

Outgoing chair's welcome

Ring out the old, ring in the new

During the week of Valentine's Day, our campus closed for a half-day—the first closing in a decade—because of snow, sub-zero temperatures, and an ice-storm the previous day. The ice storm left a huge part of Bloomington without power, largely because of branches and power lines that fell under the weight of wet snow and ice. The off-morning, however, was sunny with not a speck of cloud in the blue canopy. All tree branches and overhead power lines were wrapped in clear ice, making a spectacle in the brilliant sunshine. Never before in the last 30 plus years has the Department, nor the many Bloomington residents who remarked on it, ever seen so many diamonds created out of total internal reflection and the oft-repeated prismatic colors that Newton refracted onto his wall 22 feet from the prism in his window 337 years ago. More snow has fallen since then, and the brilliance has faded away.

The brilliance of our Department is in the achievements of students—in their joy in learning and in their fieldwork and lab work in various parts of the world—with or without immediate awards and rewards. Support for their learning activities and research comes in part from the College, but the lion's share comes from the interest of endowments and alumni gifts. As more and more alumni contribute and support such activities, the brilliance of our student achievements is guaranteed to stay, unlike that which depends on fickle weather.

A few illustrations are in order. Hsiu-Wen Wang, an MS/PhD student of Professor David Bish (the Haydn Murray Chair in Applied Clay Mineralogy), was awarded one of two global Bruker AXS 2006 Excellence in X-ray Diffraction Awards of \$5,000 on the strength of her competitive paper, "Dehydration/rehydration-induced structural phase transitions in natrolite." The check was handed over to Wang by Ray Matejczyk of Bruker AXS in Bloomington on December 5, 2006, in the presence of Professor David Nordloh (associate dean of faculties) and Professor Sarita Soni (vice provost for research). Katrina Neff, a senior, received a large undergraduate research grant from the Indiana Space Grant Consortium and also spent a semester at NASA's Goddard Space Flight Center as an intern. Mirela Dumitrescu, who earned her PhD earlier this year, co-authored a paper, "Biogeochemical assessment of sources of organic matter and paleoproductivity during the Early Aptian oceanic anoxic event at Shatsky Rise, ODP Leg 198" (*Organic Geochemistry*, v. 36, pp. 1002–1022), with Simon Brassell, which received the Best Paper Award of the Geochemical Society. Dariusz Strapoc, a PhD student, was chosen to deliver one of the four hot-topics lectures at a Gordon Conference. Mirela Dumitrescu and Irene Arango (who recently earned her PhD) are co-authors with Professor Arndt Schimmelmann of the lead article in *EOS* (May 23, 2006)—a remarkable achievement for any graduate student anywhere. Remus Lazar received the Best Poster Presentation Award (1st Position) from the American Association of Petroleum Geologists. In appreciation, the AAPG has sent \$1,500 to the Department.

Joyashish Thakurta is one of 13 recipients out of more than 600 qualified applicants for a \$2,000 named research award from the Geological Society of America. Amlan Banerjee was written up in *IU News* for his current research using terra rosa and altered limestone samples from the excavation for Simon Hall, the new

multidisciplinary science building south of the old Chemistry Building. Just a few years ago, Frank Pruetz, a member of our Advisory Board, worked on magnetic properties of the same terra rosa. Several of our students, some who are only in their MS years (e.g., Anne Hereford and Andee Marksamer), are publishing peer-reviewed papers. Their enthusiasm comes from the incentive of cash awards for such publications, and that cash comes from alumni gifts.

The faculty, of course, are the prime movers behind such success. Some 12 years ago when our faculty strength was reduced to fewer than 14 from a high of about 24, our national ranking dropped from about 24th in the National Research Council Survey to somewhere in the region of 75th. The endowment campaign, to which the alumni contributed supremely, resulted in our hiring

four faculty members in endowed positions. Our ranking rose to about 50th very quickly, and this year we stand at 34th in *U.S. News* ranking. The faculty strength, however, is still at a low 18, indicating that endowed positions were only refills and not additions as the former dean had promised. In 2006, our faculty received several external awards and recognitions. Jeremy Dunning received two teaching awards—the 2006 International Innovative Excellence in Teaching Learning and Technology at the recent 17th International Conference on College Teaching and Learning for G-116 Our Planet and its Future, and the 2006 Earnest Boyer Award. The Earnest Boyer Award is given to one person annually and honors the world's highly creative men and women who have contributed significantly to teaching, learning, and technology in higher education. The award

includes \$5,000, which is sponsored by McGraw Hill.

Chen Zhu received the 2006 John Hem Excellence in Science and Engineering Award from the National Ground Water Association and also served as associate editor for two first-rate journals (*Geochimica et Cosmochimica Acta* and the *Journal of Contaminant Hydrology*). Several others also hold up the banner of Indiana University in the editorial front: Jim Brophy is on the Editorial Board for the *Journal of Volcanology and Geothermal Research*; Claudia Johnson is an associate editor of *Palaios*; David Polly is the executive editor of *Palaeontologia Electronica*, editor for the Vertebrate Paleontology section of *Palaeontology*, and sits on the Editorial Board of *Systematic Biology*; Juergen Schieber is the chief editor of *Microbial Mats in Terrigenous Clastics*, to be published in 2007 in Elsevier's *Developments in Sedimentology* series; and Robert Wintsch is a guest editor for the John Rodgers Memorial Volume of the *American Journal of Science*.

The list of student and faculty achievements is unending. None of this would have been possible without the dedication of the faculty to the mission of the Department. Add to this the fact that alumni gifts have created not only endowed positions but also a system of continued research support and sponsorship of innumerable field exercises in courses, which together keep up the enthusiasm in the faculty. We thank all donors—past, present, and future.

The past academic year has not been without grief. Professor N. Gary Lane passed away on January 14, 2006. A great teacher of natural science and a person much larger than life, Gary was a



Abhijit Basu

Around the Department

Greetings from the new chair

I am honored that Bennett Bertenthal, the new dean of the College of Arts and Sciences, invited me to become the next chair of Geological Sciences. I am also honored to serve our Department in this capacity and I am excited about guiding its progress during my four-year term, which began on July 1, 2007. In announcing this appointment, the dean endorsed the expressed preference of the faculty. I want to thank my colleagues for your expression of confidence in me. I shall strive to justify this trust through my actions in tackling the critical challenges we face across the spectrum of our departmental mission.

Two aspects of our activities merit specific mention because they serve as critical barometers of the health and vitality of the Department: our numbers of undergraduate majors, and our national research ranking. During recent decades the number of geology majors has fluctuated like the price of oil, but the current national trend differs from that pattern. Consequently, we must develop new strategies for enthusing students about careers in geological sciences. A strong undergraduate program represents the best security for our future.

The initial steps toward implementation of the new University General Education curriculum have necessitated no changes in our various course offerings, but we must be alert to unprecedented and unforeseen opportunities within this initiative and plan how to evolve our teaching in ways that can broaden the appeal of geological sciences to the next generation of undergraduates. We need to broadcast the fact that geoscientists are uniquely placed to fulfill a central role in understanding critical scientific issues of societal relevance. Our modes of integrative inquiry involve complex systems that operate on varied temporal and spatial scales,

address both the past and the present, and handle incomplete data. In addition, as the roots of our science lie in learning through experience in the field—the signature pedagogy of geology—sustaining and augmenting our field programs, especially those at the Judson Mead Geological Field Station, must remain a central component of our teaching mission.

Our Department's national ranking has risen to 34th. This is largely attributable to recognition of our research accomplishments, and we need to sustain that upward momentum. This progress can be continued by further enhancement of our national and international research visibility, which is best accomplished by high-profile publications at the cutting-edge of our science. Our priority is to complement our appointments in endowed positions with additional outstanding faculty, especially individuals who build their reputations at Indiana University. It is coupled to improvements in instrumental facilities and infrastructure that can also further our capability to recruit outstanding graduate students.

One key component of this prospectus is already moving forward: The groundbreaking for the second Multidisciplinary Science Building (MSB II) will occur soon, with an optimistic schedule for occupancy in early 2009. This state-of-the-art laboratory space will house the research programs of several faculty, notably those in biogeochemistry and those involved in environmental science research that is chemically or analytically oriented. It will offer exciting opportunities for transdisciplinary research. The prospect of faculty split between buildings, albeit in close proximity, will create a scenario common among other departments, but new for Bloomington.

The critical challenge will be to ensure that our Department remains cohesive.

The immediate future involves several administrative transitions. We have a new dean of the College, Bennett Bertenthal; Michael A. McRobbie is now the 18th president of Indiana University; and Karen Hanson is the new IU provost and executive vice president. We can anticipate that our Department will continue to face challenges imposed by the fiscal strictures that confront all institutions of higher education, irrespective of the priorities set by our administration. In this regard, the value of our endowment funds is inestimable as its income supports endeavors that could not otherwise be envisaged, such as the ability to offer fellowships to graduate students that help keep us competitive.

As principal steward of these funds, I shall endeavor to use this invaluable asset to provide vital support for student and faculty research, with an emphasis on initiatives that can leverage further support from the College and funding agencies. The flexibility afforded by these resources significantly lessens the onerous financial tasks of the chair and empowers a positive attitude toward departmental planning. Thus, I shall undertake my new responsibilities with enthusiasm and optimism, knowing that our Department benefits from the combination of outstanding faculty, dedicated staff, and able students, and that it is supported by loyal and distinguished alumni.

Finally, I should like to take this opportunity to thank Abhijit Basu, who is on sabbatical leave during this academic year, for acting as a stalwart champion for the Department during his service as chair.

—Simon Brassell, Department Chair



Visit us on the Web at www.indiana.edu/~geosci. Also, visit the Judson Mead Geologic Field Station at www.indiana.edu/~iugfs and the Indiana Geological Survey at www.igs.indiana.edu.

Department welcomes Professor P. David Polly

We are pleased to welcome to our faculty Professor P. David Polly, a vertebrate palaeontologist who specializes in mammal evolution and phylogeny. David joined us in the fall of 2006. His spouse, Rebecca Spang, also has accepted a faculty position at Indiana University in the Department of History.

Most recently, David has been studying the genetics of fossilizable structures, especially mammalian teeth. Over the past decade, molecular biology has demonstrated that living species are not genetically homogenous and that genetic divisions within species may be related to what happened to the geographic range of that species through the glacial-interglacial cycles of the Quaternary.

Molecular biologists have used DNA sequence data to hypothesize the extent to which these climate cycles have influenced modern genetic and geographic diversity. In principle, the Quaternary fossil record could be used to test those hypotheses, but our understanding of how variation in fossil structures, such as teeth, relates to genetic differences is so limited that the paleontological record has been nearly useless in regard to these questions.

In collaboration with population biologists in the United Kingdom, Switzerland, and Poland, David has looked at variation in dental structure in species whose genetics have been studied at the population level, including common shrews, marmots, and yellow-necked mice. In some cases, fossil populations can be linked to what is known about modern populations,



demonstrating that some of the within-species genetic differences that exist now go back several glacial cycles. But this research has demonstrated that there are clear limits to what can be learned from the fossil record about differences in and between closely related species.

David is also part of a multidisciplinary collaboration among vertebrate paleontologists, anthropologists, and archaeologists studying the Ancient Human Occupation of Britain (AHOB). Under the direction of Chris Stringer of London's Natural History Museum, this group is revising the mammalian and archaeological records of Britain, bringing them into the context of Marine Isotope Stages. This work includes redating classic sites, investigating new finds, and reassessing archaeological

evidence for humans at the sites. Scientists from the Natural History Museum, the British Museum, the University of London, Durham University, and University of Leiden are part of the project. David is building a database for the project that combines the faunal, archaeological, isotope, and radiocarbon data. The project is funded by the Leverhulme Trust and has been running for five years now. Visit the AHOB project Web site at www.nhm.ac.uk/hosted_sites/ahob.

David came to IU from the University of London. For the nine years prior to that, he was at Queen Mary College, first in the Bart's and the Royal London School of Medicine and Dentistry and then in the School of Biological Sciences. He taught human anatomy to medical, dental, and biomedical sciences students. He was also a research associate in the Department of Palaeontology at the Natural History Museum. Before he moved to London in 1996, he was a Michigan Society Fellow at the University of Michigan in the Department of Geological Sciences and the Museum of Paleontology. He received his PhD in 1993 from the University of California–Berkeley and his BA in 1987 from the University of Texas–Austin.

Currently David serves as an editor for the journal *Palaeontology*, as co-executive editor of *Palaeontologia Electronica*—an electronic academic journal of paleontology funded by the Paleontological Society, the Palaeontological Association, and the Society of Vertebrate Paleontology; and as an editor of the mammal journal, *Acta Theriologica*. He also is a member of the Executive Committee of the Society of Vertebrate Paleontology and sits on the Executive Council of the Palaeontological Association.

Outgoing chair

(continued from page 1)

mentor to a generation of paleontologists who today represent the uppermost echelon of paleontology in North America. We are aggrieved by the very untimely death of Lou Bucklin, who had a smile on his face and a sense of humor until the last day, which he had anticipated with a courage to which humanity aspires. Patty Byrum's husband Roy died from an accident, and Patty has returned home to live with his memory.

This is my last welcoming essay as chair. The past three and half years have been very rewarding and a great learning experience. We aspired to increase our research productivity (grants, publications,

and national and international lectures), and we have. We aspired to increase our visibility in the publications arena, and we have. We aspired to increase our ranking, and we have. We, however, have not been successful in increasing the population of our undergraduate majors, a challenge that is confronting us now. I thank all in the Department of Geological Sciences, the College, the campus, and especially all alumni who have stuck with me (an alumnus of 1975) and have sustained me through thick and thin.

Please welcome Professor Simon Brassell, who took over on July 1, 2007.

—Abhijit Basu, Former Department Chair

Libraries develop institutional repository to provide free access to research

IU Libraries has developed an institutional repository that will distribute and preserve research developed at Indiana University. The repository, called IU ScholarWorks, will be used to manage and distribute digital publications created by IU students, faculty and staff. A ScholarWorks site has been set up to store Department of Geological Sciences digital publications, such as theses and dissertations, article pre-prints, meeting presentations, posters, technical reports, and data.

An institutional repository (IR) is an online collection of digital publications. All publications deposited in an IR are made available to all potential users at no charge. Publications in IRs can be searched using an Internet search engine such as Google or OAIster—a free index to IRs developed at the University of Michigan. Placing publications in an IR increases the visibility of research (which means that it is used more) and provides a stable, permanent URL (a URL that doesn't change over time), so that users can always find a publication.

The collection of publications from the Department of Geological Sciences community in ScholarWorks is expected to grow. Some students and faculty have submitted copies of posters and presentations that they gave at recent meetings. These types of publications are particularly useful, because often the only record is a brief abstract submitted several months before the meeting.

IU Department of Geosciences graduates who have digital copies of their honors or master's theses and PhD dissertations are invited to submit copies to the repository. Print theses and dissertations can also be submitted if the authors give permission to scan them for inclusion in ScholarWorks. If you are interested in submitting your digital file or having your print thesis or dissertation included in ScholarWorks, please contact Linda Zellmer (lzellmer@indiana.edu) for more information.

—Linda Zellmer, Head, Geology Library

Department of Geological Sciences Faculty and Staff

Faculty and Research Scientists: Abhijit Basu, David Bish, Simon Brassell, James Brophy, Denis Cohen, Bruce Douglas, Jeremy Dunning, Erika Elswick, Michael Hamburger, Claudia Johnson, Kaj Johnson, Chusi Li, Craig Moore, Gregory Olyphant, Gary Pavlis, Mark Person, P. David Polly, Lisa Pratt, Edward Ripley, Bradley Ritts, Peter Sauer, Juergen Schieber, Arndt Schimmelmann, Christine Shriner, Robert Wintsch, and Chen Zhu

Adjunct and Other Faculty: David Dilcher, Henk Haitjema (SPEA), John Hays, Brian Keith (Survey), Zoran Kilibarda, Sally Letsinger (Survey), Maria Mastalerz (Survey), Peter Ortoleva (Chemistry), Michael Prentice (Survey), Carl Rexroad (Survey), John Steinmetz (Survey), and Jeffrey White (SPEA)

Visiting Scientists and Postdoctoral Fellows: Julien Charreau, Junichi Fukuda, Mihaela Glamoclija, Kai Hu, Wen-Jeng Huang, Jeong Hwang, David Krinsley, Richard Lahann, John Southard, Anna Szykiewicz, Changbing Yang, and Zuoping Zheng

Emeriti Faculty: Robert Blakely, J. Robert Dodd, John Droste, Donald Hattin, Norman Hester, Erle Kauffman, Noel Krothe, Judson Mead, Enrique Merino, Haydn H. Murray, Albert Rudman, and Lee J. Suttner

Staff: Ken DeHart, computer systems manager; Ruth Droppo, graphic design/administrative support; Rashul Gardner, grant monitor/administrative support; Donna Hackney, administrative assistant/fiscal officer; Cindy Hale, administrative support, Geological Field Station; Mary Iverson, student records; Tricia P. Miles, grant monitor/administrative support; DeAnn Reinhart, administrative support; John Bogeman, administrative support; Terry Stigall, geophysics electronics technician; Steve Studley, manager, mass spectrometry lab; and Andy Ruff, Geological Sciences/BSES undergraduate advisor

Library: Linda Zellmer (librarian) and Linda Stewart (circulation/reserves)

Holiday party 2006

More than 80 people attended the very successful 2006 holiday party. The party was held at The Fields in Bloomington, and the faculty created an incredible atmosphere. The main entertainment for the night consisted of undergraduate and graduate skits and the presentation of the Screwball Award. The undergraduates put on a "Project Runway" show in which students impersonated Department professors. The hit of the show was Brooks Proctor's impersonation of Professor Bish, which required no explanation. The graduate students' spoof on *The Wizard of Oz* involved four scientists who had to get to the Beryl City to find the great and powerful Basu in order to obtain their research goals. Professor Wintsch barely edged out Professor Bish for the high honor of the Screwball Award. The night ended with outstanding karaoke from the students and faculty. The SGE committee that organized the holiday party did an excellent job and raised the bar for future holiday parties. Many of those in attendance said it was the best holiday party they'd seen in many years.



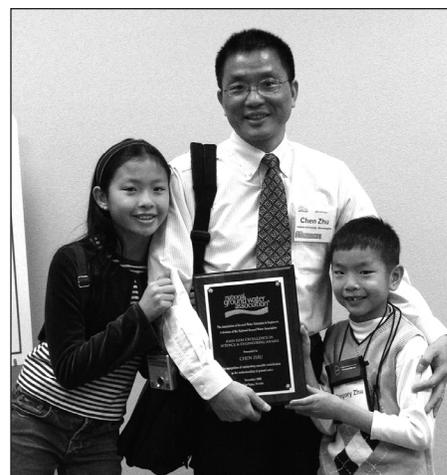
Terry Stigall celebrates 25 years

Chen Zhu receives 2006 AGWSE Award

Chen Zhu is the 2006 recipient of the AGWSE John Hem Excellence in Science and Engineering Award from the National Ground Water Association. Zhu was recognized for his significant advances in modeling the chemical evolution of water.

Zhu is an associate professor of Geological Sciences and an adjunct associate professor in the School of Public and Environmental Affairs. He holds a PhD from Johns Hopkins University and completed a postdoctoral fellowship from the

Woods Hole Oceanographic Institution. Zhu has received the H.V. Ellsworth Prize in Mineralogy from the University of Toronto, a Senior Associateship Award from the National Research Council/National Academy of Sciences, and a Guest Professorship from the Swiss Federal Institute of Technology (ETH). He was elected a Fellow of the Geological Society of America in 2005. In recognition of his interest and achievement in teaching, he became a Lilly Freshmen Learning Project Fellow at Indiana University in 2006.



Zhu has served on proposal review panels for the National Science Foundation, the U.S. Environmental Protection Agency, and the U.S. Department of Energy. He is currently an associate editor for *Geochimica et Cosmochimica Acta*, and he was on the editorial board for *Ground Water* and the *Journal of Contaminant Hydrology*. Zhu is a member of the American Geophysical Union, the Geological Society of America, and NGWA.

The award presentation took place at the AGWSE General Membership meeting in December 2006 at the NGWA Ground Water Expo in Las Vegas.

David Bish participates in 2006 Arctic Mars Analogue Svalbard Expedition (AMASE)

For two weeks during August 2006, David Bish traveled to the Norwegian Arctic and conducted field work in the fjords of Svalbard, just below 80° North. His trip was part of the 2006 Arctic Mars Analogue Svalbard Expedition (AMASE), a series of expeditions with three main goals: (1) to test portable instruments in the field for life detection, (2) to assess Mars analogue environments for signs of life, and (3) to refine protocols for contamination reduction and to understand the effects of transport on sample integrity by assessing bioloads in the field and then in the laboratory after transportation. AMASE deployed in 2006 at Longyearbyen, Spitsbergen, and traveled by ship to the Billefjord (Ebbadalen) and Bockfjord/Sverrefjell areas, where field and laboratory instruments and a rover were deployed for 10 days.

David's role on this expedition was to field-test the CheMin, a miniaturized X-ray diffraction/X-ray fluorescence instrument that has been designed for planetary exploration. CheMin is on the upcoming Mars Science Laboratory mission to Mars. Unlike conventional laboratory diffraction and fluorescence instruments, which are as large as perhaps two upright refrigerators, CheMin can be carried by two individuals.

On one occasion, CheMin analyzed samples halfway up the Sverrefjell volcano, the onboard Li hydride batteries providing



Professor David Bish with the CheMin instrument

more than 6 hours of continuous operation. The instrument was carried by hand back to the waiting Zodiac boats for transport to the RV *Lansce*. Measurements on Sverrefjell volcano constituted the first *in situ* sample collection, diffraction measurement, and complete data analysis performed in the field.

Lectures and Presentations

2006–2007 Colloquium series and presentations

Fall 2006

September 11

Juergen Schieber, Indiana University:
“The Key Roles of Mudstones for
Unlocking Geological History and
Understanding the Hydrocarbon System”

September 25

Scott Ishman, Southern Illinois
University: “Yo-yos or Slinkies: Late
Cenozoic Evolution of Northern Chile”

October 2

Lisa Tauxe, Scripps Institution of
Oceanography in San Diego: “Hunting
the Geomagnetic Field”

October 16

Jeremy Fein, University of Notre
Dame: “Thermodynamics of Metal
Adsorption onto Bacteria: Geochemical
Implications”

October 18

Rebecca Latimer, Chevron (AAPG
Distinguished Lecturer): “Uses,
Abuses, and Examples of Seismic-Derived
Acoustic Impedance Data: What Does the
Interpreter Need to Know?”

October 30

Jim Brophy, Indiana University:
“Is Fractional Crystallization an Elegant
but Obsolete Notion? On-going Studies
into the Fractionation Question”

November 1

Brown Bag Lecture by Jeannette
Forsén, classical archaeologist:
“Archaeological and Geological Methods:
A Case Study from the Greek Early Bronze
Age”

Introductory notes by Jim Brophy,
Indiana University

November 1

Special Lecture by Jeannette Forsén
(classical archaeologist) and Björn Forsén
(ancient historian): “Recent Developments
and Challenges in Greek Landscape
Archaeology: Reflections on Two Projects
in Arcadia and Thesprotia”

Welcome by John Steinmetz, director of
the Indiana Geological Survey

Introduction of speakers by Nicholas
Toth, co-director of the Stone Age
Institute

November 6

Lisa Pratt, Indiana University:
“Radiolysis of Water: A Potential Source of
Bioavailable Chemical Energy in the Deep
Subsurface of Earth and Mars”

November 9

Owen Award Lecture by Steve Wells,
Research Institute: “Evolution of Desert
(Stone) Pavements: Interactions of Surface
and Soil Processes”

November 20

Martin Appold, University of
Missouri–Columbia: “Flow and
Geochemistry of Mississippi Valley-type
Ore-forming Brines in the Western Arkoma
Basin and Ozark Plateau”

November 27

Erick Roden, University of Wisconsin:
“Anaerobic Redox Cycling of Iron in
Sediments”

Spring 2007

January 22

Brian Darby, Louisiana State
University: “Temporal Variation in
Cenozoic Structural Style along the
Northern Margin of the Tibetan Plateau”

January 29

AAPG Distinguished Lecturer
Michael Hudec, The University of
Texas–Austin: “Evolution of Suprasalt
Minibasins in the Deepwater Gulf of
Mexico”

February 5

James Coleman, USGS: “Oil and Gas
Resources Underlying the U.S. Portions of
the Great Lakes”

February 12

Kathy Nagy, University of Illinois at
Chicago: “Reflected X-rays Reveal a New
View of How Cations and Natural Organics
Sorb on Mica”

February 19

Tudor Lecture by G. Randy Keller,
University of Oklahoma: “Continental
Rifts: Integrated Geophysical Studies and
Tectonic Implications”

February 26

Sally Letsinger, Indiana Geological
Survey: “Integrating GIS, Spatial Analysis,
and Hydrologic Modeling”

March 5

Darryl Granger, Purdue University:
“Steady-state Landscapes and the Timescale
of Erosion Response”

March 19

Brandon Dugan, Rice University:
“Gulf of Mexico Hydrogeology: Insights
from IODP Expedition 308”

March 20

Brown Bag Lecture by Dave
Wiltschko, Texas A & M University:
“Regional Tectonics vs. Local Mechanics:
Assessing the Mechanical and Kinematic
Significance of Syntectonic Veins”

March 26

Joan Bernhard, Woods Hole
Oceanographic Institution: “Life in
Laminated Sediments: Metazoans and
Protists Living in Steep Redox Boundaries
and their Possible Effects on Pore-Water
Processes and the Geologic Record”

April 9

Mihaela Glamoclija, Indiana
University: “Life Signatures in
Hydrothermal Environments: Terrestrial
Analogues for Martian Habitats”

April 16

AAPG Distinguished Lecturer
Stephen Creaney, ExxonMobil
Exploration Company: “Global
Petroleum Evaluation—The Role of
Integrated Regional Analysis”

April 23

Richard Lahann, Indiana University:
“Hydrocarbon Seal Capacity and Trap
Risking (Based on a North Sea Case
Study)”

Learn about lectures in advance via e-mail!

Would you like to learn about colloquia and other lectures before they happen? Perhaps you live in or near Bloomington and would like to attend our lectures on occasion. Send your e-mail address to tpmiles@indiana.edu, and tell us that you would like to be put on our “This Week in Geological Sciences” mailing list.

Geologic Field Station Update

News from the Geologic Field Station

Enrollments in G429 and G329 remained stable for the 2006 program at 39 and 16 respectively. In 2007, G429 enrolled 49 students, and G111–112 enrolled 12 students. G329 was not offered in 2007.

Two groups of high school students from the Atlanta area each spent three days at the Station last summer prior to the arrival of the college students. One of these groups returned this summer for a five-day stay.

In August 2006, the Field Station hosted a forum titled “Does need exist for a National Center for Geoscience Education in the Field? If so, how do we get there?” More than 50 people participated, with the largest representation (~75 percent) coming from academia, particularly academics actively engaged in teaching geoscience in the field at off-campus sites.

The first morning of the forum, led by Lee Suttner, was devoted to keynote presentations by distinguished geoscientists in industry, the government, and academia, each of whom focused on the challenges and opportunities of offering an expanded curriculum of field courses at a central location or locations. Afternoon breakout

sessions were organized around the general themes of (1) K-12 curriculum needs for both teachers and students, (2) mechanisms for multi-university collaboration in the design, execution, and sharing of resources related to the undergraduate curriculum, (3) the creation of an innovative program of geoscience courses for graduate students, postgraduates, and the general adult public, and (4) the mechanics of implementing the concept of a “National Center.”

Significant support and enthusiasm existed among the attendees for the creation of some sort of national structure or umbrella organization that could provide a variety of services for optimizing teaching geoscience in the field. And all agreed that the need to teach geoscience in the field to a greater spectrum of students and adults is exceedingly great. However, a great difference of opinion existed over the exact nature of the best model for achieving these goals. A consensus was reached that a first step might be the creation of some sort of prototype partnership or alliance among four to five institutions, each of which might bring unique strengths to the alliance, which would be led by a flagship institution that

would be responsible for its administration.

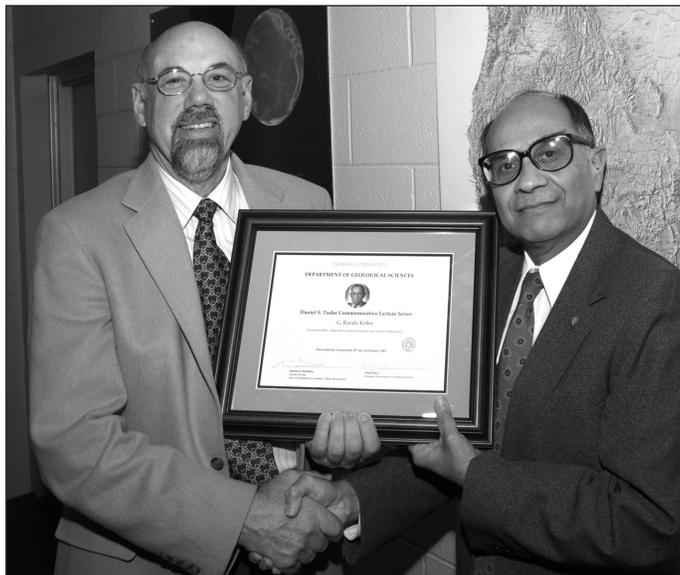
A follow-up meeting of about 65 field course directors and about 10 representatives from industry and the government was held in Philadelphia in conjunction with the annual meeting of the Geological Society of America in October. This meeting focused more on the common, significant problems associated with teaching geoscience in the field, including such issues as cost, liability, access, and diminishing enrollments. A formal theme session, for which Lee Suttner is a co-convenor, for continuing to explore all of the avenues for enhanced study of geoscience in the field is on the program for this fall’s annual GSA meeting in Denver.

Meanwhile, the Department is continuing to solicit external support from industry professionals, alumni, and friends of the Field Station. We are also actively exploring ways to expand the curriculum at the Field Station. These efforts have been catalyzed by the University’s strong show of support for the Montana campus. Over \$115,000 has been provided to upgrade the lodge and make other facility improvements, all of which was completed before this summer’s program.

Tudor Distinguished Lecturers: Hill and Keller



Abhijit Basu with the 2005 Tudor Distinguished Lecturer, Professor N. Ross Hill



Abhijit Basu with the 2007 Tudor Distinguished Lecturer, Professor G. Randy Keller

Hoosier Geologic Record Nostalgia

What was happening in the Department 10, 25, and 51 years ago? We looked in the archives of the *Hoosier Geologic Record* and its predecessor newsletter to find out.

10 years ago: 1997

- John Hayes ended his two-year term as chair and accepted a position at the Woods Hole Oceanographic Institution.
- Claudia Johnson and Erle Kauffman joined the faculty.
- Jim Brophy assumed directorship of the IU Geological Field Station.
- Dave Towell was editor of the *Hoosier Geologic Record*.
- The Department of Geological Sciences Advisory Board launched a fund-raising campaign called “Geological Sciences at the Forefront: \$5 Million in 5 Years.” At the time of the announcement they had already passed 20 percent of their goal.
- The *Hoosier Geologic Record* indicated that in the last five years there had been a 400 percent increase in the number of individual donations to the Department and that the Department led the 38 departments in the College of Arts and Sciences in the percentage of annual individual contributions.
- The Richard Owen Award was given to Michael C. Mound.



Times have changed

An excerpt from the 1956 Department newsletter

Do you remember when you had to write letters to oil companies, have your friends write letters for you, hit the road and visit the offices of oil companies, and use various other devices in order to find a job after you graduated? Well, times are different now-a-day. The demand for geologists, paleontologists, geophysicists, and other sub-species of geologist continues to exceed the supply. Oil companies have not yet started giving Cadillacs as a reward for signing a contract to work for them, but they are paying salaries to some of the boys that will soon enable them to own Cadillacs. Up-to-date representatives of fourteen companies have visited the department and about every student that resembles a geologist has had some sort of offer.

Following this article was a list of 24 graduates and the jobs they had taken. Twenty of them were with oil companies.

25 years ago: 1982

- Bob Dodd was acting chair during a sabbatical leave by Haydn Murray.
- The following awards were given to students at the annual awards ceremony:
Faculty Senior Award: Elizabeth Blair and Mark Nearing
Junior Award: John Hidore
NASA Lunar and Planetary Institute Summer Internship: Kathleen Kordesh
USGS-NAGT Cooperative Summer Traineeship: Margaret Wang
Charles F. Deiss Award: Sean Rooney
Outstanding AI: Chris Maples and Martin Yates
Estwing Award: Chris Maples
Cummings Award: Peggy Visser
- The 1982 edition of the *Hoosier Geologic Record* included an 18-page alumni directory.

51 years ago: 1956

- Bill Thornbury continued as the editor of the 1956 newsletter. This edition included a group photo of the 16 “Graduate and Research Assistants and Fellows,” and a photo of faculty and alumni attending the GSA meetings in New Orleans. That year the faculty total was 12 and included emeritus professors Haydn Murray and Jud Mead.
- The recipient of the 1956 Faculty Scholarship (Brunton) Award was Bob Dodd. He confesses to not having used the compass for several years.

Sigma Gamma Epsilon

An excerpt from the 1956 Department newsletter

Chapter officers this year are: Ken Riggs, president; Neil Schemerhorn, vice-president; Gary Gates, secretary-treasurer; Larry Rooney, corresponding secretary. During the fall semester the following new members were initiated: Pei-Yuan Chen, William Elberty, Ferol Fish, Leonard Katanich, Dennis Harris, Dee Rarick, Ernesto Sirvas, John Smith, George Wagner, Richard White, Dan Wright, and Teruo Yamamoto ... The initiation was held in a cave and was followed by a banquet in Owen Hall.

Owen Hall

The 1956 Department newsletter concluded with this poem.

When you're up to your ears in
heathen beers
Or your neck in the deep bayou
When you radiate in the Lone
Star State
Remember old I.U.

When you're far away where the pine
trees sway
Or you stare at the tropic moon
When you start to sneeze in an arctic
breeze
Recall the Commons at noon.

When it's hot and dry 'neath the
desert sky
Or you're tossed in a heavy sea
Past the jungle rain and grassy plain
Think of coffee at half-past three.

When you're old at last and the field
is past
And you rest and dream of it all
Though your mind be laden with an
island maiden
Remember Owen Hall.

—Chuck Reynolds

A brief history of course G575

Geology of *Tropical Marine Environments*, which has been taught a total of 16 times in the Florida Keys and the Bahamas, had its origin in a 1964 request to Don Hattin by then-doctoral student Don L. Kissling (PhD'67), who wished to complete his biology minor by conducting a study of living corals. His request was granted, and, in company of Jerry Lineback (PhD'64), Don Kissling headed to the Florida Keys. Equipped with a tent, a small boat (the "Hunky Dory"), a small outboard motor, and an apparatus for measuring environmental parameters, Don Kissling and Jerry set up camp at the Big Pine Key Fishing Lodge and proceeded to explore the adjacent coral-rich habitats. Selecting a several-meters-square area of coral-encrusted rock, Don Kissling made observations and gathered data that were the basis for a paper published in the *Bulletin of Marine Science* (Kissling, 1965). In order to monitor progress on this research, Don Hattin traveled to the Keys, and after one underwater look at the impressive modern carbonate environments, he decided at once to develop and teach a course in the reef tract.

During the 1964–1965 academic year, Hattin offered a seminar on tropical marine environments, and the student participants (Kissling, Jim Howard, Bob Nicol, and Larry Balthaser) worked on assembling equipment for a G420 (then known as Regional Stratigraphy Field Trip) expedition to the Keys. The intent was to map a large-patch reef and associated sediments situated off the Newfound Harbor Keys, and on the first "field" day, using a dilapidated rented boat, we set up a plane table and alidade at the reef center. Initially, good progress was made. We mapped the size, shape, position and identity of numerous large coral heads and collected many samples of adjacent sediment. On the second day, a higher tide and higher wind sent waves across the plane table, necessitating change to a secondary project!

Spring break trips to the Keys were repeated in 1966 (accompanied by John Droste), 1967 (Hattin and Dodd), and 1968, by which time Bob and Don had finalized plans for a five-week summer course titled *Geology of Shallow Marine Environments* (G575).

During the summer of 1968, a class of eight students headed to the Keys in two carryalls to inaugurate the new course. Our first encampment was at the venerable Briny Breeze Motel on Key Largo, from which we explored such spectacular sites of carbonate sedimentation as Rodriguez Key, White Bank, and Molasses Reef, the last five miles offshore at the seaward edge of the Florida Platform. An additional day included a circuit through the "lakes" and mud banks of Florida Bay. These two days acquainted students with the Portuguese Man 'O War, barracudas, phinques (current scours filled with soupy mud), sea-grass meadows, and loggerhead sponge gardens.

Our main base was Big Pine Key Fishing Lodge, where we rented all six motel units. We rented three boats at Vaca Key, some 15 miles to the east. While piloting these boats to Big Pine, we were hit by a ferocious squall, which drove rain almost horizontally and would have filled our boats save for constant bailing! From Big Pine Key, our group studied near-shore patch reefs, a far offshore barrier reef, rocky shorelines, sand beaches, lagoons, sand bars, mud banks, marine meadows, and sand flats, conducting both individual and team-mapping projects. An extensive array of field and laboratory equipment, as well as an extensive library of reprints, was at hand for all to use. A couple evenings a week were devoted to seminars, but most evenings were devoted to analysis of data, mapmaking, and report writing. This general format was followed in subsequent years including 1969 (Dodd and Siemers), 1970 and 1971 (Dodd



Geology students in the Big Pine Key, 1965

and Hattin), 1972 (Hattin and Siemers), and 1973 (Siemers and Kues). Altogether, some 48 students participated in this five-week, five-credit field course, and several papers were published as a result of research by students or faculty members.

During these years the group experienced several mishaps, including a severe stings by a bristle worm and a Portuguese Man 'O War, a case of poisonwood contact, and two shark bites. From 1974 through 1980, waning interest in the Keys and other commitments for Bob and Don resulted in temporary suspension of G575 offerings.

Early in 1975, Haydn Murray suggested to Don Hattin that the Fairleigh Dickinson marine laboratory on the Caribbean island of St. Croix looked promising as an alternative to the Florida Keys as a base for teaching G575. In February of that year, Don and Marge flew to St. Croix, where they were hosted for a week by Lee C. Gerhard, director of the Fairleigh Dickinson operation. Despite excellent facilities and a plethora of carbonate-producing environments, the total cost of getting to the island and utilizing the facilities would have been more than double the costs for the Florida-based course, so the plan was dropped from consideration.

Early in 1981, a friend apprised Hattin of a teaching facility on San Salvador Island, Bahamas, and a few days later Don was contacted by Don Kissling, who had taken students to that base. Kissling was able to give a detailed account of its suitability for offering a course on geology of carbonate-producing environments. Kissling informed Don Gerace, director of the Bahamian field station, of Hattin's interest, and Gerace telephoned to make arrangements for an on-site visit. In February 1981, Don and Marge Hattin drove to Ft. Lauderdale, met Don Gerace at the airport, and boarded a WWII DC-3 aircraft ("Gooney Bird") for the charter flight to San Salvador Island. For an entire week, Don Gerace and his wife, Cathy, escorted the Hattins on field trips to all major geologic and marine sites on the island, including quarries, sinkholes, blue holes, sand dunes, fossil reefs, and a stunning variety of modern carbonate-producing environments—fringing, patch and bank reefs; sand flats, sea-grass meadows, hypersaline lakes, lagoons, etc. The cost of offering a course there would be unbelievably reasonable—less than \$600 for 15 days, which included charter air fare from Ft. Lauderdale, food, lodging, and transportation while on the island. Before leaving the island, Hattin assured Professor Gerace that IU would be represented during the summer of 1981.

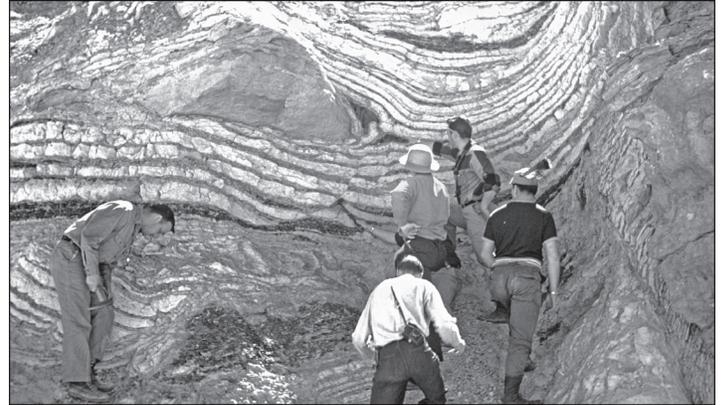
...to be continued.

—Donald E. Hattin

Images from the past



1957: Don Wirth, sitting on an Indiana Geological Survey vehicle in northern Kentucky, adjacent to an ancient sycamore tree with a 27-foot girth.



1959: G420 class members examining Pennsylvanian strata that collapsed into a cave in L. Ordovician Cotter Dolomite, Rolla, Mo. Left to right: Jack Conley, Ron Beyers, Mike Mound (with pith helmet), unidentified.



Spring 1955: Exposure of Grenville Gneiss studied during field trip to upstate New York one week before finals. Left to right, standing: Charlie Lindenschmitt, Phyllis Renzetti, Al Horowitz, Bob Kirby, Buddy Rae, Jim Mahorney; sitting: unidentified, Malcomb Boyce, Jake Baker, unidentified.



1959: G420 class members in quarry in Kimmswick Limestone (M. Ord.) south of St. Louis, Mo. Left to right, standing: Michael Mound, Ron Beyers, John Utgaard; kneeling: John Heckard, Tom Straw, Ben Richard.



1955: Historical Geology class on exposure of St. Louis Limestone on U.S. 50 at the southern edge of Bedford, Indiana.



1959: G420 class at Dierks, Ark. In background: Tilted Jackfork strata (Miss.) overlain by Lower Cretaceous Trinity Fm. Left to right: Gordon Pirie, Bob Buehrig, Tom Straw, John Heckard, Roger Cuffey, Don Hattin, Jack Conley, John Utgaard, Ron Beyers, Mike Mound, Dave Phail, Ben Richard.

All images courtesy of Don Hattin

Indiana Geological Survey Update

Transitions

Ned K. Bleuer, glacial geologist and associate scientist at the Indiana Geological Survey (IGS), retired from his position in January 2006. Ned began working in the Geology Section at the IGS in 1968. While with the Survey, Ned authored more than 90 publications ranging from glacial geology to earthquake liquefaction to seismic risk. In the 1970s, Ned recognized the need to have reproducible down-hole data to understand, delineate, and map the glacial sequences in Indiana. To accomplish this, he initiated the IGS gamma-logging program. By working with water-well drillers throughout the state, Ned and others have obtained geophysical logs and samples of unconsolidated materials at more than 4,000 sites. This information has been used in many projects and the format of the program has been emulated by other geological surveys in the Midwest. Ned and other staff members involved in the IGS glacial program conceived of and designed the iLITH database in the late 1990s. The database contains standardized lithologic information from more than 100,000 water-well drillers' logs on file at the Indiana Department of Natural Resources, Division of Water. The standardization of the lithologic information makes it possible to map the distribution of unconsolidated materials in the subsurface throughout Indiana. Ned now lives in New Mexico.

Erik P. Kvale, sedimentologist and research scientist, compiled quite a list of accomplishments during his 17 years with the IGS. Working with Al Archer, a past staff member of the IGS, Erik discovered that small-scale sedimentary structures—tidal rhythmites—preserve a hierarchy of astronomically induced tidal cycles (such as phase changes of the moon). So precise are some of these deposits that the ancient tidal record can be used to calculate Earth-Moon distances. They also showed that these deposits are associated with low-sulfur coal in Indiana and are indicative of large tidal ranges. Their research resulted in global and multidisciplinary interest in these features. In 1997, Erik discovered a rare middle Jurassic dinosaur tracksite while hiking with relatives near Shell, Wyoming. This site has been developed by the Bureau of Land Management into the Red Gulch Dinosaur Tracksite. It consists of hundreds to thousands of tridactyl (three-toed) theropod (meat-eating dinosaur) prints and trackways

covering 40 acres of northern Wyoming. Erik resigned from the IGS to take a position as senior geological advisor with Devon Energy, the largest independent oil and gas producer in the United States. Erik now resides in Oklahoma City.

Steven E. Brown, glacial geologist and research scientist at the IGS, has moved on to the Illinois State Geological Survey as the head of their Quaternary Geology Section. Steve began working at the IGS in 1990 after receiving his MS from the University of Wisconsin–Madison, and he was the sole staff member at the IGS northwest Indiana field office in Indiana University Northwest at Gary. During his tenure here, Steve prepared a number of geologic maps relating to the glacial terrain of central and northern Indiana. He was involved in the IGS gamma-logging program and in the conception and design of the iLITH database. Steve was a project investigator in the STATEMAP geologic mapping program in Indiana, and was also the IGS project director for the federally funded Central Great Lakes Geologic Mapping Coalition, which includes the state geological surveys of Illinois, Indiana, Michigan, and Ohio, and the U.S. Geological Survey.



Steven Brown

Charlotte Smith, longtime financial manager of the IGS and the assistant director for business, resigned to accept the position of director of finance and administration at IUPUI Columbus. Charlotte came to the IGS in 1990. During her time here, she completed an IU bachelor's degree in general studies with a certificate from the School of Public and Environmental Affairs (SPEA) in public administration.

Glenda Bitner replaced Charlotte as the new assistant director for business. She comes to us with seven years of financial management experience in the Contract and Grant Office for IU Financial Management Services.

Jeff Kirby resigned to accept a position with a health/medical firm in Warsaw, Ind. Jeff had been with the IGS for 16 years, first in the capacity of education coordinator, and eventually taking on the duties of webmaster. He was then head of Information Services, where he managed both the Web site and coordinated the outreach education efforts of the IGS.

Nathan Eaton, who was previously employed at the IGS from 1997 to 2002 as geographic information systems and database analyst, has returned in the capacity of section head of the Information Services Section, where he replaces Jeff Kirby. He has spent the last four years at University Information Technology Services (UITS) at IU as a senior GIS and database support specialist and has more than 10 years of experience with geographic information systems.



Nathan Eaton



Michael Prentice

Michael Prentice joined the IGS Environmental Geology Section in October 2006 as a research glacial geologist. Mike was a research associate professor with the University of New Hampshire Marine Program and a research climatologist jointly appointed to Plymouth State University's Center for the Environment and Meteorology Program. Mike has been involved in collaborative studies in the tropics, Antarctica, and the Arctic. At the IGS, he applies his expertise in continental glaciation to the mapping of landforms and underlying sediment packages in the Midwest. He received his BA in geological sciences with an Engineering Certificate from Princeton University, his MS in geological sciences from the University of Maine, and his PhD in Geological Sciences from Brown University.

Jay Arnold, Head driller in the Field Services Section, left employment with the IGS after 17 years of service.

Drew Packman was hired as the new laboratory and field assistant in the Physical Facilities and Field Services Section. Drew had previously worked part-time for the IGS searching for cave habitats of the endangered Indiana bat.

Amanda Wilson left her position as the director's administrative secretary to move to another department at IU. She had been an employee of the IGS for seven years, and she also served as licensing coordinator to the Indiana Board of Licensure for Professional Geologists.

Terry Blevins was hired as the new administrative secretary for John Steinmetz,

IGS director, replacing Amanda Wilson. She comes to us from the IU Department of Kinesiology where she was the administrative assistant to the chair.

Wil Solano-Acosta has been an IGS employee since 2001, working as reservoir geologist in multiple projects involving CO₂ sequestration in geological formations (including deep saline aquifers, carbonates, shales, and coal). He came to us with a MS in Geology from Indiana State University and previous working experience with oil companies in Colombia, South America. Wil is also a PhD candidate at the Department of Geological Sciences. His main research involves the



Terry Blevins

controls on coal-bed methane potential and CO₂ sorption characteristics of high-volatile bituminous coals. He will be leaving the IGS to work as a reservoir quality analyst for Chevron Energy Technology Company



Will Solano-Acosta

after completion of his dissertation work.

Carolyn Estelle came to the IGS from her job teaching earth science at Mooresville High School. She has a BS in geology from the New Mexico Institute of Mining and Technology, and an MS in secondary education from the IU School of Education.

She is working for Walt Hasenmueller, IGS geologist in the Coal and Industrial Minerals Section, as geological assistant/database manager on the Monroe County mapping project funded by the USGS's STATEMAP program.



Carolyn Estelle

Yao-Fa Jiang from Xuzhou Institute of Architectural Technology, China University of Mining and Technology, has ended his stay at the IGS as a visiting scientist. Jiang had been at the IGS since January 2006 and worked with Maria Mastalerz on coal-related issues.

Virginia Haddan, who previously worked at the IGS in several capacities, was hired as the Environmental Section secretary.

Karen Like, formerly employed as a cartographic technician at the IGS, was hired part-time as a metadata specialist for the Information Technology Section.

Alex Zlotin has rejoined the Center for Geospatial Data Analysis on a part-time basis to collaborate on updating the GIS Atlas for Indiana, which is hosted on the IGS Web site.

Dawn Beeker recently returned to the IGS after a five-year adventure in Alaska working at the Anchorage Literacy Project. She is scanning out-of-print IGS publications so they will be available digitally. Dawn previously worked at the IGS as the Technology Transfer/Photography Section secretary.



Dawn Beeker



Sally Letsinger

Sally Letsinger was promoted to director of the Center for Geospatial Data Analysis.

Associate Professor of Geological Sciences **Chen Zhu** was named a research affiliate of the IGS.

Students at work

The IGS has a long history of hiring IU Bloomington undergraduate and graduate students. The experience they gain on the job complements in-class instruction and adds an attractive component to resumes. The IGS, in turn, benefits from their enthusiasm and hard work.

Coal and Industrial Minerals Section

Grzegorz Lis, a graduate student in the IU Department of Geological Sciences and employee of the IGS since 2001, defended his doctoral dissertation and has accepted a postdoctoral position at the University of Saskatchewan in Canada. The title of Lis's dissertation was "Effects of thermal maturation on organic D/H ratios and hydrogen isotopic exchangeability in kerogen type-H." IGS coal geologist Maria Mastalerz served as a co-chair of his committee with Arndt Schimmelmann.

Dariusz Strapoc, a PhD student in the Department of Geological Sciences, is working for Maria Mastalerz on coal and coal-bed gas projects. Maria also is serving as co-chair of his committee. **Kristin Smith**, from IU Fine Arts, and **Alicia Rosales**, who recently received her BS in geology from IU, are working for Todd Thompson doing grain-size analyses for the USGS Global Climate Change Program.

The Center for Geospatial Data Analysis (CGDA)

Dave Grunat, an undergraduate student in the IU SPEA Environmental Science program worked providing hydrologic field assistance and data-analysis support as an hourly research assistant in early 2006. **Jeff Olyphant** is a senior SPEA Environmental Sciences major who has worked for the CGDA for five years. He is an expert in hydrogeological field methods, particularly those involving detailed study of water movement from the surface, through the unsaturated zone, into the water table.

Matt Reeder is a PhD student in the IU Department of Geological Sciences program and is a research assistant. He provides hydrologic field assistance, data analysis, and hydrochemical modeling support to the CGDA. **Cristian Medina** is a MS student in the Department of Geological Sciences program. For two years, he has worked on three-dimensional geologic model development and visualization for a project to model the hydrogeology of Berrien County, Mich. **Anne Hereford** is finishing her master's degree in the Department of Geological Sciences and supports several CGDA research projects through data analysis, spatial analysis, and GIS processing.

Tyler Putt, a graduate student at IUPUI in environmental sciences, is an hourly GIS assistant on the GIS Atlas Project, funded by the Indiana Department of Transportation. **Christina Ebey** completed work as the project geologist on the IDEM-funded project to prepare source-

water assessments for small public-water supplies (e.g., schools and churches) that obtain their water from ground-water sources. Christina has started a new career,



Christina Ebey

teaching earth/space science at Mooresville High School. **Ted Derheimer**, an intern with the CDGA, graduated from the SPEA Environmental Science program with a BS degree in May 2006. Ted presented the research he conducted on the hydrologic impacts of the recent cicada emergence as observed in the IU Griffy Woods Research and Teaching Preserve in Bloomington at the SPEA BS/ES Research Seminar in April. Ted's advisor on this project was Greg Olyphant.

Environmental Geology Section

Joe Stubenrauch, a doctoral student in British history, has been working for Jennifer Olejnik, digitizing gamma-logs for a project funded by the Central Great Lakes Geologic Mapping Coalition. **Alice Enochs** worked as a gamma-logger during the summer 2006 field season. **Tyler Putt** is working for Mike Prentice on an NSF grant concerning Antarctic ice sheet history. He is rectifying aerial photos to LIDAR data and building photo mosaics to serve as a primary basis for surficial geologic mapping.

Geochemistry Section

Two students, **Jessica Deli** and **Jacob Hassan**, left the Geochemistry Section in May 2006 upon completion of their master's degree programs in SPEA. Jessica is working for the Indiana Department of Environmental Management in Indianapolis and Jacob is working for the U.S. Environmental Protection Agency in Chicago. This year three new part-time employees assisted with laboratory and field

activities during the summer. **Erica Amt** is a graduate student in SPEA, **Rosalyn Nguyen** is an undergraduate student in the Biology Department, and **Brandt Badger** is an undergraduate with work experience in a pharmaceutical laboratory.

Information Services Section

Rajesh Gollapudi, a student in the IU master's program in bioinformatics, is working as a Web programmer.

Photography and Imaging Section

Douglas Hill, a student at Bloomington North High School, recently completed an unpaid internship with the section.

Subsurface Geology Section

Fritz Heib is working on his bachelor's degree in geology at IU and has been a computer technician in the Information Technology Section since September of 2005. He is conducting a carbon

sequestration and enhanced oil and gas recovery assessment for the Subsurface Geology Section under John Rupp. Geology graduate student **Katy Swan** is working for Brian Keith on a Department of Energy subcontract from the Illinois State Geological Survey.

Katy is also doing her master's research under his direction with co-advisor Mark Person on digital slice mapping in the Ste. Genevieve Limestone in Gibson County. Other students working in the section are **Poppy Coulter**; **Andrew Gustin**; all students in the Department of Geological Sciences; as well as **Kaitlin Roth**, a student in SPEA; and **Megan Patterson**, an undergraduate in pediatric medicine. They work in support of the activities of the section, processing new information from oil and gas wells drilled within the state, doing field surveying of petroleum operations, processing cores and samples, and integrating existing oil and gas records into the Petroleum Database Management System.



Fritz Heib

Thomas J. Schull and Stephen G. Wells receive 2005 and 2006 Owen Awards



Abhijit Basu presents the 2005 Owen Award to Thomas J. Schull

Tom Schull received his MS degree in geology from Indiana University in 1966. After working two years at Sortex in Dallas, he began a long and successful career with Chevron, which later became ChevronTexaco. At the time of his retirement in 2003, he was general manager for International Exploration for ChevronTexaco in San Ramon, Calif. In the fall of 2000, Tom presented the inaugural colloquium in the Daniel S. Tudor Commemorative Lecture Series. Tom and the late Dan Tudor, also a recipient of the Owen Award, were long-time friends and colleagues at Chevron.



Abhijit Basu presents the 2006 Owen Award to Stephen G. Wells

Stephen Wells was born and raised in Bloomington and received his BS degree from Indiana University in 1971. He currently is president-elect of the Geological Society of America and president and CEO of the Desert Research Institute (DRI). DRI is the environmental research arm of the Nevada System of Higher Education and one of the world's largest multidisciplinary environmental research organizations, with over 400 scientists, technologists, and other support staff. From 1989-91 he was geology department chair at the University of New Mexico. He then joined the faculty at the University of California, Riverside. In 1995, he joined DRI.

Faculty/Research Scientists Notes

Faculty news

Abhijit Basu is not only escaping additional chair responsibilities, he is also sharply reducing his service duties for his professional societies. After 11 years, he has given up being the books editor for the Geological Society of America. In recognition of his truly outstanding work as books editor, he received the Society's prestigious Distinguished Service Award at its Annual Meeting in Philadelphia. Many who attended the award presentation commented that Basu's 30-second acceptance speech was the best award acceptance speech they had ever heard. Basu also will conclude his role as president of the Indiana University Chapter of Sigma Xi in April.

Simon Brassell has continued his research on Cretaceous organic-rich sediments that was funded by the Petroleum Research Fund. The research was conducted with PhD student Mirela Dumitrescu, who graduated in December 2006 and has joined ExxonMobil. One of their papers documenting the characteristics of the organic matter in sediments from Shatsky Rise in the west-central Pacific was published in the journal *Organic Geochemistry* and won the Best Paper award for 2006 from the Organic Geochemistry Division of the Geochemical Society. Another research paper published in *Geology* documented significant temperature changes in the tropical Pacific during the Cretaceous. This article received interest from the media, including local TV coverage, and from the *Washington Post*. That article was referenced, albeit inaccurately, in Congressional reports on climate change.

The past year has had several highlights for **Jim Brophy**. Having relinquished the duties of Field Station director, he has been able to significantly increase his research activity. A year-long modeling study has yielded a sorely needed unambiguous means of testing for a fractional crystallization versus lower crustal amphibolite melting origin for dacitic and rhyolitic magmas in subduction-zone environments. Ongoing geoarchaeology research with Christine Shriner culminated in an exciting two week trip to northwestern Turkey where they were searching for elusive volcanic clay deposits. The trip benefited from the provenance and depositional environmental insights of Lee Suttner, who served as their "field assistant" On the teaching front, Jim was handed the reins of G406 Introductory Geochemistry this fall, following the retirement from teaching of Enrique Merino. This is a course that he has wanted to teach since first arriving at IU in 1985, and he has finally gotten the chance to do so. Jim says that it has required a semester of late nights relearning his aqueous chemistry, but it was all well worth it.

Erika Elswick had a lot of fun in summer 2006 with the G329 class at the Field Station, where 16 students participated in data collection in the Willow Creek demonstration watershed and in Yellowstone National Park. They were successful in getting water samples collected and sent back to the lab at Bloomington in time to have the data processed and returned to them for analysis. Soil samples were processed and analyzed by the students in G444 during fall semester 2006. These data will be used in geochemistry and mapping exercises in future field seasons. Yaofa Jiang (postdoc of Maria Mastalerz, IGS) was a guest in Erika's lab and processed a number of samples of Indiana coals and their corresponding fly ashes for sulfur isotopic analyses. Based on data they collected, Erika and Yaofa submitted a manuscript on the fate of sulfur isotopes as sulfur gases move through a power plant following coal combustion, before Professor Jiang returned to China in January

2007. During the two "dry" seasons in Belize in 2005, mapping continued in the Maya Mountains with the assistance of Lee Suttner and Claudia Johnson. The first of three manuscripts was submitted in 2006, and drafting of the figures for the stratigraphic sections is still ongoing in conjunction with the manuscript text. Erika was fortunate to have the assistance of three undergraduates (Hannah Timm, Stephen Meyers, and Jesse Robinson) working on Honors College Internships and a BSES Senior Research Project. All three contributed field assistance and data to ongoing projects in IU Preserve areas.

Erika also presented a colloquium, "Pollution problems in Midwestern Reservoirs: a Bloomington, IN case study" at the University of Cincinnati in May, and she presented "Partitioning of metals between soil and dissolved phases, Henryville Bed, New Albany Shale" in Philadelphia at GSA with colleague Tammie Gerke, US EPA postdoc.

The fall semester of **Claudia Johnson's** sabbatical was spent on the east coast at the University of Massachusetts where she worked on correlating shallow-water Oligocene reef deposits to OPD basinal sites using strontium isotope stratigraphy. Results of this co-authored work were presented in two poster sessions at the annual GSA meeting in Philadelphia. Claudia's spring semester was hosted by the University of Iowa where numerous hours were spent learning the taxonomy of Neogene corals of the Caribbean Province. Claudia continues her goal of expanding reef research to the modern, for ancient greenhouse to modern icehouse comparative purposes. In preparation for the research on modern reefs, she enrolled in and completed a Scientific Scuba Certification class in HPER, and received NITROX certification along the way. The early morning open water dives in the southern Indiana quarry were a bit chilly, but the underwater mapping project detailing the depth, orientation, and sizes of the sunken car, cannon, and sailboat kept the shivers away. Claudia is serving as faculty co-sponsor for the Individualized Major Program on Charlie Beeker's (HPER) Dominican Republic underwater archaeological project, and she is on the IU Faculty Panel for the CIEE Bonaire Program. Claudia has had the honor recently of receiving adjunct faculty member status in the School of Informatics for a three-year term. Claudia, Erika Elswick, and Memo Dalkilic (School of Informatics), in conjunction with undergraduate Abbie Enneking (who did the real work!) digitized more than 7,000 entries from the IU Paleontology Collections using grant monies from the IU Joint Ventures Dean of Faculties Fund. The goal is to make our rich departmental resource available to geobiologic researchers and Indiana teachers and students. They submitted plans for this work to the *Microsoft e-Science Workshop* at The Johns Hopkins University on the theme of utilizing paleontology collections for research and teaching endeavors. Claudia serves as associate editor for the journal *Palaio*, contributes to the Faculty Learning Community at IU as part of her Fellow status, and served recently on the Jesse H. and Beulah Chanley Cox Scholarship Program Selection Committee. She serves on the Undergraduate Committee in the Department and teaches the undergraduate classes Dinosaurs and Their Relatives and Geobiology, as well as graduate classes Paleocology and Paleobiogeography. Claudia and husband Erle Kauffman enjoyed participating in HPER's Underwater Archaeology Booth at the IU Day at the State Fair in August 2006.

Geobiology students were successful with conference presentations and grant proposals in the recent months. **Stephaney Puchalski** (PhD) presented work on sampling bias and quality

of the fossil record of chitons at the 72nd Annual American Malacological Society and 39th Annual Western Malacological Society combined meeting. Stephany received a Sigma Xi student award in Spring 2006 and an IU Departmental Grant-in-Aid for summer research. **Glenn Simonelli** presented his MS research on the Mansfield Formation that focused on the sedimentology, geochemistry, and paleobiology of a marginal marine depositional system at the North-Central Geological Society of America meeting. Glenn received the Professional Geologists of Indiana Annual Scholarship for 2006 and a Geological Society of America travel grant. Most important, Glenn completed his Doctor of Education degree from the IU School of Education in 2006 and received his MS in geological sciences in Spring 2007. MS students **Sonya Hernandez** and **Erica Barrow** and BSES undergraduate student **Morgan Hegewald** combined their research for an abstract and poster presentation for the Geological Society of America 2006 Annual Meeting.

After completing five years of graduate and postdoctoral work in California, **Kaj Johnson** is thrilled to be back in Indiana. He and his wife are Hoosier natives and both graduated from Purdue. They love Bloomington and are finding it is a great place to raise their 18-month old son and their daughter who was born in July. In 2004, Kaj completed his PhD in the Geophysics Department at Stanford University. His research involved developing mechanical models of crustal deformation to interpret GPS measurements of surface deformation in Taiwan and central California. Following this, he moved across the San Francisco Bay to Berkeley where he did a year-long postdoc with Roland Burgmann. At Berkeley he used GPS measurements from immediately after the 2002 Denali, Alaska earthquake and the 2004 Parkfield, California earthquake to try to sort out the mechanical processes responsible for continued deformation after the earthquakes.

After spending the 2005–2006 school year at Indiana as a “visiting scientist,” Kaj began his appointment as the Judson Mead Assistant Professor in August 2006. He was amazed at how much happened during his first year! He taught a “bread and butter” graduate course, Mechanics for Earth Sciences, during the fall semester, and in the spring he taught two undergraduate courses, Structural Geology with Bob Wintsch, and Applied Geophysics with Gary Pavlis. He spends a huge chunk of time preparing to teach these courses, but also enjoys working with both graduate and undergraduate students. Kaj is finding that perhaps he learns as much about the content that he is teaching as the students do! When Kaj is not teaching, he is continuing to keep up with a number of research projects. During the 2005–2006 year he wrote several research proposals, while also trying to balance several funded projects. He is fortunate to have two excellent, hard-working postdocs to help out with the research. **Owen Huang** received his PhD from Purdue last year, and he is working with Kaj on an NSF funded project on active tectonics in Taiwan. They are developing mechanical models that allow use of GPS data and seismicity to understand how current surface motions in Taiwan reflect subsurface deformation in the crust. **Junichi Fukuda**, a talented scientist from the Earthquake Research Institute in Tokyo, began working with Kaj as a postdoc last spring. He is working with him on an NSF and USGS funded project to study frictional properties on the San Andreas fault using GPS and seismic data. Kaj is also working to complete two projects in central and northern California where he is integrating GPS and geologic data to infer slip rates on the San Andreas fault and neighboring active fault systems.

2006 was **Chusi Li**'s lucky seventh year at IU, a year when he published his 50th peer-reviewed paper, and a year when he was awarded the title of professor by three universities in China: Chang'an University in Xi'an City, China University of Geosciences in Beijing, and Lanzhou University in Gansu Province. Professor

Edward Ripley witnessed the award ceremony at Xi'an where the award was presented to Chusi by the president of Chang'an University. The recognition by the Chinese universities came after two years of productive collaboration with Chinese scientists on several research projects funded by the National Science Foundation of China. In addition to research activities, Chusi also gave a lecturing tour in China last summer, visiting five universities and institutes. Chusi used the lecturing tour as an opportunity to promote IU geology. The effort has borne some fruits; more Chinese visiting scholars and graduate students are coming to Bloomington to work with Chusi and his faithful collaborator at home, Professor Edward Ripley.

Support from NSF and the Kennecott Corporation has enabled **Ed Ripley** to pursue a variety of mineralogical, isotopic, and genetic studies of ore deposits in North America, Africa, and Asia. These include work on (1) the Cu-Ni sulfide mineralization of the Duke Island Ultramafic Complex in Alaska, (2) Re/Os isotopic variations in sulfide mineral assemblages in the Duluth Complex in Minnesota, and (3) the Eagle Cu-Ni deposit in the Baraga Basin of northern Michigan. He and **Chusi Li** also are investigating the Cu-Ni-PGE deposits of China and conducting studies of the Sudbury melt sheet in Ontario, the Stillwater Complex of Montana, the PGE reefs of the Great Dyke, Africa, and the Sonju Lake Intrusion in Minnesota. In addition, NASA is providing him support for experimental S and O studies of processes associated with water radiolysis. Working with Ed on these projects are a number of students, all of whom have been successful in obtaining their own research support. These include **Arindam Sarka**, who was awarded a grant from the Society of Economic Geologists; **Joyashish Thakurta**, who has received two research awards from GSA; **Julia Ding**, who has the Kennecott Fellowship in economic geology; and **Curtis Williams**, with support from NSF. In 2006, Jeffrey Mariga completed his PhD degree requirements under Ed's supervision and is now employed with Chevron. Ed expects to teach a two-week short course at the China University of Geosciences in Beijing in May. While there, he will tour a number of ore deposits with Chusi, former GSA President Tony Naldrett of Toronto and several Chinese colleagues.

The basin analysis group supervised by **Brad Ritts** has continued its research on the geologic evolution of the northern Tibetan Plateau, with correlated multi-proxy studies of structural activity, surface uplift, and rock exhumation. In addition, the group's studies are now extending beyond the plateau to document the influence of strike-slip faulting beyond the plateau in accommodating Indo-Asian convergence.

Since the last update, two new major NSF grants have been received and major new collaborative efforts in thermochronology and stable isotope paleoaltimetry have been launched with colleagues at the University of California Santa Cruz and Stanford University. In addition, MS student **Paul Bove** finished his thesis on the structural evolution of the northern Qilian Shan fold-thrust belt on the northern Tibetan Plateau margin and plans to submit it for publication to *GSA Bulletin*. Paul is now doing an internship with Chevron in Houston. New students **Erin Brenneman** and **Guangsheng Zhuang** and postdoc **Julien Charreau** joined the group this year, and all three are working on tectonics projects in western China. Our group has been well represented with talks and posters at meetings and has numerous publications.

All of our faculty regularly report on the results of their research at national and international conferences, and via publication. However, special prestige and recognition accompanies talks and articles that have been generated by invitation. In 2006, **Arndt Schimmelmann** was invited to give a lecture at the Gordon Conference on Organic Chemistry titled “Organic D/H changes accompanying Thermal Maturation.” In the same year he was

invited to be first author on a review article for the *Annual Review of Earth and Planetary Sciences*. This article was titled "Hydrogen isotopic composition of organic matter during diagenesis and thermal maturation." Both of these prestigious contributions undoubtedly played a role in Arndt's research group obtaining more than \$640,000 in funding to support their research over the next three years.

Bob Wintsch is being busier than ever. He is teaching Petrology G222 as usual, but also team-teaching structural geology with Kaj Johnson. The two of them are trying to organize a G420 field trip to Taiwan in 2007, a rather more ambitious trip than the trips of the earlier years to the Appalachians or to Canada. Bob also is working with a bumper crop of students—three PhD students are working on projects in New England and Manitoba in cooperation with the Canadian survey. Three master's students are working on tectonic problems in the Appalachians (one in cooperation with the USGS), and three undergraduates are working on igneous geochemical projects. In his spare time, Bob has been editing a special volume of the *American Journal of Science* in honor of John Rodgers.

Emeritus faculty news

Bob Blakely and his wife Rosanna moved from their home of 40 years to Meadowood Retirement Community in Bloomington. They are enjoying their new home and lifestyle very much. Bob and Rosanna are on the Armchair Travel Committee. This entails enlisting speakers to give slide shows of trips that they have taken. There is one program a month. Among the speakers this year are geologists Carl Rexroad speaking about Turkey, Bob and Joann Dodd about Egypt and Jordan, and Gary Pavlis discussing Venezuela. Both Bob and Rosanna have been swept up in the digital photography rage and enjoy taking pictures and enhancing them on the computer. Bob is giving computer courses to Meadowood residents. Meadowood has an organization called the Resident Council, which acts as an intermediary between the residents and management. This year Bob is vice-president and next year will be president of the council. Over the holidays the Blakelys drove to Baton Rouge where their daughter and her husband live. They then traveled with them to Tomball, Texas (40 miles north of Houston) to visit Bob and Rosanna's grandchild, her husband, and three great-grandchildren. Bob meets once a month for lunch with former colleagues Maurice Biggs, Judson Mead, Al Rudman, Kenny Vance, and Allen Gutstadt. The January 2007 meeting was saddened by the loss of Allen to cancer a few weeks earlier.

Bob Dodd makes regular visits to the department and is almost always there on Friday morning to organize the Owen Room coffee for faculty and research scientists and to check current journals in the library. Bob and wife Joann travel extensively, most recently with a trip to Greece and the Greek islands. Last year they spent three weeks in Egypt and Jordan. Bob is still growing roses, although shade trees are encroaching on the garden, limiting the much-needed sunlight. He has kept up his running, biking, and hiking. This March several running friends joined Bob as they completed the annual Bob Dodd birthday run (about eight miles) followed by a celebration at Nick's. Bob has become an avid birder (birders don't like the term bird watcher!) and is active in the local Audubon Society as editor of their bimonthly newsletter. He also coordinated preparation of a guide to birding localities in south central Indiana, a fundraiser for the society. He helps Joann with the annual Red Cross book sale and is active in several roles in the local Presbyterian Church (including maintaining their rose garden).

John Droste still comes into the Indiana Geological Survey most every weekday morning to work with well logs. If he arrives first,

John says he makes the coffee. He recently completed the project of preparing some 250 key logs distributed throughout the state. These logs will be scanned and made available to the public via the Web. He is currently working on a larger project to prepare all wire-line logs from wells in the state for scanning to be put on the Web. There are some 160,000 wells in the state and about half have logs. John guesses that this project will outlast him! He says Mary kicks him out of the house in the morning, but he spends the afternoons at home. John had to give up his long-standing hobby of fishing because his arthritis keeps him from sitting for long periods in a boat (he does not approve of shore fishing).

Don Hattin has completed work on another book, which was published in August 2006 by Author House of Bloomington. Titled, "*Tales of a New England Boyhood: Scituate, Massachusetts, 1931-1946*," the volume is a historical/autobiographical narrative concerning people, places, and events that evoke memories of a happy, diversified, and adventurous boyhood. During an August 2006 visit to his and Margie's hometown, Don gave a presentation about the book to the Friends of the Scituate Library, drawing a large audience within which were many whose friendship Don has shared for more than 70 years. On the following day, he and Marge attended the 60-year reunion of Don's high school graduating class. Their trip to Scituate was preceded by a 12-day vacation at his cousin's home (built in 1680) on Cape Cod, followed by several days in Warwick, Massachusetts, at the woodland lodge of Margie's sister-in-law. Don continues research with Katrina Gobetz on rodent-gnawed rocks, has two papers in progress regarding Cretaceous fossils, and continues work on departmental displays. He maintains active affiliation with the Indiana Railway Museum, where he is a qualified trainman; and the Indiana Society of Mayflower Descendants, for which he is chair of the Scholarship Committee. Marge is active in several interest groups of the University Club, Tri-Kappa philanthropic sorority, and a long-standing group of bridge-playing friends. Don and Marge continue to hold season tickets to IU home football and basketball games.

Erle Kauffman continues to be very active in enjoying life to its fullest with his wife, Claudia Johnson. During the last three years they have traveled widely, visiting his three children and five grandchildren all over the world (two in Australia). Erle continues to pursue his primary nongeologic interests—hiking; fishing; and going to concerts, operas, plays, and art shows. On the research front during the years since retirement, Erle has been more active than ever. This year, he submitted to the Paleontological Research Institute his "magnum opus," *The Paleobiology, Depositional Environments, and Sea Level History of a Cretaceous Ecotone in Southern Colorado*, all 650 double-spaced pages and 47 plates. Erle continues his work on fossil bivalves in Australia, the South Polar area, as well as in the United States. He has other projects on stratigraphy and on mososaur and giant fish predation of ammonites.

Since **Noel Krothe's** retirement things became even busier with his consulting company, Hydrogeology Inc., which is based in Bloomington. Noel's business partner is his youngest son, Jason, who received an MS in hydrogeology from the University of Texas at Austin. The company has kept them very busy with two large contracts from the Department of Transportation (karst mapping for the I-69 highway) and with General Motors at the Bedford, Ind., site. Noel and Joyce have traveled extensively, including cruises to Alaska and to the Baltic region. They just bought a home in Winter Park, Colorado, and spend a lot of time there. The children really enjoy the winter sports, and Noel and Joyce the summer. They also spend time at their condo in Sandeatin, Florida. Fishing has become more important to Noel since retirement. The Krothes make a trip once every other year to Montana and also fish the Colorado River near Winter Park. Former graduate students Jim Thomas and Brant Howard are fishing buddies. John

Tweedale has threatened to join in but it has not happened yet. If you are interested in joining the fishing expedition, Noel invites you to contact him. The fishing in Montana is spectacular near and in Yellowstone. On a professional level, Noel is presently on the U.S National Committee for the International Association of Hydrogeologists. He has published several papers and recently gave a talk at the Illinois Geological Survey on the effects of Epikarst on contaminant transport. He has received an invitation from the University of Rome to serve on the PhD committee for Francesca Zucco, his last graduate student at Indiana. Noel will be traveling to Rome this summer to assist with the field work for her dissertation. Noel and Joyce are pleased to announce that they will be grandparents. Son Joseph and his wife Heidi will have a girl in early May.

Jud Mead and wife Jane recently moved to the Meadowood Retirement Community, where they join fellow geologists Bob Blakely, Henry Gray, Carl Rexroad, and Dorothy Vitaliano as residents. Jud and Jane still make their annual summer trip to New Hampshire to stay at their cottage on Lake Winnepesaukee. Jud is a regular visitor to the Department to attend colloquia. He also serves as a life honorary member of the Department of Geological Sciences Advisory Board. Jane regularly attends events of the University Women's Club and the Bloomington Garden Club.

Enrique Merino reports that in the last two years he has made serendipitous discoveries of two unique cases of geodynamics—the joint origin of both terra rosa and karst and the dynamics of burial dolomitization. He is currently preparing papers and giving talks on these topics. He has given papers at the GSA meetings in Salt Lake City, the European Geophysical Union meeting in Vienna, and the Goldschmidt Geochemistry Conference in Melbourne. He is invited to give a lecture on karst and terra rosa origin at the 12th Water-Rock Interaction meeting in Kunming, China. The trip to Melbourne in August 2006 gave Enrique and Consuela the chance to travel to Uluru, or Ayers Rock, the sacred red center of Australia, and to admire the forward-looking decency with which Australians are trying to solve the problem of the Aborigines. On the way back through New Zealand, they met old friends of the Department, Colin Harvey and Patrick Browne, and at Dunedin they had the chance to meet Professor Douglas Coombs, long retired, who gave them precise instructions to find the best exposure of the Alpine Fault in western South Island. Professor Coombs visited Bloomington in the early 1970s at the invitation of Charles Vitaliano. A friend and colleague of Enrique's, Richard L. Hay, died last February. A memorial session for Hay is planned for the 2007 GSA meetings in Denver. Enrique is on the planning committee organizing that session and invites anyone who wishes to participate to contact him.

The highlight of 2006 for **Haydn Murray** was publication by Elsevier of his book, *Applied Clay Mineralogy*. Haydn maintains an active research and writing schedule with five papers published and in press in 2006. For two weeks in June, Haydn and Juanita traveled to France where Haydn attended a joint meeting of The Clay Minerals Society and The French Clay Minerals Group on the Isle of Oleron in the Bay of Biscay. After the meeting, they spent time in the Loire Valley and Paris. In late September 2006, they drove to Washington, D.C., where Haydn attended the Annual Meeting of the National Academy of Engineering. While in Washington they visited the World War II Memorial and the site of the Battles of Bull Run at Manassas, Va. The Murrays spend much of the winter in their condo in Bonita Springs, Florida. While in Florida, they play a lot of golf and enjoy a few fishing trips to the Everglades. When in Bloomington, Haydn goes to his office in the Geology Building daily, and his Clay Lab stays busy evaluating industrial clays from deposits around the world. Consulting activities take

him to Georgia two days a month, Brazil twice a year, and China once each year. Haydn reports "At age 82, I am still active and healthy, and enjoying Indiana University sports events."

Al Rudman reports that he goes to his office in the Geology Building two to three times each week and is slowly working on a few papers he has promised to finish. He has been on a few PhD committees, but is gradually phasing out. He regularly participates in the Geophysics and Tectonics seminar each week during the school year. An ongoing project for Al is to assemble a large collection of his late son Phil's rock and mineral collection, which will be given to the department for display purposes. Al and Joan spend time with Al's children and grandchildren. He runs regularly (but Joan calls it walking), plays tennis, and last year skied with the grandchildren in Utah. Al and Joan (who has also retired) do lots of traveling, most recently to England and Italy. They continue to spend summers in Hawaii (Kauai) with the grandkids. They plan to attend all of the tennis grand slam tournaments. Thus far they have been to Wimbledon and the U.S. Open. Al complains that he can no longer attend IU basketball practices because our new coach does not hold open practices.

Lee Suttner maintains a nearly daily presence in the Department. Locally, he actively assists the chair in alumni relations and development, and he continues to serve as advisor on long-range planning and curriculum development for the Judson Mead Field Station. Nationally, he is heavily involved with the GSA Foundation in his role as trustee and treasurer, as well as serving on GSA's Short Course Committee. He also has recently completed a four-year appointment on the Desert Research Institute Foundation Board of Trustees. Summer 2006 was a particularly active one for Lee. In early June he taught successive short courses at the Field Station for high school students from two schools in Georgia. Later in June he assisted Jim Brophy and Christine Shriner with their fieldwork in northwest Turkey. The primary purpose of this work was to test the hypothesis that clays in Bronze Age pottery discovered in Greece may have had a Turkish provenance. This work rekindled Lee's provenance studies, which earlier in his career focused primarily on sand and sandstone. In August 2006, Lee returned to the Field Station to lead a forum titled "Does Need Exist for a National Center for Geoscience Study in the Field? If so, how do we get there?" Preceding this conference he had met with a number of national leaders in education, industry, and academia to generate interest and participation in exploring a new paradigm for teaching geoscience in the field. As a follow-up to the Forum in Montana, Lee co-convoked a special session at the annual GSA meeting in Philadelphia in October to promote additional discussion of geoscience field education among field course directors and representatives from industry. In December he was invited to make a related presentation to the AGI Foundation Board of Directors in Houston. Lee's spouse Ginny also continues to be active in her professional life through her part-time consulting for the Archdiocese of Indianapolis Department of Education. Lee and Ginny's daughter Lisa, an elementary school teacher in Bloomington, presented them with a new grandson in August, bringing their total of grandchildren to nine. Lisa's twin sister, Lori, also teaches elementary school in Grand Rapids, Mich. The twin's older sister, Jennifer, and her family reside in Orlando but will soon be moving to the Los Angeles area. Jim Suttner resides in Bloomington.

Faculty Research Grants

- David L. Bish, “CheMin: A Definitive Mineralogical Instrument”
- Michael W. Hamburger, USESN Program Center
- Juergen Schieber, “Evaluating Models for Late Devonian Black Shale Formation in the Eastern U.S.”
- Christine Shriner, “The Application of the Integrated Petrologic Approach to the Study of Aeginetan Ware Technology, Production and Exchange”
- David L. Bish, “Experimental Determination of Low-Temperature, Low-Pressure Thermodynamic and Crystallographic Properties of Potential Martian Hydrous Minerals”
- Christine Shriner, “An Explanation for Emergent Complex Society at the Sites of Lerna and Kolonna, Greece”
- David L. Bish, “Quantitative X-ray Diffraction Analysis of Mars Analog Materials”
- Juergen Schieber, “Investigating Morphological and Isotopic Biosignatures of Terrestrial Iron Bacteria—A Potential Mars Analog”
- Arndt Schimmelmann, “Significance of Isotopically Labile Organic Hydrogen in the Thermal Maturation of Source Rocks”
- David L. Bish, “Experimental Measurement of the Stability and Dehydration/Rehydration Kinetics of Sulfate Hydrates under Simulated Martian Surface Conditions”
- Juergen Schieber, “Experimental Mudstone Sedimentology: An Attempt at Reverse Engineering of Natural Processes”
- Michael W. Hamburger, “Collaborative Research: Map Tools for EarthScope Science and Education”
- Robert P. Wintsch, “Collaborative Research: Syncollisional Delamination: A Test of Crustal-Scale Tectonic Wedging Exposed in the Avalon Terrane of New England”
- Bradley D. Ritts, “CAREER: Giant Nonmarine Sedimentary Basins of China and Intracontinental Tectonics—an Integrated Research and Education Plan in Asia and Western North America”
- Arndt Schimmelmann, “Collaborative Research: Hydrogen isotopic studies of marine dissolved and particulate organic matter”
- Juergen Schieber, “Experimental Mudstone Sedimentology: Evolving Methodology, Measuring Thresholds and Rates, Investigating Processes”
- Bradley D. Ritts, “Collaborative Research: Did the Altyn Tagh Fault Continue Beyond the Northern Margin of Tibet? Implications for Strain Accommodation During Continent-Continent Collision”
- Peter Sauer, “Middle and Upper Devonian Black Shales”
- Simon C. Brassell, “Biogeochemical profiles of climatic and environmental changes inducing deposition of organic-rich sediments during the Early Aptian”
- Mark Person, “Hydrothermal Fluid Flow and Ore Formation in Great Basin, Nevada”
- Lisa M. Pratt, “Indiana-Princeton-Tennessee Astrobiology Initiative (IPTAI): Detection of Biosustainable Energy and Nutrient Cycling in the Deep Subsurface of Earth and Mars”
- Chen Zhu, “A Novel Approach to Experimental Studies of Mineral Dissolution Kinetics”
- Kaj Johnson, “Refining Estimates of Lithosphere Rheology and Earthquake Parameters Along the San Andreas Fault System through Bayesian Inversion of Multiple Data Sets”
- Lisa M. Pratt, “A proposal for coring into deep permafrost in northern Canada”
- Lisa M. Pratt, “Life at the Edge of Hydration”
- Edward M. Ripley, “Mineralogic and Isotopic Studies of Cu-Ni Sulfide Mineralization Associated with the Duke Island Ultramafic Complex, Southeastern Alaska”
- Edward M. Ripley, “Technician Support for Stable Isotopic Research Facility (SIRF) at Indiana University”
- Gary L. Pavlis, “Collaborative Research: Crust-Mantle Interactions During Continental Growth and High-Pressure Rock Exhumation at an Oblique Arc-Continent Collision Zone: SE Caribbean Margin”
- Gary L. Pavlis, “Collaborative Research: Imaging Earth Structure with Elastic Waves by Application of the Inverse Scattering Series”
- Gary L. Pavlis, “Collaborative Research: St. Elias Erosion/Tectonics Project (STEER)”
- Chen Zhu, “Coupled Silicate Reaction Kinetics in an Aquifer”
- Edward M. Ripley, “Causes of Re-Os Isotopic Variations in High-temperature Sulfide Mineral Assemblages: Insights from the Duluth Complex-Virginia Formation System”
- Kaj Johnson, “Toward Dynamic Models of contemporary Plate Boundary Deformation with Application to the Taiwan Collision Zone”

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Student News

2006 Geological Sciences awards

Graduate students

- Estwing Award (Hammer) and Outstanding Academic Achievement: Mirela Dumitrescu
- John and Mary Droste Award for Outstanding Associate Instructor: Martha Growdon
- Departmental Citizenship Award: Matthew Reeder

Undergraduates

- N. Gary Lane Beginning Geologist Award: TreVor Howald
- Junior Award: Katherine Neff
- Professional Development Award: Brooks Proctor
- Faculty Scholarship (Senior) Award: Elizabeth Hasenmueller
- Bill and Jan Cordua Scholarship: Abbie Enneking
- Maynard and Winifred Collier Scholarship: David Aamidor

2007 Geological Sciences awards

Graduate students

- Estwing Award (Hammer) and Outstanding Academic Achievement: Dariusz Strapoc
- John and Mary Droste Award for Outstanding Associate Instructor: Hsiu-Wen Wang
- Departmental Citizenship Award: Martha Growdon

Undergraduates

- N. Gary Lane Beginning Geologist Award: Stacy Robertson
- Professional Development Award: Laura Jones
- Junior Award: Brooks Proctor
- Bill and Jan Cordua Scholarship: Aaron Jones
- Maynard and Winifred Collier Scholarship: Rachel Henderson
- Departmental Citizenship Award: Jeffrey Bowman
- Faculty Scholarship (Senior) Award: Katherine Neff

D.O.G.S. research day



Abhijit Basu presents the award for best graduate poster presentation to Tammy Bravo.



Abhijit Basu presents the award for best undergraduate poster presentation to Michael Smith.

Identification needed!



Dan R.T. Davis (BS'54), standing sixth from the left, contributed this photo taken in New Orleans at the Department alumni luncheon at the Annual Meeting of the Geological Society of America on November 8, 1955. We seek help in identification of all shown in the picture. The person who correctly identifies the most people in the photo will win a special gift from the Department, and the photo will be published again in the next issue of the HGR with the identifications and name of the winner. Please send identifications to tpmiles@indiana.edu.

Alumni Notebook

1950s

William “Bill” J. Wayne, BA’43, MA’50, PhD’52, has revised the walking field trip that he developed in the early 1970s to guide students in a look at the building stones used on the University of Nebraska campus and in downtown Lincoln. Expanded and corrected, the work was published in May 2006, as Educational Circular 19 of the Conservation and Survey Division (Nebraska Geological Survey). In January 2006, Bill had a hip replacement, and he is now back to his normal walking activity. His wife Naomi is a quilter whose work has worn out two sewing machines! Bill and Naomi celebrated their 60th wedding anniversary during the summer of 2006. Older readers will remember Bill as an energetic field geologist who worked for the Indiana Geological Survey before joining the faculty at the University of Nebraska. He sends warm regards to his friends in Bloomington.

Bill Romey, BA’52, was awarded the Neil Miner Award at the October 2006 meeting of the Geological Society of America in Philadelphia. At that meeting he presented a paper, “Communicating about the Geosciences: Self publishing and Distributing Books,” co-authored with Alexander R. McBirney. Bill states that he “did his Geology 101 and 102 in your Department back in the late Silurian (in ’48 with Vito [Charles Vitaliano] and in ’49 with Roger Deane).” Bill continued his geological studies and earned a doctorate at Berkeley in 1962. He is an emeritus professor at St. Lawrence University.

S. Ross Taylor, PhD’54, sent the following update of his recent activities: “Although I am supposed to be retired, I continue as an emeritus professor at the Australian National University, where I have been giving a course on planetary geology. In 2004, I was invited to give the annual Masursky Lecture at the Lunar and Planetary Science Conference in Houston. Later in 2004 I spent a month in India as the Vikram A. Sarabhai Visiting Professor at the Physical Research Laboratory, Ahmedabad. In 2005 I spent three months in Houston, where I was a Heritage Fellow at the Lunar and Planetary Institute. At that time I was able to attend the annual meeting of the National Academy of Sciences in Washington, D.C. At the annual meeting of the Meteoritical Society at Gatlinburg, TN, in September 2005, a Ross Taylor symposium on the lunar studies was held. A similar occasion occurred in Melbourne in August 2006 at the Annual Goldschmidt Conference of the Geochemical Society, at which a Ross Taylor symposium on continental crust problems was held. I have published several papers, mostly on lunar problems, with various coworkers, including one in *Geochimica et Cosmochimica Acta* last December, this being a long-planned paper about the Moon with my Taylor namesakes, Jeff and Larry. However, my major project is writing a book under contract with Cambridge University Press, *Planetary Crusts: An Investigation into their Nature, Origin and Evolution from a Solar System Perspective*, with my long-term colleague, Professor Scott McLennan (State University New York, Stony Brook). Finally, I got into the debate over Pluto

when I published a review in *Nature* (Dec. 21, 2006) of ‘Is Pluto a Planet?’ by David Weintraub. Contrary to Weintraub’s position, I agreed with the International Astronomical Union’s decision that reduced it to a minor planet. Best regards to my friends in Bloomington.”

Don Wirth, BS’59, again led an 8th-grade class to the Oregon coast, and he still serves as a volunteer working on forest trails and cutting dead trees. He is still skiing, canoeing, camping, golfing, hunting, Scuba diving, and donating blood (95 units as of December 2006!). He traveled to Thailand for two weeks in February 2006 and highly recommends the country as a vacation destination. Don advises, “Do what you can while you can.”

Bill Dixon, BS’58, MA’66, submitted the following account of his recent activity: “Effective January 1, 2007, I moved up to president of the National Association of State Boards of Geology (ASBOG). I have been participating in ASBOG since November 1997, and it has been a rewarding experience over the years to have attended the twice-a-year examination workshops conducted by the Council of Examiners, which review the national exam required in the 28 member states (including Indiana) plus Puerto Rico for licensure as a professional geologist. The ASBOG Executive Committee (EC) meets concurrently with the workshops, so I haven’t had direct participation in them for the last three years. The EC also meets for two days in January and August to conduct ASBOG business. This January, we met in Oklahoma City to discuss the status of licensing with a local group, but only one of them was able to make it through the ice storm. We never lost power, but the airport was closed for three days. I also continue to serve as the chairperson of the Illinois Board of Licensing for Professional Geologists. My term actually expired a year ago, but members continue to serve until replaced. In early June, Phyllis and I will be driving to visit a cousin in Idaho and plan to say ‘hi’ at the Geologic Field Station, even if it’s only to the caretaker.”

Gordon Pirie, BS’58, MA’61, PhD’63, retired after 15 years of college teaching, 13 years in the oil services industry, and 12 years as an independent consultant. He and his wife, Deborah, live in Asheville, N.C.

Dave Berendsen, MA’59, reports that after graduation he worked for the California Company in New Orleans for



Eight alumnae celebrate Pi Beta Phi Founders Day

Eight friends who graduated from IU more than 50 years ago reunited to visit IU Bloomington in spring 2006. The women included: **Janet Wert Crampton**, BS’55; **Jane Zaiser Frazer**, BA’54; **Barbara Gray Steinsberger**, BS’54; **Elizabeth “Betsy” Mauzy Beckman**, BS’55 MS’67; **Hazel Ganoe Kriesel**, BS’55, MS’86; **Cornelia “Connie” Feallock Scheid**, BA’55; **Barbara Shrader Rohrer**, BS’55, MS’88; and **Susan Wallace Voelkel**, BA’55. The alumnae visited their old rooms in the Pi Beta Phi house and celebrated Pi Beta Phi Founders Day with the active chapter and the Bloomington Alumnae Club. They also ran into **Julia “Judy” Abel Eichhorn**, BA’53, MS’56, who was president of the sorority chapter when the women were pledged and initiated.

18 months and then joined Southern Bell as a management trainee. There, he spent seven years working up the management ladder, mostly in engineering assignments. This experience landed him a position with General Telephone Company in Tampa, Fla. As a “guru” of Bell System technology, he spent much time working with manufacturers and developers of telephone systems. In 1970, Dave was promoted to corporate headquarters in Stanford, Conn., where he went through the company’s Executive Management schools. He became head of the Traffic Department at GTE of the Southeast in Durham, N.C. in 1972. Leaving GTE in 1982, Dave next worked with several manufacturers and suppliers in the telecomm business until retiring in 1997. His interest in geology is unabated. Dave and his wife Bev raised a family of two boys and two girls, and he has revived his “truncated” musical career. He now plays baritone horn in a community concert band and trombone in a swing band, and he also plays in a Dixieland band. Dave and Bev live in Durham, N.C.

1960s

Jerre Johnson, BS’60, MA’62, PhD’65, is “involved in several environmental and controlled growth organizations, teaches continuing education classes and earth science teachers from time to time, consults, leads field trips, talks to school kids, and hands out hundreds of state fossils (*Chesapecten jeffersonius*) to anyone who expresses the least bit of interest.” In addition, he is building a deck outside the sundeck of his home. His wife Marilyn is a site coordinator for the William and Mary Elderhostel program and has become involved in a birding program on Virginia’s eastern shore. She plays hand bells at their church, serves on the Wesley Foundation board, and serves on a League of Women Voters education committee. During 2006, Jerre and Marilyn traveled to Brussels to visit their daughter Jeannine and son-in-law Luis, who is working on his doctorate in political science. Jeannine is a press officer and webmaster with the State Department’s Mission to the EU. The Johnson’s trip began and ended with visits to Scotland and Denmark, respectively.

Mike C. Mound, MA’61, PhD’63, works in the new unit SpectraFlow for ABB Switzerland, where he is in charge of new-business development and innovations. He has six patents pending in nonhazardous analytical-device systems. Mound lives in Baden, Switzerland.

Ronald J. Walton, BS’61, is a realtor at Coldwell Banker Residential Brokerage in Evergreen, Colo. As part of the Walton Mountain Team of Coldwell Banker, he works with his wife, Judith, who is also a licensed broker. With 34 years of service, he retired from the U.S. Geological Survey in April 1994. Walton writes, “My geology background helps me in my residential real-estate sales in the mountains west of Denver. My expertise in water wells, septic systems, and radon is valuable.” He adds that living in Evergreen offers the “best of both worlds”—mountains, forests, and natural rock outcroppings at his front door and the “cosmopolitan” city of Denver at his back door.

John E. Utgaard, MA’61, PhD’63, is professor emeritus of geology at Southern Illinois University in Carbondale.

Larry Balthaser, MA’63, PhD’69, is enjoying retirement in San Luis, Obispo, Calif. He reports that he and his family are “doing o.k.” He plans another trip to Italy—the sixth year in a row—and wishes he’d started 20 years ago! He contemplates walking a long (hundreds of miles) pilgrimage route in Europe in 2008.

Paul Basan, BA’65, previously manager of petrophysics at Energy Scitech, Woking, England, is now manager-petrophysics of RPS Group in Woking.

Larry Knox, BA’65 Physics, MA’71, PhD’74, together with a volcanologist who is one of Larry’s former students, led a 10-day field trip to Hawaii. In October, Larry carried out further field work in the late Paleozoic of Kansas and Oklahoma. Also in the fall, he and Carol journeyed to Quebec City, which he regards as “a great place to visit.” Larry has relinquished the position of chair after 11 years at the helm in the Department of Earth Sciences at Tennessee Technological University.

Dave Lazor, MA’68, PhD’71, submitted the following news: “Barb and I moved from Houston, Texas, in April 2005 after my overriding royalty (ORRI) checks got large enough that we could afford to move. I was instrumental in several new oil and gas discoveries in the Gulf Coast and was able to reserve an ORRI on each prospect. One prospect I generated in the middle 80s has produced over 180 billion cubic feet of gas and is still going. A prospect I leased and sold three years ago was drilled last fall for a new discovery and is now awaiting a pipeline connection. It took a year just to find a rig. I have other prospects located mainly onshore Louisiana that I am marketing. I have organized and run 10 or 11 geology field trips rafting through the Grand Canyon. My next trip will be June 11–19, 2008,

and it is already filled. I may do another in 2009. There have been quite a few IU geology alumni on the trips and one IU faculty member (Al Rudman). Last summer I taught physical geology at a junior college in Puyallup, Wash. I had 13 students. We ended the course with a field trip to Mt. St. Helens. While in Houston, I taught physical geology several times, but the compensation was insufficient to keep doing it, especially when I had so much to do in finding new opportunities in oil and gas exploration. We now live 11 miles from the northwest entrance to Mt. Rainier National Park at an elevation of 1,200 feet. We have 10 acres of woods and occasionally have deer and elk in the yard. I had to put an eight-foot fence around our vegetable garden. Some of the neighbors have spotted bears and cougars, but I have not seen any. I have been playing “senior softball” since turning 51. I managed some tournament teams in Houston that competed over much of the U.S. and won a manager-of-the-year award when we won a national championship. I play on a Ruth Reality team that competes at the super major level (highest), and last year I was the lead off batter. I have some points earned toward being in the senior softball hall of fame.

Mike Hamilton, BS’69, MA’75, lives in Spokane, Wash., where he has retired from a career as geologist for the U.S. Bureau of Mines. He was involved in investigations relative to tracts that were being considered for designation as wilderness areas. He has also had an affiliation with Eastern Washington University.

Nick Noe, AB’69, is a logistics engineer for Air Road Express in Indianapolis. He serves on the Board of Directors for the Indiana Karst Conservancy and is Treasurer of the Hoosier Environmental Council. Nick is also a Life Member and Fellow of the National Speleological Society and does a little cave exploring once or twice a year. In addition, Nick is a member of the Rail Fans of Indianapolis, Indiana Transportation Museum, and of the National Association of R.R. Passengers. He represents Indiana on the NARRP Board of Directors. Nick’s wife of thirty years, Carita, teaches earth sciences at Arsenal Technical High School in Indianapolis, and she recruits Nick for occasional field trips. Their children are: Shawn (29), who is completing his BS in electrical engineering computer technology at IUPUI; Cynthia (27), who has a fine arts degree from American University and lives in California; and William (23), who as of August 2005 was planning to enlist in the U.S. Navy as a computer specialist.

Alumni notebook (cont.)

1970s

Stephen G. Wells, BS'71, of Reno, Nev., is president of the Desert Research Institute, a division of the Nevada System of Higher Education. He is also president of the Geological Society of America. Wells received the 2006 Richard Owen Alumni Award from IU Bloomington's Department of Geological Sciences, the department's highest honor for alumni.

Stephan A. Graham, BA'72, received the AAPG Distinguished Educator Award at the 2007 annual meeting in Long Beach, Calif. In 2005 Steve was honored further with a move to an endowed position, the Welton Joseph and Maud L'Anphere Crook Chair, at Stanford University. He continues in his role as associate dean of the School of Earth Sciences and is a member of our Advisory Board.

Greg Wahlman, BA'72, MA'74, works for BP America, and is based in Houston. He has recently arranged for **Barry Kues**, PhD'74, to conduct a field trip in Pennsylvanian strata in the Sierra Nacimiento of New Mexico for a group from BP America.

Abhijit Basu, PhD'75, currently chair of the IU Department of Geological Sciences, has recently been awarded the Distinguished Service Award by the Geological Society of America. This award, the highest service award granted by the GSA, specifically acknowledges Basu's expansion of the society's publications program. The number of books published by the GSA has doubled during Basu's 10-year editorial term. Basu has also served for 10 years on GSA's publications committee. Basu has previously won a Distinguished Service Award from Indiana University and has received an award from the Cultural Association of Bengal (North America). Basu holds the prestigious Herman B Wells Endowed Professorship.

Barry Kues, PhD'75, was on sabbatical for the spring term 2006–2007, during which he worked on his book, *Paleontology of New Mexico*.

Melody R. Holm, MA'77, sent the following news: "I just entered my 16th year of public service with the USDA Forest Service, serving as Rocky Mountain Region program manager for Leasable Minerals in Lakewood, Colo. "Leasable minerals" translates into primarily natural gas, oil, and coal. High demand for these resources means quite interesting and challenging jobs for me and my colleagues in both the Forest Service and Bureau of Land Management. In my position, I provide regulatory, technical, and budgetary advice and support to 17 national forests and seven

national grasslands in Wyoming, Colorado, South Dakota, Nebraska, and Kansas. I also provide regulatory and technical advice to regional managers and facilitate coordination with our Washington office. I also continue to conduct geology-centered training for federal land managers and resource specialists. Based at the IU Field Station, Geology and Ecosystems is a one-of-a-kind, field-oriented, hands-on course by which people of diverse backgrounds discover for themselves (with some guidance) the significant role that geology plays in ecosystems. Participants have reported that the concepts and skills they learned during the course have played a key role in the approaches they take to understanding and managing complex landscapes. On a more personal note, husband Stan Cadwell has established a studio of sorts in our basement and has become quite prolific in painting western landscapes. Our twin sons, Adam and Brett, are quickly approaching the 21-year mark and their third year in college. We all continue to enjoy camping, hunting, and fishing in the Rockies, and we explore more distant but equally beautiful parts of the country with road trips whenever we can."

Douglas M. Kayes, BS'78, MA'79, is chief geophysicist for Stone Energy in Houston. He and his wife, Karen, live in The Woodlands, Texas, and can be reached at kayes@consolidated.net. They have two daughters in college, a son and daughter at home, and a granddaughter.

Mark Filippini, BS'79, MA'81, works for the U.S. Environmental Protection Agency in Seattle, Wash. He is a hydrologist in the Water Program, and works with the northwestern states on stream and watershed restoration programs under the Clean Water Act.

Thomas H. Specht, Cert/MA'79, MS'85, is a senior imagery analyst at SAIC in McLean, Va. He lives in Fredericksburg. Previously, Specht was as a cartographer for Defense Mapping Agency in Bethesda, Md.

1980s

James Bogardus, MS'88, reports the following: "In 2001 I joined Petroleum Geo-Services (PGS), a Norwegian seismic services company, where I am currently vice president in charge of the onshore multiclient (speculative) seismic business. The basic MC model is: PGS acquires seismic surveys for its own account and then licenses the data to oil and gas companies. PGS differentiates itself from other providers by acquiring very high-end surveys that are wide azimuth and utilize HD3D technology (High Density 3D = high fold and tight spatial sampling). When not performing corporate functions, I spend

my time interfacing closely with oil and gas producers and our seismic acquisition and data processing departments. Outside the office I frequently speak at conventions and geophysical societies meetings to promote PGS technology. In September I am teaching a short course on geophysics at the AAPG Mid-Continent sectional meeting. Prior to joining PGS, I spent seven years as part of the core management team of a start-up independent O&G company owned by service company giants Western Atlas and (via merger) Baker Hughes. This was somewhat controversial: direct service company ownership in an oil and gas company. We fell victim to bad timing (no investment money for O&G during the dot com craze), and despite our unqualified success, Baker decided to sell the assets in 2000 and 2001. I wore many hats ... part geophysicist, engineer, and landman. From 1984 through 1994 I held a series of technical and managerial positions with Western Geophysical in the seismic data processing and land-acquisition fields. For fun, I rode in the BP MS-150 (a 179-mile bike ride from Houston to Austin), took my son's BSA troop backpacking in the Grand Canyon, and ran the New York City Triathlon in July. I'm balancing the fun by remodeling my house."

Craig Davis, BS'80, commenced work with Texaco in Tulsa, Okla., and in 1981 married **Paula Lundgren (Davis)**, BS'81. In 1981, Craig and Paula moved to Houston, where Craig worked for Monsanto Oil. He was transferred to London in 1983. His next move was to Copenhagen (1986) where he worked for Tri-D, and in the following year he returned to London where he worked for Landmark Graphics. In 1989, Craig and Paula returned to Houston and started their family of three children: Luke (15), Ethan (14), and Hannah (9). In 1990, Craig co-founded INEXS, a geological and geophysical consulting company. Today, Craig is president of INEXS, furnishing technical consulting services worldwide.

Cary Kuminecz, BSED'73, MA'80, is senior geologist with Seneca Resources Corporation in their East Division office situated near Buffalo, N.Y. Cary devotes most of his time to oil and gas exploration within the Devonian sandstones and black shales of the northern Appalachian basin. Cary was judging chairperson of the AAPG Eastern Section meeting held last fall in Buffalo. Cary resides in Orchard Park, N.Y., with his wife, Laurie. He has three children. In his spare time, Cary is learning to master the concertina.

Iloye Braide, BA'81, obtained his MS in physical sciences, with a concentration in computer applications, at the University

of Houston. Until 1986, he was employed by Chevron Geosciences in Houston. He moved to Nigeria in 1988. While there, he started a computer company, Business Computers and Information Systems Limited, which furnishes IT services to the oil and energy companies in Port Harcourt. Port Harcourt is the center of Nigeria's oil industry. He is currently investigating opportunities to offer data processing services to the oil industry in Nigeria. Iloye remarks that his training at IU and Houston has helped tremendously in tackling issues that affect the international oil companies.

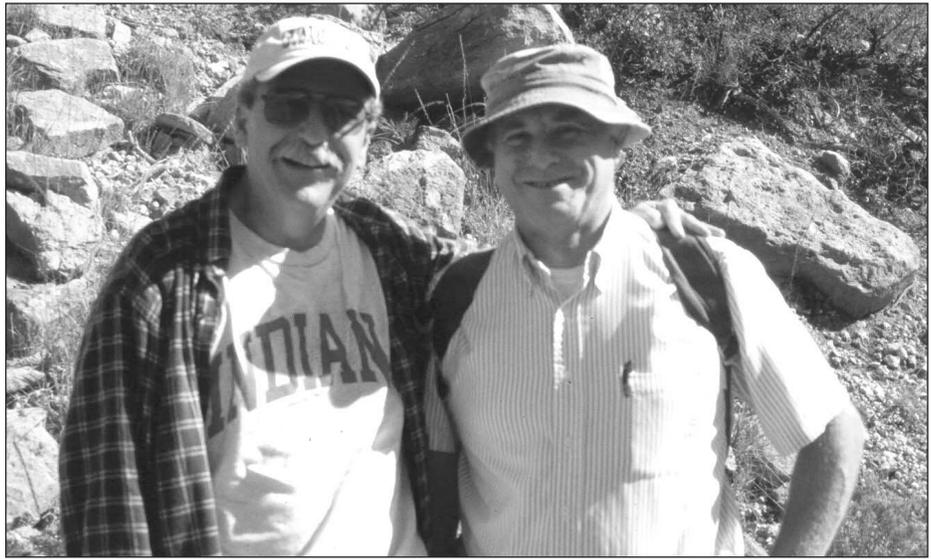
Al Laferriere, MA'81, PhD'87, continues employment with BHP Billiton in Houston, working on the Gulf of Mexico and offshore Trinidad. Last fall he attended a field school in the French Alps ("awesome") and followed that experience with a week in Paris. Al still does house renovations and is currently working on one of his Galveston properties. His parents have moved to Houston, so Al no longer makes pilgrimages to his native New England.

Paula Lundgren Davis, BS'81, married **Craig Davis**, BS'80, in 1981, and together they moved to Tulsa and then to Houston, where she worked for Cities Service. They moved to London in 1983, to Copenhagen in 1986, and back to London in 1987. She consulted with Bow-Valley in London and Tri-D in Denmark. After returning to Houston in 1989, Paula worked for Columbia Gas for several years. Paula and Craig have three children: Luke (15), Ethan (14), and Hannah (9).

Jayne Sieverding, MA'81, enjoyed a three-week Australian odyssey in 2006. Accompanied by her husband Peter and their two children, the family visited Sydney, Ayres Rock, Perth, and Brisbane. In February 2007, Jayne (Chevron) and Glen Heishema (Exxon), visited Bloomington as representatives of our Advisory Board (Glen is president) for a meeting with the new dean of Arts and Sciences. Jayne's husband Peter ran his 12th Houston Marathon in January 2006, and he ran a half-marathon in January 2007.

Martin Farley, MA'82, is professor in the Department of Geology and Geography at the University of North Carolina–Pembroke. The department was reinstated in 2005, and Martin has been elected chair. He suspects that this happened because he "was hanging out with the wrong crowd." In addition, he has been appointed chair of the Awards Committee of the American Association of Stratigraphic Palynology.

Nancy Paredes Ellenberger, BS'84, continues her work at the National Geospatial Intelligence Agency, while her husband, **Mark**, BA'79, MA'80, MA'86, works for another Department of Defense agency. They have two daughters, Andrea and Sarah.



Barry Kues and Greg Wahlman did fieldwork together in the Sierra Nacimiento of northern New Mexico

Howard R. Feldman, BA'84, MA'84, PhD'87, was recipient of two President's Certificates for Excellence for poster presentations at the 2006 Annual Meeting of AAPG. The posters were titled "Subsurface Facies Calibration of Large-Scale Fluvial-Estuarine Point Bars in the McMurray Formation, Syncrude North Mine, Alberta," and "Quantification of Reservoir Heterogeneity in 50-Meter-Thick Estuarine Point Bar Facies—McMurray Formation, Syncrude, North Mine, Alberta." Each of the posters was co-authored by T. Nardin, J.P. Irish, D. Jannette, and D. Heyser.

Deanna Gage White, BS'85, worked as a cancer research associate at the Indiana University Hospital in Indianapolis from 1987–1990. She is married to **Mark White**, BS'85, and is a homemaker. Their children are Logan (16), Carter (14), Chloe (12), and Sophie (9). The Whites live in Bloomington.

Ann Petricca, MS'85, continues doing environmental work for the Hingham, Mass., company with which she has been associated for many years. Currently she is working on a Superfund site in Bennington, Vt., where remediation of toxic discharge continues. Now living in Alabama with her husband Tim and their two sons, Ann visits the Vermont site about three times a year in connection with the ongoing problem of groundwater sampling. She and Tim own and operate a golf course in Montgomery, Ala. Their two boys, Justin and Benjamin, are in first grade and kindergarten, respectively.

Mark White, BS'85, MD'89 (IU School of Medicine), did his residency in family practice at St. Vincent's Hospital in Indianapolis and has since served as an emergency-room physician at several Indiana hospitals. Currently, he serves at hospitals in Bedford, Linton, and Sullivan, Ind. Mark

was president of Moondog, a software company, and he is now owner of a firm known as Rafika (for details, see www.codefund.com). He and his wife, **Deanna Gage White**, BS'85, reside in Bloomington.

Cliff Ambers, MS'88, PhD'93, and his wife, **Rebecca Robinson Ambers**, BA'93, own a 65-acre farm in the eastern Blue Ridge foothills that they purchased three years ago. Cliff is pursuing his long-time dream of cultivating a vineyard and operating a winery. His vineyard has 1,000 vines, and he is now engaged in grape breeding to develop grapes best suited to the climate in their part of the South. Cliff has applied for a winery license and is working on a wine cellar, getting it ready to make wine for sale. He retains geological involvement by assisting Rebecca in her research. During the spring semester 2007, he taught an evening wine-tasting class at Sweet Briar College.

1990s

Kate Freeman, MS'89, PhD'91, is professor and associate head for graduate programs and research in the Department of Geosciences at Penn State University. She joined us this fall as a new member of our Advisory Board.

Robert C. Earle, BS'87, MS'91, writes, "I love living, working, and raising a family in Ada, Okla., but Indiana will always be my home. I will always have a special place in my heart for old IU." Earle works at the U.S. Environmental Protection Agency's Robert S. Kerr Research Center in Ada.

John Holbrook, PhD'92, received the 2006 Research Excellence Award from the University of Texas at Arlington. John, who holds the rank of professor at UT–Arlington, is also an adjunct professor at the University of Texas at Dallas. He is a member of the

Alumni notebook *(cont.)*

Missouri Board of Geologist Registration and is a registered professional geologist in the State of Missouri. Currently, John serves on the sedimentary geology and paleontology panel of NSF, is second chair/chair-elect of the Sedimentary Geology Division of GSA, is chair of the 2006/2007 Organizing Committee for the 2007 AAPG/SEPM Annual Meeting, and is oral chair for the 2008 AAPG Meeting in San Antonio. He is also co-chair (with Chris Paola) of ForSed, an NSF-sponsored forum for national discussion of future research directions in sedimentology and stratigraphy. John was co-convenor (with Ronald van Balen) of the 8th International Conference on fluvial sedimentology in 2005; convenor and organizer of an NSF-sponsored workshop on environmental stratigraphy (also in 2005); and was convenor and organizer in 2006 of an NCED, NSF, and SEPM-sponsored forum on changing funding levels, low geology graduation levels, and oil price levels at the Philadelphia Annual Meeting of GSA. John's active research includes sedimentological study of the Mississippi Delta, the Mississippi and Missouri River alluvial valleys, the Rhine/Maar delta in the Netherlands, petroleum production in the northwest-offshore shelf of northwestern Australia, and sedimentation/tectonics at the Himalayan thrust front in Nepal.

Rebecca Robinson Ambers, BA'93 Anthropology and Geology, married **Cliff Ambers**, MS'88, PhD'93, in 1994, and together they moved to Norman, Okla., where she earned a master's degree in igneous petrology. In 2000, she earned the doctorate in environmental geology at the University of Oregon. Her first appointment (2000) was as tenure-track assistant professor at Winona State University, Minn., where Cliff served as an adjunct professor. In 2001, she and Cliff moved to Virginia, where she joined a brand-new department of environmental science at Sweet Briar College. Her teaching activities include Introduction to GIS, Surface Waters, Physical Geography, and Advanced Lab in Environmental Science. Her office is in a caboose, and her lab and teaching space are in an adjacent train station! Rebecca's research takes advantage of Sweet Briar's 3,250-acre campus of woodland and pasture. One area of research involves the effects of historical land use on modern landscapes; the other involves applications of clay mineralogy in geomorphology. Rebecca has recently been awarded tenure and promotion to associate professor of environmental science at Sweet Briar. She has won the college's Faculty Fellowship to support an academic-year sabbatical.

Major Chris Gellasch, MS'94, has returned from three years of service in Germany and Afghanistan, and is now posted at Fort Lewis, Wash. Chris is chief of the Environmental Health and Engineering Division at the U.S. Army Center for Health Promotion and Preventive Medicine-West. There are four environmental science officers and two civilian scientists working for Chris. His group covers 19 western states, including Alaska, and furnishes support to active and reserve military installations in the areas of drinking water, waste water, hazardous and regulated medical waste, air quality, groundwater, and soil contamination. Chris also serves with Lee Suttner on the GSA Professional Development Committee. Currently, he is preparing two manuscripts based on his deployment to Afghanistan. Chris' wife, Amy, who holds a doctorate in mathematics, will commence teaching this year at Pacific Lutheran University. Chris and Amy have a two-year-old son, Brian.

Stephanie Ingle, BS'94, received an MS degree from the University of Florida in 1999. She then moved to Brussels, Belgium, and began a PhD study of large igneous provinces under the supervision of Dominique Weis at Brussels Free University (currently at the University of British Columbia). She completed her PhD in geochemistry in 2003. Since that time, she held a two-year postdoctoral fellowship with the Japanese Society for the Promotion of Science at Tokyo Institute of Technology, where she worked with Eiichi Takahashi on questions related to the composition of Earth's mantle and mantle petrology. In 2005, she was awarded a position at the School of Ocean and Earth Science and Technology Young Investigator at the University of Hawaii at Manoa in Honolulu, and has been an assistant researcher there ever since. She is actively involved in the marine geology and geophysics community and is helping to organize a workshop in Northern Ireland this summer (2007) to plan future drilling of oceanic large igneous provinces (see www.iodp.org/lips). She had several job interviews this spring on the mainland, and she hopes to procure a position as an assistant professor in the near future.

Jen Klug, BS'94, reports the following: "After IU, I got my MS (1997) and PhD (2000) from the Department of Zoology at the University of Wisconsin-Madison. My dissertation work focused on the impact of terrestrial dissolved organic matter on bacterial and phytoplankton communities in northern Wisconsin lakes. In 2000, I married Tod Osier, and in 2001, we started a faculty position in the Biology Department at Fairfield University in Connecticut. Fairfield is a small, primarily undergraduate institution on the coast of the Long Island

Sound. Tod is also a biologist and we split one faculty position at Fairfield. We were granted tenure in 2006. My research at Fairfield has focused on nutrient pollution and its impacts on cyanobacterial communities in local reservoirs and rivers.

Mark Monk, MS'95, has joined Towson University in a newly created position as analytical manager of the Urban Environmental Biogeochemistry Laboratory in the Fisher College of Science and Mathematics. Mark also serves as the instrument support specialist for the college, which keeps him busy but also keeps things interesting. Mark and his wife BillieJo recently moved into a new house in southern Pennsylvania with their daughter Emily (age 2½).

David C. Wilson, BS'95, MS'97, has recently commenced work as manager of the Hawaiian Volcano Observatory. After leaving IU, Dave earned his doctorate from the New Mexico Institute of Mining and Technology, studying deep structure of the Colorado Plateau and the Rio Grande Rift. During the past two years, he has been studying plate tectonics in the area of Mexico's Colima Volcano while pursuing a postdoctoral appointment at the University of Te Colima. Dave and his wife, Jennifer, who is also a geologist, have a daughter, Kaya.

George Yu, PhD'99, is now a senior hydrogeologist in the Groundwater Division of Saudi Arabia Oil Company (Saudi Aramco). George sent an e-mail image of himself standing adjacent to gigantic (up to 300-meters high) sand dunes in the Rub al Khali (Empty Quarter) desert. In the image, he is wearing a polo shirt with "Indiana" imprinted in large letters! George sends his greetings to everyone in the department, and wishes all "a very happy 2007."

2000s

Steve Loheide, MS'01, has accepted a tenure-track position in the Department of Civil and Environmental Engineering at the University of Wisconsin-Madison.

Whitney E. Hatch Carr, BA'02, is a leasing consultant for Abodes Inc. in Bloomington. She leases luxury apartments and performs e-marketing. Her husband, Nicholas, BA'02, is a project manager for Aegis Environmental Inc. in Greenwood, Ind. He helps ensure that cleanup sites meet state and federal regulations. They live in Bloomington and recently celebrated their first wedding anniversary.

Ye "Linda" Zhang, PhD'05, has accepted a tenure-track position in the Department of Geology and Geophysics at the University of Wyoming. Prior to this move, Linda was a Turner Fellow at the University of Michigan.

Alumni enjoy leadership positions at USDA Forest Service

The Minerals and Geology Management staff of the USDA Forest Service have many talented Indiana University graduates in program leadership positions. **Christopher Carlson** (MS'92, PhD'00), is the national Ground Water program leader; **Michael Doran** (BS'80) is the Locatable Minerals program leader, and **Lucia Kuizon** (MA'76) was the Paleontology program leader; all three positions are stationed at the headquarters in Washington, D.C. **Melody Holm** (MS'77) is the Energy program leader for the Rocky Mountain Region in Denver and coordinates the Forest Service "Geology and Ecosystems in the Field" course held at the Judson Mead Indiana University Geologic Field Station in Whitehall, Mont. Two other IU Field Station alumni working for the Forest Service are **Lynne (Rosdahl) Dickman** (IUGFS'74) in the Northern Region in Missoula, Mont., and **Andy Rorick** (IUGFS'75) in the Pacific Northwest Region in Sandy, Ore.

Christopher P. Carlson has served as the National Ground Water Program leader since June 2005. As the first incumbent in this position, his focus is on developing national policy, fostering awareness of the resource across the agency, and providing technical assistance and training on ground water issues to the agency nationwide. Prior to joining federal service, Chris worked for nearly 15 years as a hydrogeologist for the Wisconsin Department of Natural Resources, where he was primarily involved in metallic mining and landfill permitting and cleanup. He also worked as a researcher for the Department of Soil Science at the University of Wisconsin–Madison (incorporation of ground water flow in a surface water/sediment transport model) and the Indiana Geological Survey (effects from septic systems on ground water quality and coal mine hydrology and geochemistry). Chris was an instructor for several years at the Indiana University Geologic Field Station in Montana and was instrumental in developing the environmental geology component of the field course. Chris has a BA in physics from Carleton College in Minnesota. He also holds an MS in environmental science (hydrogeology), an MS in geology (surficial processes), and a PhD in geological sciences (hydrogeology and aqueous geochemistry) from Indiana University.

Lynne (Rosdahl) Dickman is a staff geologist in Region One for the USDA Forest Service in Missoula, Mt. She has a master's degree in geology from the

University of Montana. Her work experience with the federal government has been primarily in mineral and geological resources. Lynne's federal career spans more than 30 years, which includes several years as a materials engineering technician, 15 years as the Bitterroot National Forest geologist, and her recent post as staff geologist in the Regional Office. She also provided soils expertise while assigned to Bitterroot. Currently, she provides advice and program direction for the 13 national forests and grasslands in the Northern Region, responds to congressional requests, and provides input as needed for litigation or coordination with other agencies. She is a certified mineral examiner and provides assessment of mining related activities that are proposed on national forest system lands.

Mike Doran has been the Forest Service national program leader for the locatable minerals program for the past 6½ years. His primary responsibilities include providing technical and policy direction and advice for the hard rock mining program on the national forests. After a short stint with the USGS, Mike started with the Forest Service as a district geologist working in oil and gas administration in North Dakota. He later moved on to the Gallatin National Forest, where he worked on the early permitting work for the Stillwater Platinum Mine. Mike moved on to a position as forest geologist for the Clearwater National Forest, where he worked with small miners and completed mineral examinations for placer and hard rock mining claims. Later, Mike worked in eastern Oregon for nine years as the area mining geologist. He also worked in the Regional Office in Portland, Ore., before accepting his current position. Mike received his BS in geology from Indiana University in 1980. He is a certified review mineral examiner and is the current chair of the National Forest Service Mineral Examiner Certification Panel. Mike is also a level II certified minerals administrator. He is also a member of the Society for Mining, Metallurgy, and Exploration (SME).

Lucia (Lucy) Kuizon was the national paleontology program manager for the USDA Forest Service in Washington, D.C., and is currently the senior paleontologist for the Department of the Interior, Bureau of Land Management. She has a master's degree in geology from Indiana University (1976), and her work experience with the federal government has been primarily in mineral resources. Lucy's federal career includes geology and minerals positions with

the Forest Service in Washington, D.C.; with the Bureau of Land Management in Elko, Nev., Casper, Wyo., Riverside, Calif., and Washington, D.C.; and with the U.S. Bureau of Mines in Spokane, Wash. She is a graduate of the Women's Executive Leadership Program (1987), the Brookings Institution's LEGIS Fellows program (2001), and the Department of Commerce's Science and Technology Fellowship Program (2006). In 2000, in cooperation with the BLM and the National Park Service, she authored the Department of the Interior's report to the Senate, "Assessment of Fossil Management on Federal and Indian Lands." As a result of that report, the Paleontological Resources Preservation Act was introduced in the 107th Congress. Lucy has continued to work on passage of the Paleontological Resources Preservation Act with the other federal land management agencies through 110th Congress.

Melody R. Holm began her career as a geologist in 1977 with Shell Oil Company, spending the subsequent 15 years in oil/gas exploration and production with major companies and as an independent consultant. Her industry experience focused on fluvial and marine depositional settings of hydrocarbon reservoir systems in various California and Rocky Mountain basins, and on Cretaceous stratigraphy and structure of the Idaho-Utah-Wyoming Thrust Belt. She joined the Forest Service in 1992 as the national liaison with the USGS, with duties related to the National Assessment of U.S. Oil and Gas Resources and the developing Forest Service oil and gas leasing program. She provides technical and regulatory support, guidance, and oversight of the Rocky Mountain Region leasable minerals program (primarily energy minerals, natural gas, oil, and coal). Melody also developed and continues to coordinate and instruct "Geology and Ecosystems in the Field," a national Forest Service training session focusing on the ecological connections among bedrock and surficial geology, soils, water, vegetation, and wildlife. Melody has bachelor's and master's degrees in geology from the University of Texas–Austin and Indiana University Bloomington, respectively. She has a strong background in field geology, sedimentology, structural geology, and petroleum exploration and production, and she has authored a number of technical papers and reports. She is licensed as a professional geologist in Wyoming (PG 81), and is a member of the Geological Society of America, the American Association of Petroleum

(continued on page 27)

Advisory Board activities

Six years ago in these columns ran a headline that announced that the endowment campaign launched by the Advisory Board had exceeded its goal. The pivotal role of the Advisory Board is instrumental in providing opportunities for students and faculty to forge forward. The Department has filled four endowed positions, inspired continuing faculty, and climbed in the national rankings.

Working behind the scenes—away from the spotlight on awards and media paparazzi—the Advisory Board met under the leadership of incoming president **Glenn Hieshima** (ExxonMobil) on October 26 and 27, 2006. **Mark Leonard** (Shell Oil) was elected vice-president and will succeed Glen in due course. Because of a last-minute emergency, president **Johnny Waters** had to cancel about 24 hours before the meeting. **John Bubb** is kindly continuing to keep track of accounts alerting the chair and the Board of trends in income and expenses. This year's Board meeting will take place on October 4 and 5. **Katherine "Kate" Freeman** (Penn State) will join the Board as a new member.

The meeting of the full Board was preceded by a half-day meeting of the Executive Committee. **Bob Becker**, the executive associate dean of the College, attended a part of the meeting and expressed his support for the Field Station. **William Haines** of the Physical Plant explained the extent of need for renovating the infrastructure of the Field Station. **Gary Stratton** of the IU Foundation explained how investments were performing and how some consolidation has taken place for the better.

A particularly frank exchange took place between then-interim dean of the College, **David Zaret**, and the Board with respect to a hiring freeze that has affected the Department. Had it not been for the four endowed positions, the faculty strength would be 14—the lowest number in two decades. The Board noted the rapidly growing demand for geologists that can be met with increasing faculty



2006 Advisory Board

First row (left to right): Stephen G. Wells, Thomas Straw, Abhijit Basu, Donna Hackney (IU Geological Sciences fiscal officer and administrative assistant), Glenn B. Hieshima, Robert G. Jones

Standing (left to right): Jeffrey S. Oslund, Michael C. Mound, Mark S. Leonard, Derek G. Fullerton, Kenneth R. Vance, John N. Bubb

and diversity of offerings. Dean Zaret replied that the necessity of preventing the College from operating on a deficit budget would mean there was no option but to freeze many positions.

David Polly, the newly hired associate professor, who came from the Queen Mary's College of the University of London, discussed his research and development of planned courses in vertebrate morphometry and quaternary paleontology. In addition, three faculty members presented highlights of current research (**Simon Brassell** on the Aptian climate, **Juergen Schieber** on experimental mud flume, and **Lisa Pratt** on sustaining bacteria under extreme conditions).

Lee Suttner talked about the crisis in field training in geology.

He outlined a scheme of forming alliances with several like-minded field programs and providing IU's leadership through the Field Station. This will require a campaign and support from the industry, which benefits from such training.

Students from the SAC, the SGE, and the Club met with the Board and joined the Board for lunch in the Tudor Room and discussed the issue from their perspective. All faculty and staff attended a dinner at Terry's Banquet on Friday evening. Our new fiscal officer and administrative assistant, **Donna Hackney**, organized the whole two days and the wonderful dinner, with unstinted support from all staff. Kudos to all.

In February 2007, **Glenn Hieshima** and **Jayne Sieverding** (Chevron) made a special one-day trip to Bloomington expressly to meet with **Bennett Bertenthal**, our new dean of the College. Jayne presented data to educate the new dean about the current job market for geologists and projections into the near future. We are very thankful to both of them. It is necessary for new administrators to learn from successful alumni.



2005 Advisory Board

First row (left to right): Abhijit Basu, Jayne L. Sieverding, John Steinmetz, Johnny A. Waters, Laura Gano (IU Geological Sciences fiscal officer and administrative assistant), Glenn B. Hieshima

Standing (left to right): Michael C. Mound, Judson Mead, Jeffrey S. Oslund, Mark S. Leonard, Stephen G. Wells, Derek G. Fullerton, Frank D. Pruetz, John N. Bubb, Robert G. Jones, Kenneth R. Vance, Kenneth D. Ridgway, Lee J. Suttner

Digging in the West: IU offers new fossiltrek in the wilds of Montana

By Steve Hinnefeld

This article appeared on February 18, 2007, in the Herald-Times. Reprinted with permission.



A class perches at a high altitude in the mountains during a stay at the Indiana University Judson Mead Geologic Field Station in western Montana.

More than 6,000 college students have learned about geology in the spectacular outdoor classroom that is Indiana University's Judson Mead Geologic Field Station in western Montana.

This summer, IU alumni and other interested adults can have the experience, along with an opportunity to dig for dinosaur fossils and learn from experts on geology and paleontology.

Titled "Dinosaurs, Mountains and the Evolution of the Earth," the alumni college program will take place at the field station Aug. 11–17.

Lee Suttner, an IU emeritus professor of geological sciences who is in charge of the program, said it's designed for people who enjoy the outdoors and like to learn by discovery. "It's so easy to teach well there, and to teach with enthusiasm and excitement," he said. "It's all there — and it's so beautiful."

Along with Suttner, faculty will be Kristi Curry Rogers, curator of paleontology at the Science Museum of Minnesota; and Ray Rogers, chairman of the geology department at Macalester College in St. Paul, Minn.

Participants will start the weeklong program with three days at the IU field station at the core of the Tobacco Root Mountains, about 60 miles from Bozeman, Mont. Hiking through rock formations and landforms, they will learn about the planet's 4.5 billion-year history and the way plate tectonics and other forces have built and shaped mountain ranges.

After three days at the station, they will visit a mammal fossil collecting area, spend a day at the famous Egg Mountain dinosaur site and take part in collecting and research at the Missouri Breaks, where the first North American dinosaur fossils were discovered in the 1850s.

Egg Mountain is where the well-known paleontologist Jack Horner, in the late 1970s and 1980s, discovered dinosaur eggs, nests and babies that created new understanding of how dinosaurs cared for their young.

Also scheduled are a stay at a guest ranch in Teton Canyon; a private dinner at the C.M. Russell art museum in Great Falls, Mont.; and a behind-the-scenes tour of the Museum of the Rockies in Bozeman.

Indiana University has been sending geology students to the field station for almost 60 years. The facility also provides hands-on courses for students from other colleges and universities. The university paid \$300 for the 60-acre site after World War II—today, it would go for 200 times as much, according to the station Web site. IU later built a campus consisting of a lodge, classroom building, library, laboratory, faculty living units and a full-time manager's residence.

Suttner first laid eyes on the station in 1959, when he took a course there as an undergraduate at Notre Dame. He joined the IU geology faculty in 1966, became Associate Director of the field station in 1969 and Director in 1981.

The university offered a summer alumni program at the station when Suttner was director, he said, but it lapsed after his retirement. At that time, the program was based exclusively at the station and focused on natural history. "We're resurrecting it with a different focus," he said.

Suttner hopes the new alumni college will take hold, grow in popularity and help provide ongoing support for the station's student courses, which help train a large number of the nation's future geologists.

"It's the largest program of its kind in the country," Suttner said of the student program.

"And, in my opinion, it's the best of its kind."

Forest Service *(continued from page 25)*

Geologists and AAPG Division of Environmental Geoscientists, the Wyoming Geological Association, and the Rocky Mountain Association of Geologists.

Andrew Rorick worked as an exploration geologist in Montana, Wyoming, Colorado, and New Mexico from 1976 through 1979. After obtaining his master's degree in geology in 1983, he served as geologist on national forests in Arkansas, Texas, Nevada, and Illinois. From 1995 through 1998 he was regional geologist for the Forest Service's Eastern Region, and since late 1998 he has been responsible for development of and standards for the

geology, geomorphology, and climate portions of the Natural Resources Information System, the Forest Service's corporate database. Andrew co-authored the Forest Service's Terrestrial Ecological Unit Inventory technical guide (2005) and, since 1999, he has been participating with colleagues in the USGS, the American Association of State Geologists, and the Geological Survey of Canada on development of the North American "vocabulary" and data standards—which are currently undergoing internal review—for digital geologic mapping, as mandated by the National Geologic Mapping Act of 1992.

In memoriam

Dick “Alex” Alexander



Dick “Alex” Alexander, (AM’72, PhD’72) a professor at Rider University, died on December 11, 2005, in a swimming accident on St. Lucia Island in the Caribbean.

Alex and his wife, Jeannie (also an IU graduate), were on vacation at the time, a shared early Christmas gift. His colleagues and faculty at IU will remember Alex as a bright, highly motivated and dedicated student and a friendly, generous person. After completing his work at IU, Alex joined the faculty at Utah State University. A few years later he moved to Rider University in Lawrenceville, N.J., where he was professor and former chair of the Department of Geological, Environmental, and Marine Sciences. Since 1997 he had been an assistant dean of science in the College of Liberal Arts. Among other innovations, Alex established marine science courses at Rider in collaboration with other institutions. Alex received world recognition for his paleoecologic research, especially on invertebrate predation as revealed in the fossil record and its effect on skeletal form and structure. Alex will be greatly missed by his friends and colleagues.

Lou Bucklin

Lou Bucklin, who has been in charge of the Department’s rock preparation laboratory

and machine shop for nearly the past 15 years, passed away on August 9, 2006, following a battle with leukemia. In addition to his service to the Department, Lou worked as a gardener for the Campus Division where he was certified in pesticide application and irrigation technology. Despite his wide-ranging duties for the Department and IU—which spanned more than 25 years—and a strong devotion to his family, Lou managed to complete all the geology course requirements for his undergraduate degree, including G429 in Montana, before his passing. He also found time to hold a number of leadership positions in the AFSCME Local 832, he was a Board Member for the United Way and the White River Labor Council, and he served on a number of local and national committees associated with the Society of Friends (Quakers). At home, he was an avid flower and vegetable gardener and maintained a small orchard.

Lou’s warm smile, gentle personality, stalwart dedication to the Department, incredible dependability, responsibility, and eagerness in assisting students and faculty, will be irreplaceable. He is survived by his wife Linda and two children.

Allan M. Gutstadt

We were saddened to learn that **Allan M. Gutstadt** died on January 3, 2007, in Bloomington. He was 80 years old. After serving as a petroleum geologist at the Indiana Geological Survey from 1953 to 1957, he then worked as a geologist for the Creole Oil Company in South America. He retired as Professor Emeritus of Geology

at California State University–Northridge. The IGS offers its condolences to Professor Gutstadt’s family.

Robert Kirby

The many colleagues and friends of **Robert Kirby**, BS’59, were saddened by the news that he died on May 31, 2007. The Department extends condolences to Robert’s family. Robert recently wrote in to update the Department on his life after graduation. Robert reported that after graduation he headed west and wound up in the aerospace industry at Aerojet General in Sacramento where he also picked up an MS in engineering mechanics at Sacramento State University. In 1970, he and a friend formed Engineering Analysis Corp. in Redondo Beach, Calif., where they developed structural analysis software for aerospace, nuclear, and civil engineering applications. He retired in 1990.

Dan Sullivan

The Indiana Geological Survey joins the Department of Geological Sciences in expressing condolences to the family, friends, and colleagues of **Dan M. Sullivan**, who died on January 10, 2007, at the age of 78. Dan retired as head of the Petroleum Section in 1989 after working as a petroleum geologist at the IGS for 36 years. He was a member of the American Association of Petroleum Geologists, was the past president of the Indiana-Kentucky Geological Society, and had received the



David G. Towell

(May 30, 1937–Aug. 29, 2007)

David Towell, emeritus professor of geochemistry, passed away peacefully in the presence of his spouse Lindsay and two sons, Garrett and Brian, on August 29, 2007. Nearly five years ago, Dave was given less than a year to live when he was diagnosed with late-stage lung cancer. Remarkably, if not miraculously, and probably in large part because of his excellent physical condition, Dave successfully battled the disease far longer than the most optimistic diagnosis predicted. Dave and Lindsay fully used their “bonus years” (as the family fondly referred to them) to realize many of their retirement dreams of extended travel, which included numerous hiking and camping trips with their children and grandchildren in Dave’s favorite areas of the northern Rocky Mountains.

Dave was born in Fillmore, N.Y., where his father was the postmaster and his mother a nurse. He entered The Pennsylvania State University in 1955, partially supported by a baseball scholarship. After receiving his BS degree in 1959, he accepted a research fellowship at the Massachusetts Institute of Technology. In just four years he earned his PhD. Before joining the faculty at Indiana University in 1964, he spent a year doing postdoctoral study at the California Institute of Technology.

Prior to Dave’s retirement in 2001, his teaching and research focused largely on isotope geochemistry. He is widely recognized for his pioneering work on the rare earth elements, which he initiated in graduate school. His 37 years of teaching included 33 summers of teaching at the Judson Mead Geologic Field Station in Montana, which he referred to as “teaching in heaven.”

Dave lived his life with great passion, enthusiasm, and kindness. Through his many years of service as chair of the Department’s Graduate Committee and decades of teaching courses on campus as well as in the field, he was a most positive influence on hundreds of undergraduates and graduates. His many years and broad variety of service to Indiana University were highlighted personally for him by the seven years that he spent on the Athletics Committee. His love of and support of Indiana University athletics was legendary. The Indiana University family has lost one of its most loyal members.



Left to right: Ginny Suttner, Lee Suttner, and David Towell celebrate a basketball victory over Illinois in February 2007 at Opie Taylor’s restaurant in Bloomington.

In memoriam (cont.)

Distinguished Service Award from the Professional Geology Association of Indiana. He was also a long-time member of the Department's Advisory Board. A graduate of Indiana University, Dan was a loyal and

faithful fan of IU athletics. He held season tickets for basketball and football games for nearly 60 years. No one who had the wonderful good fortune of knowing Dan will ever forget his warmth and charm, his touch

of Irish humor, his ability to tell (and retell) a story, and his skill as a master of ceremonies at a broad range of functions.

Memorial resolution: Professor Norman Gary Lane (February 19, 1930–January 14, 2006)

Some 400 years ago, John Donne meditated that anyone's death diminishes us because no one is an island. As true as it is for all, the passing away of someone close diminishes us more, much more. It was with a great sense of diminishment that late Norman Gary Lane's family, friends, students, and colleagues gathered on a cold but sunny morning on January 19, 2006, at the St. Paul Catholic Center of Bloomington for a Mass and Committal for our "Gary."

Norman Gary Lane's primary and secondary schooling was in Sidell, Ill., a farmland where his father owned and operated a newspaper, which possibly instilled his life-long passion for vegetable gardening, curiosity about animal and plant kingdoms, and his infinite compassion for all human beings. Gary obtained his baccalaureate from Oberlin College in 1952 and moved to the University of Kansas for graduate studies. Within two years he obtained his master's (1954), having studied the nearly 230 million-year-old Grenola Limestone in the region, and he then began his doctoral work under the tutelage of the legendary paleontologist Professor Raymond C. Moore. As a PhD student, he worked for the Kansas Geological Survey, the Canadian Geological Survey, spent the 1955–56 academic year at the University of Tasmania as a Fulbright scholar, and completed his PhD dissertation (1958) on "The Monobathrid Camerate Crinoid Family: Batocrinidae." For the rest of his life, Gary would study echinoderms, especially crinoids of the Paleozoic Eon (approximately from 550 to 250 million years ago), from all over the world.

Soon after his PhD, Gary married Mary Roseleen Rooney of Fairview, Kan., and moved farther west to begin his academic career at the University of California in Los Angeles, where he rose to the rank of professor of paleontology. His children—Charles, Ann, and Susan—were born in Los Angeles. They all moved to Bloomington in fall 1973, when Gary accepted the position of professor in paleontology. Mary set up a household that would be the gathering place for waves of graduate students of all specializations from the Department of Geological Sciences. Gary retired in 1994 but continued as a very active emeritus professor, conducting research and volunteering to teach *gratis* in diverse programs in and outside Indiana University.

Professor Gary Lane was *the* leading international authority on fossil crinoids in addition to being an expert in paleontology and the history of geology. He published two books, more than 12 monographs, and numerous scientific papers. His work was varied and abundant on crinoids that he collected from Brazil, China, England, Ireland, Tunisia, and the United States (mostly in Illinois, Indiana, Iowa, Kansas, Kentucky, Missouri, Nevada, Tennessee, and Utah), as well as those in museum collections. His most significant contributions included his work on the family *Batocrinidae*, the frontier research on crinoids in China, England, and Nevada, and his work on *microcrinoids*, which significantly advanced our knowledge of all crinoids.

Perhaps less well recognized was his pioneering work that set forth some of the initial ideas to understanding the

paleoecological structure of Paleozoic benthic communities. His innovative thinking on various aspects of the paleobiology of Paleozoic crinoids—from feeding to predation to connective soft-tissues—resulted in several important manuscripts and inspired a generation of crinoid workers to study paleobiology and evolutionary paleoecology. Gary was also one of the primary contributing authors to the 1978 *Treatise on Invertebrate Paleontology, Crinoidea*. In addition, Gary had historical research interests with publications spanning 50 years on pioneering geologists and naturalists from New Harmony, Ind.; crinoid folklore; the history of crinoid studies; and the history of the Indiana Department of Geological Sciences, on which he published a book.

Professor N. Gary Lane served the profession in many ways and received numerous awards and honors, including Fulbright Fellowships to Tasmania (1955–1956) and Trinity College, Dublin, Ireland (1971–1972). He was co-editor of the *Journal of Paleontology* (1969–1971), associate editor of *Paleobiology* (1977–1979), SEPM Outstanding Paper Award in the *Journal of Paleontology* in 1979; and president of the Paleontological Society (1987–1988). Gary received the Erasmus Haworth Distinguished Alumni Award (University of Kansas) in 1979 and the R.C. Moore Medal from SEPM, Society for Sedimentary Geology in 1995. He was chair of the IU Department of Geological Sciences from 1984 to 1987. At the 2005 Annual Geological Society of America in Salt Lake City, a special research symposium was held to honor his career.

Both at UCLA and at Indiana University, Professor Lane was an outstanding and popular professor, receiving teaching awards and working closely with students of all ages and interests, be they his PhD advisees or enrolled in a course of the Collins Living Learning Center or in the Mini University. He had an infectious love of learning, not just for crinoids but for geology, wildflowers, natural history, and history. Gary was the consummate natural historicist in the grandest sense. Whether you were walking with him through the woods toward a rock outcrop or to collect mushrooms, or going with him on camping trips to deserts and deciduous forests where he would stir-fry dinner for a score in his huge wok, or attending his semester-ending invertebrate dinner, or sitting with him over a beer, all would get a natural history short course on flowers, trees, and birds. His informal style of discourse belied the depth of understanding of the fundamental that he conveyed to the listeners. In this world of specialists, Gary's broad, integrative knowledge was a welcome perspective and an inspiration. Gary taught and learned through fellowship, enriching the lives of all he touched. If ever a geologist was not an island in itself, it was Gary. His innovative research and nurturing of young scientists leave a lasting legacy, and his passing away leaves us diminished.

—Abhijit Basu and William Ausich
August 31, 2006

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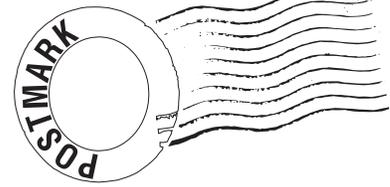
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