, Rob, published *Kauai's Geologic History, a Simplified Guide*, and last fall, Chuck presented an SEPM sedimentary field seminar on the sedimentology and sequence stratigraphy of Kauai.

Brent A. Sieveres, BA'82, is a chemist at ABB Power T&D Company Inc., in Bloomington. He received the company's Award of Excellence for Community Service. He was nominated for his work as a volunteer with the Bloomington Wonderlab science museum.

Carl J. Smith, MA'69, was elected last June to vice president of the American Association of Petroleum Geologists.

Synthia E. Smith, BS'78, has left Exxon after 18 years with that company and is now a partner and vice president of Mastery of Learning, an educational and consulting firm that "specializes in the application of chaos and complexity concepts to accelerated learning, project management, creativity, and change management." (quoted from *AAPG*

In memoriam

We have learned of the recent deaths of several alumni and extend our condolences to their families and friends. Included are **Robert A. Bieberman**, BA'48, MA'50, of Socorro, N.M., in December 1998; **Alan S. Horowitz**, PhD'59, of Bloomington, Ind., in February 1999 (see tribute under *Departmental news*); **Daniel A. Sundeen**, MA'67, PhD'70, of Hattiesburg, Miss., in January 1999; and **Daniel A. Tudor**, BS'55, MA'57, PhD'72, of Willis, Texas, in November 1999 (See tribute in *Advisory Board update*).

Donors (Jan. 1, 1998, to Aug. 31, 1999)

Many thanks to those who have contributed to the IU Department of Geological Sciences!

Special appreciation is extended to members of "The 200/400 Club," a group of donors who have either contributed or pledged to contribute a minimum of \$400 per year for five years of the Endowment Campaign. We hope to attract a minimum of 200 alumni into this special category of donors. Please contact **Lee J. Suttner**, director of development, for information on how to join this group.

Individuals

Alano, Penny & Andrew
Alexander, Richard and Jeannie
Anderson, Stanley & Sharon
Anonymous
Ausich, William & Regina
Austin, Amanda
Bahr, John & Susan
Basu, Abhijit & Iloria
Bear, Glenn & Lorie
Belak, Ronald
Belth, Jeffrey & Sandra
Blakely, Robert & Rosanna
Bogardus, James & Karen Snyder
Bomberger, Harvey J.
Bork, Kennard & Katherine
Bottum, Annette
Boyce, Malcolm & Sylvia
Boyer, Robert & Elizabeth
Brassell, Simon & Trudy
Brittain, Alan
Brobst, Donald & Elizabeth
Broekstra, Scott & Karen
Brophy, James & Evelyn
Bryant, Napoleon Jr.
Bubb, John & Janet
Bucklin, Louis & Linda
Bundy, Wayne & Lorraine
Burton, Jerry & Sarah
Campbell, Andrew R.
Carpenter, Michael & Cheryl
Carter, Pamela
Caserotti, Phillip
Cassie, Robert & Marion
Cheetham, Alan & Marjorie
Christensen, Evert
Christensen, Evert W.
Christian, Bill
Clebrik, Sherman
Cleveland, John & Elinor
Cody, Clyde & Elizabeth
Cohn, Matthew & Paula
Colker, Joseph
Coller, Maynard & Ruth
Collister, James
Cone, Palmer & Gladys
Cook, Jeffrey & Theresa

Cowen, Michael
Dahl, Peter
Daniel, David & Nicole
Dean, Claude
Dean, Lyndon & Mildred
Dixon, William G. Jr.
Dodd, Bob & Joann
Dodd, J.R. & M.J.
Dombrowski, Thomas & Mary
Donelson, Bernadine
Drake, K. David & Kathleen
DuBois, Jeanette & Dean
Dustman, Mark & Jennifer
East, James & Louise
Endris, Ronald
Fairman, Korryn & Randall
Farley, Martin B.
Ferderer, Robert J.
Ferry, James & Jean
Fertal, Thomas
Fetter, Charles W. Jr.
Fiandt, Dallas & Margaret
Filippini, Mark G.
Fish, Ferol, Jr. & Lois
Foell, Christopher
Foster, David & Marsha
Fout, James & Helen
Fritz, Arthur & Jean
Fry, Geneva
Fullerton, Derek G.
Furer, Lloyd
Gellasch, Christopher A.
George, Barbara
Ghose, Shankar N.
Ghose, Sujoy
Gibson, Richard
Gladish, Lowell & Marilyn
Gobetz, Katrina
Godersky, John & Barbara
Golding, Julie
Goldschmidt, Bruno & Eileen
Goltz, Larry N.
Gorham, Scott & Susan
Graham, Michael & Kate
Graham, Stephan
Gray, Alice & Henry
Green, Susan & Jeff
Griggs, John E. & Bessie
Gutstadt, Allan & Lyndal
Guzman, Humberto & Joyce
Haas, Judith & James
Hagey, John W.
Haitjema, Hendrik & Jacobina
Hamburger, Michael & Jennifer
Bass
Hamilton, Keith & Marianne
Hamilton, Stanley & Mary
Hanley, Thomas & Judith
Harper, Roxanne
Hartgraves, Jeanette
Harvey, Richard D. & Doris H.

Hash, Laura & Troy
Hatfield, Craig & Nancy
Hattin, Donald & Marjorie
Henderson, Stephen & Kathryn
Hettenhausen, Roger
Hieshima, Glenn
Horowitz, Alan
Huffman, Samuel F.
Inderwiesen, Philip L.
James, Bruce
Janssen, Janelle
Jenkins, Helen & Jerry
Johnson, Claudia & Erle Kauffman
Jones, Robert & Nancy
Kammer, Thomas & Heidi
Kaska, Harold & Cecille
Kauffman, Erle
Keller, Stanley & Teresa
Kemmerer, Bryan S.
Kent, Stanley & Peggy
Kiely, James M.
Kline, Randy & Jennifer
Klug, Michael & Carol
Kogel, Jessica & Robert
Kohler, Christopher
Kottowski, Frank & Florence
Krebes, Elizabeth
Krone, Terry
Krothe, Noel & Joyce
Kues, Barry & Georgianna
Kulp, Thomas
Kwicien, Therese
Kwon, Byung
Lake, Ellen
Lane, N. Gary & Mary
Lane, Phillip J.
Laney, Robert & Carol
Langford, Richard & Robin
Latimer, Fred & Dorothy
Lea, Elinor
Leonard, Mark & Kim
Lewis, Norman Jr.
Litehiser, Joe Jr. & Socorro
Macy, Thomas & Lois
Mangold, Kent & Sherry
Manley, David
Maples, Christopher & Sara
Mason, Brian

Mastalerz, Maria
Matthews, David L. & Betty
May, Michael & Elizabeth
Mazalan, Paul & Marla
McCammack, Craig & Laura
McCammon, Richard & Helen
McLoda, William
McTaggart, Barbara
Mead, Judson & Jane
Mead, Thomas & Lenore
Mellors, Robert
Merino, Enrique
Middleman, Bruce H. & Janet
Ceglowski
Monroe, Jay Bee
Moran, William & Betty
Morris, Katherine
Murphy, Janet
Murray, Haydn & Juanita
Murray, James F.
Napier, Norman & Susan
Nathan, Richard & Kimbra
Nellist, William & Catherine
Nelson, Jack L. & Eileen
Nevers, George & Margaret
Oliver, Joseph
Olson, Carolyn
Olyphant, Greg & Cynthia
O'Malley, Patrick
Orgill, James R.
Parsell, James & Jean
Pavlis, Gary & Mary Lynn
Percy, Arthur & Sondra
Perry, Allen
Pfau, Gerchard & Alica
Pickering, Ranard & Joyce
Pirie, R. Gordon & Deborah
Ploger III, Robert & Sheila
Potter, Christopher & Hazel
Pratt, Alan R.
Pratt, Joseph & Hazel
Pratt, Lisa
Proctor, Martha
Proctor, Paul & Martha
Pruett, Frank & Shirley
Pruett, Robert & Diane
Purkey, Becky & Thomas
Pymate, Thomas



We hope that you will consider making a donation to the Department of Geological Sciences. Please make your check payable, with the one exception noted below, to the *IU Foundation*. You may specify that your donation go to any of the various funds that are maintained by the IU Foundation for the Department of Geological Sciences. Contributions also can be made to the Geology Library Fund, payable to *Indiana University*, in memory of John Patton.

Alumni receptions held in Texas, Montana, Colorado

As in previous years, alumni socials were held in 1999 to promote fellowship and maintain contact between alumni.

- On April 13, a group of approximately 40 alumni and friends attended a reception held in San Antonio, Texas, during the annual national meeting of the American Association of Petroleum Geologists.

- The 50th anniversary celebration of the Geologic Field Station held in Cardwell, Mont., on July 10 was attended by nearly 100 visitors. The highlight of the event was the renaming

of the station as the Judson Mead Geologic Field Station of Indiana University (see *Geologic Field Station update*).

- On Oct. 25, approximately 100 alumni and friends attended the annual reception at the national meeting of the Geological Society of America held this year in Denver, Colo.

- The final alumni social was the annual reception for Houston area alumni held in that Texas city on Nov. 4 and hosted by **John Bubbs, Glenn Hieshima, George Nevers, and Dan Tudor.**

Donors

(continued from page ??)

Ramsey, John
 Ransford, John & Greta
 Reipe, Ronald
 Reiss, Kenneth
 Renzetti, Phyllis
 Repin, Dmitriy
 Revetta, Frank
 Rexroad, Carl B.
 Ripley, Edward & Kathleen
 Robbins, Eric & Janice
 Robbins, Stephen & Wendy
 Rodriguez, Joaquin
 Romey, William & Lucretia
 Rosenberg, Barr & June
 Rudman, Albert
 Rudman, Susan & David
 Rund, Robert & Mun
 Sanislo, Rosanne
 Sardi, Otto
 Satoskar, Vijay
 Savage, William P.
 Schulte, David & Kim
 Serne, Dennis H.
 Shaffer, Nelson & Kathryn
 Shaver, M. Sue
 Shorb, William & Lisa
 Siekierski, Jerome
 Sieverding, Jayne L.
 Smith, Aaron D.
 Smith, Linda
 Smyers, Alice
 Snow, Phyllis
 Sonntag, Mark & Jean
 South, Robert
 Sponable, Dennis & Cecelia
 Stafford, Rodney & Marie
 Sterrett, Robert & Renate
 Stewart, Michael & Carol Copp
 StJean, Joseph Jr.
 Stratton, James
 Straw, Tom & Odessa
 Straw, William & Odessa
 Struhs, James
 Sukup, James W.
 Sullivan, Dan & Nora
 Suttner, Lee J. & Virginia
 Sutton, George & Sharon
 Szpakowski, James & Sally
 Taylor, John R. Jr.
 Taylor, Lawrence
 Thomas, Andrew & Sarah

Thompson, Glenn
 Thornburg, Jerome & Janet
 Tieman, William & Wanda
 Tilander, Nathaniel G.
 Towell, David & Lindsay
 Tudor, Daniel & Janet
 Utgaard, John & Mary
 Utgard, Russell & Doris
 Vance, Kenneth & Joyce
 VanCoutren, L.A. & Mary
 Viola, Dorothy
 Vitaliano, Charles & Dorothy
 Voss, Robert
 Waddell, Courtney
 Wahlman, Gregory & Joan
 Walker, Jerome
 Walton, Ronald
 Warner, Scott & Susan (Bell)
 Waterman, Arthur & Marcia
 Waters, Johnny & Barbara
 Way, J. Nathan & Cara Davis
 Webster, Beverly & G.G.
 Weidman, Robert & Eleanor
 Weir, Robert & Dorothy
 Wells, Herman B.
 White, Bradford S.
 White, Jeffrey

White, Richard
 Williams, Johnnie R.
 Williams, Wesley E.
 Wilson, Daniel & Joyce
 Wiltse, Milton & Flora
 Wirth, Donald W.
 Woodard, Gerald & Georgia
 Wright, William
 Yarlot, Mark
 Young, Steven & Margretta
 Zhou, Huitang

Corporations

American Colloid Co.
 Amoco Foundation Inc.
 Andarko Petroleum Co.
 Aquafine Corp.
 Ashland Inc. Foundation
 Ashland Oil Foundation
 Bechtel Group
 Chevron Corp.
 Conoco Inc.
 Consolidated Natural Gas Co.
 Dick Harris & Associates
 Don's Men's Shop/Betty Korros
 E.J. Grassmann Trust
 ECC International

Exmin Corp.
 Exxon Co., USA
 Exxon Education Foundation
 Gibson Consulting
 Harcourt General Inc.
 IU Alumni Association
 IBM Corp.
 Indiana Chapter Sigma Xi Society
 J.M. Huber Corp.
 KN Energy Foundation
 Kooter's Geology Tools
 Landmark Graphics
 Lilly Endowment Inc.
 Lockheed Martin Corp.
 Middle Mountain Designs
 Montgomery Environmental Inc.
 Oil-Dri Corp. of America
 OMYA Inc.
 Prudential Foundation
 Shell Oil Co. Foundation
 Texaco Philanthropic Foundation
 Thiele Kaolin Co.
 Union Foundation
 Union Texas Petroleum
 USX Foundation
 Vastar Resources Inc.
 Westinghouse Foundation



**IU Alumni Association
 offering free permanent
 IU e-mail addresses to
 graduates**

The Indiana University Alumni Association is now offering permanent IU e-mail addresses to new graduates, members of the Alumni Association, and all alumni of Indiana University. Students' IU e-mail expires 30 days after they graduate, but the IUAA's service lasts forever. It is the virtual equivalent to postal mail forwarding. The address after the "@" sign reads "alumni.indiana.edu." The IU Alumni Association will receive the graduate's e-mail at the graduate's permanent IU e-mail address, then forward it to them at their home, work, or wherever they have established a new e-mail account. When graduates switch jobs or e-mail service providers, and their e-mail addresses change, they can update their addresses through the IU Alumni Association Web site. Their e-mail will automatically be forwarded to them. Graduates may move from job to job or place to place, but people will always be able to reach them through their permanent IU e-mail address.

IU graduates and Alumni Association members may register for their permanent IU e-mail address by going to the IU Alumni Association Web site at www.indiana.edu/~alumni.

**INDIANA UNIVERSITY
 ALUMNI ASSOCIATION**

Stay connected to IU with your Alumni Association.



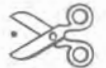
Come visit us at the DeVault Alumni Center.

New for all alumni! The **Alumni Network**, featuring an online alumni directory, career mentoring center, and free lifetime IU e-mail addresses

IU Alumni Association members receive:

- Subscriptions to INDIANA ALUMNI MAGAZINE, *The College* magazine, and *Hoosier Geologic Record*
- Special discounts on hotels, rental cars, and IU merchandise
- IU credit card, insurance, travel, and family camping programs

Join today! Call (800) 824-3044 or visit our Web site at www.alumni.indiana.edu.



What's new with you?

Please fill in as much of the following information as you wish. Its purpose, in addition to providing us with your class note, is to keep IU's alumni records accurate and up to date.

Publication carrying this insert: *Geologic Record Newsmagazine* Date _____

Name _____

Preferred name _____

Last name while at IU _____ IU Degree(s)/Yr(s) _____

Soc. Sec. # or Student ID # _____

Home address _____ Phone _____

City _____ State _____ Zip _____

Business title _____ Company/Institution _____

Company address _____ Phone _____

City _____ State _____ Zip _____

* E-mail _____ * Home page URL _____

** Please indicate clearly upper and lower case.*

Mailing address preference: Home Business

Spouse name _____ Last name while at IU _____

IU Degree(s)/Yr(s) _____

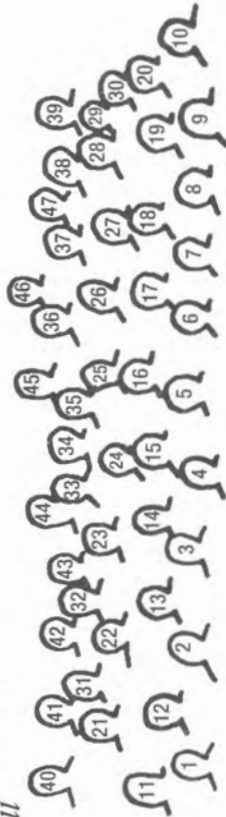
Your news: _____

Please mail to the address on the back of this magazine, or fax to (812) 855-8266.



Geological sciences seniors, graduate students, faculty, staff — October 1999

1. Nadeem Ahmad 2. Becky Travis 3. Ken Arroyo 4. Naomi Boness 5. Ralph Milliken 6. Arlene Merkel
 7. Candace Franz 8. Tricia Miles 9. Terry Stigall 10. Kim Schulte 11. Mike Zaleha 12. Dana Cannon
 13. Tom Kulp 14. Lisa Pratt 15. Erika Elswick 16. Jim Brophy 17. Ed Ripley 18. Evelyn Krull
 19. Lorie Canada 20. Erle Kauffman 21. Christian Poppeliers 22. Carrie Nolan 23. Lindsey
 Leighton 24. Jennifer Villinski 25. Simon Brassell 26. Beth Bartel 27. Abhijit Basu 28. Dave
 Towell 29. Shannon Jock 30. Al Rudman 31. Mark Buehler 32. Eung-Seok Lee 33. German
 Mora 34. Claudia Johnson 35. Bruce Douglas 36. Tim Johnson 37. Bingming Shen-Tu
 38. Michael Hamburger 39. Arndt Schimmelmann 40. Bryan Motzel 41. Shayne Wieseemann
 42. Chris Maples 43. Dan Capps 44. Lou Bucklin 45. Chris Willan 46. Matthew Campbell
 47. Warren Bigelow




INDIANA UNIVERSITY
ALUMNI ASSOCIATION



Virgil T. DeVault Alumni Center
1000 East 17th Street
Bloomington, Indiana 47408-1521

Nonprofit Organization
U.S. Postage
PAID
Indiana University
Alumni Association

 Printed in U.S.A. on recycled paper