

GEOSCIENCE NEWS

for the Alumni and Friends of the
Department of Geological Sciences
University of Michigan, Ann Arbor, Michigan

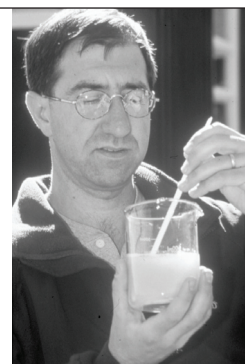


Winter 2005

- 
- 2... Greetings from the Chair***
 - 3... Smith Endowment***
 - 4... Pollack Symposium***
 - 6... Honors, Awards, Kudos***
 - 7... Society of Vertebrate Paleontology***
 - 8... Broken Arms and Collateral Damage***
 - 9... Now You Can Google GeoClub***
 - 10. Drilling in the Arctic***
 - 11. Alumni News***
 - 15. In Memoriam***
 - 15. Camp Davis Alumni Getaway***
 - 17. Summer Field Excursions***
 - 21. Smith Lectures: Fall 2004***
 - 22. Faculty News***
 - 24. New Students and Degrees Granted***

Greetings from the Chair

The past six months have been very exciting times for the Department of Geological Sciences. Last summer John Greene (MS '70) spearheaded an ongoing effort to honor retiring professor Henry N. Pollack with a graduate student fellowship in Henry's name. The outpouring of support from the many alumni and friends of the department has been amazing. Henry epitomizes the beloved professor that we all aspire to be and it is gratifying to see how much he is appreciated for it. Henry has spent a long and successful career as an outstanding student mentor, and it is a fitting tribute to him that this student fellowship fund has been created. I ask that you consider contributing to this most worthy endowment fund, or any of a number of other funds that have been created to honor former faculty members. Other professors so honored in recent years include James T. Wilson, Chester B. Slawson, and John A. (Jack) Dorr, Jr.



As if the Pollack fellowship were not exciting enough, William T. Smith (another dedicated alumnus, BS '47, MS '48) contributed two million dollars to endow the Henry N. Pollack faculty chair in Geological Sciences, the first fully endowed chair in the Department's history. This chair will enable us to recruit from the very top faculty candidates in the world and make very attractive offers. This opportunity to increase the size of our faculty comes at an especially critical time as we expand the reach of our program into a broader range of fields in Earth Systems Science, while at the same time maintaining our traditional strengths in studies of the solid earth. Bill Smith also graciously endowed our weekly visiting lecture series, which has been named in his honor. This gift will allow us to bring to Ann Arbor the best and brightest minds in Geological Sciences to exchange ideas and establish personal contacts with our students and faculty.

We celebrated Henry Pollack's career in Ann Arbor during early October at a weekend event that spontaneously took on the name of "Henry-Fest" (see article on page 4). It was a weekend that all of the participants will long remember. The department Alumni Advisory Board met on Thursday October 7th with faculty, the University Provost Paul Courant, and with the current graduate and undergraduate students. They were joined Friday by many of Henry's former students and colleagues who flew in from all corners of the country, and from both eastern and western Europe. Eleven speakers participated in "The Henry N. Pollack Symposium: Celebrating 40 Years of Innovative Research." Speakers spanned the full range of seniority from Henry's first student to his current (and presumably final?) student Jason Smerdon. Henry's students have gone on to become experts in an incredibly wide range of endeavor within the Geological Sciences, a range that was reflected in the symposium. The symposium was followed by the William T. Smith lecture presented by Dave Chapman (PhD '76) entitled "From Tectonics to Climate Change: A Tribute to Henry N. Pollack and Reflections on his Forty Year Career at the University of Michigan", with a humorous subtitle of "40 Years in 40 Minutes". Dave's lecture was a thought-provoking and amusing overview of Henry's research career and achievements. This was followed by a reception in Henry's honor and then a banquet at the elegant University of Michigan Museum of Art. After generous quantities of wine and a delicious dinner, the audience was treated to a program that seemed to touch every emotion. Hilarious stories were contrasted with touching remembrances of Henry's career, adventures in the field with students, and personal life—all of which seem inseparable. Henry sets the standard for me personally as a professor in the way that he has so profoundly influenced so many careers and lives of the students and colleagues he has touched.

Joel D. Blum

William T. Smith Endows Chair and Lectures



William T. Smith (BS '47, MS '48) of Fort Worth Texas has made a gift of \$2.6M to the Department of Geological Sciences, to endow a faculty position in honor of Professor Henry N. Pollack and to endow the Department's weekly visiting lecture series, to be called the William T. Smith Lectures in Geological Sciences.

Bill Smith, a native of Kalamazoo, enrolled at U-M in the 1940s, but his studies were interrupted for military service in World War II. After the war he returned to Ann Arbor to complete his undergraduate and graduate degrees. After graduating he joined Stanolind Oil & Gas Company, the exploration and production subsidiary of Standard Oil of Indiana (later known as Amoco). In 27 years at Stanolind he advanced through a number of exploration and management positions to become the Executive Vice President of Amoco Production Company.

In 1975 Bill joined Champlin Petroleum, a subsidiary of the Union Pacific Corporation, and became Chairman of Champlin in 1982. He served on Champlin's Board of Directors until 1987. At that time he was also Vice Chairman and Director of Union Pacific. During this time with Union Pacific Bill was instrumental in securing a substantial grant for the Department from the Union Pacific Foundation. Following Bill's retirement from Champlin in 1987, his first "retirement", he started his own enterprise, appropriately called Wolverine Exploration Company, which he led as Chairman and Chief Executive Officer until his second retirement in early 1992.

Bill served as Chairman of the Natural Gas Supply Association, whose members account for almost 90 percent of all domestic natural gas supplies. He is also the past National Chairman of the 8,500 member Mid-Continent Oil & Gas Association, and a Director of the American Petroleum Institute (API). At the API he served as a member of the Committee on Public Issues, and as chairman of its Major Issues Task Force on Land Use. Bill also has served as a member of the Texas Energy Advisory Council and the National Petroleum Council, and is a former Director of Tandy Corporation and of First Republic Bank Corporation.

Bill Smith's formal ties to U-M's Geological Sciences Department were renewed in 1982 when he was asked to serve on the Department's first Alumni Advisory Board. His participation on the Board in its early formative years, from 1982-88, set a firm foundation for the later activities of this Board in guiding the Department up to the present day. Bill has continued to play an important advisory role in the years subsequent to his time on the Board.

Henry Pollack, for whom the endowed chair is named, has been on the Geological Sciences faculty since 1962. He has taught at every level of the curriculum, from introductory undergraduate courses to specialized graduate seminars, both on campus and in the field. His principal research efforts have for many years addressed the Earth's internal heat, and

how Earth has cooled over its long history. This work included field measurements of rock temperatures in North and South America, and Africa. Over the past decade he has examined subsurface temperatures from around the globe for evidence of climate change. Henry has served as Chair of the Department, as Associate Dean for Research in LS&A, and on several National Science Foundation advisory panels and American Geophysical Union committees. He is a Fellow of the American Association for the Advancement of Science and of the Geological Society of America. In Geological Sciences Henry spearheaded the development of the Department's alumni relations program, including publication of the semi-annual *Geoscience News* and the establishment of an Alumni Advisory Board.



The Henry N. Pollack Symposium: Celebrating 40 years of Innovative Research

In honor of the upcoming retirement of Prof. Henry Pollack, the Department hosted a research symposium on the 8th October in Ann Arbor. This event, made possible by a generous gift provided by Jean and **John Greene (BS '63, MS '70)**, included research presentations by eleven of his former students and colleagues whose successful professional careers have diversified from petroleum exploration and environmental geology to professorial pursuits. Speakers included: **David Chapman (PhD '76)**, **Myles Parsons (PhD '69)**, **Leon Reiter (PhD '70)**, **Bob Vincent (PhD '73)**, **Donna Jurdy (PhD '74)**, **Steve Henry (BS '73, MS '78, PhD '81)**, **Mike Jackson (MS '84, PhD '86)**, **Andy Nyblade (PhD '92)**, **Suzanne Hurter (PhD '92)**, **Shaopeng Huang**, **Vladimir Cermak**, and **Jason Smerdon (PhD '04)**. This symposium served as the perfect venue for such a celebration, reuniting many of the Department's former students who returned to honor the many years of service and collegiality characteristic of Henry's tenure as a professor at the University of Michigan. Alumni attending included **Sandy Ballard (MS '84, PhD '86)**, **Dan Newman (BS '70, MS '77)**, **Bill Webb (MS '64)**, **Dave Fountain (BS '69, MS '71)**, **Dexter Perkins (MS '77, PhD '79)**, **John Amoruso (MS '57)**, **John Greene (MS '70)**, **Dave Courtis (BS '63, MS '65)**, **Curt Lundy (BS '54, MS '58)**, **Ed Poindexter (BS '52, MS '53, PhD '56)**, and **Al Fagerstrom (PhD '60)**.

Following the conclusion of the symposium, the celebration continued into the evening with a formal dinner at the U-M Art Museum. This dinner, attended by ninety friends, former students and faculty, provided a humorous synopsis of Henry's life as father, a researcher,

a professor, and as a colleague during his long tenure at the University of Michigan. On the more serious side, this evening events served as the formal celebration of the recently announced **Henry N. Pollack Chair** endowed by Bill Smith and the **H.N. Pollack Endowed Graduate Fellowship** which will provide stipend and research support for future graduate students of the Department. The endowment for this new fellowship was initiated by a generous gift by **Jean and John Greene** and is pushing forward toward its goal of \$500,000 through the continuing contributions of our alumni and friends.



Framed in the background by a graduation picture of Henry, Lana and John Pollack reflect on their joyous years with Henry as a husband and father.



The cadre of former and present students posing with Henry following the celebration. Back row left to right: Suzanne Hurter, Andy Nyblade, , Henry Pollack, Steve Henry, Dave Chapman, Leon Reiter, Myles Parsons. Front Row left to right: Don Sprague, Sandy Ballard, Shaopeng Huang, and Jason Smerdon.



John Amoruso and Joel Blum congratulate Henry after presentations during the Pollack Fest.



John Greene reflects on the festivities during the announcement of the H.N.Pollack Graduate Fellowship

Honors, Awards, Kudos

James Lee Wilson (faculty, 1978-85) received the Laurence L. Sloss Award of the Geological Society of America. The Sloss award is given annually to a sedimentary geologist whose lifetime achievements best exemplify those of Larry Sloss, i.e. achievements that contribute widely to the field of sedimentary geology and through service to GSA.

Catherine Badgley (Research Scientist) has been elected Vice-President of the Society of Vertebrate Paleontologists, and will become President in two years (see story on page 7).

Larry Edwards (MS '86), the McKnight Distinguished University Professor of Geology and Geophysics at the University of Minnesota, was elected to the American Academy of Arts and Sciences.

Rod Ewing and Dan Fisher (faculty) were elected Fellows of the American Association for the Advancement of Science

Jeff Alt (Research Scientist, BS '75), Sam Mukasa (faculty) and Jim Zachos (Research Scientist '92) were elected fellows of the Geological Society of America.

Grad students **Michela Arnaboldi and Chris Palenik (PhD '04)** were awarded GSA travel grants to attend the International Geological Congress in Florence, Italy.

Grad students **Adam Rountrey, Kathryn Szramek and Aaron Wood** won GSA student research grants.



Courtney Saltz, executive secretary, and **Carl Henderson and Lora Wingate**, managers of the Robert E. Mitchell Electron Microbeam Analysis Laboratory and the Stable Isotope Geochemistry Laboratory, respectively, were awarded Distinguished Service Awards by the University.

Tracy Frank (MS '93, PhD '95) presented the T. Mylan Stout Lecture at the University of Nebraska.

Scott W. Tinker (MS '85) has been elected Vice President of the Association of American State Geologists for the term July 1, 2004 to June 30, 2005.

Catherine Badgley Elected to the Presidency of the Society of Vertebrate Paleontology

Research Scientist **Catherine Badgley** has been elected to a two-year term as Vice-President of the Society of Vertebrate Paleontology, after which she will automatically move up and begin a two year term as the 57th President of the Society.

The Society of Vertebrate Paleontology (SVP) was founded at Harvard in 1940 by thirty-four paleontologists, fledging from a vertebrate paleontology section of the older Paleontological Society. The SVP has now grown to become an international society with nearly 2,000 members representing professionals, students, artists, preparators, and others interested in vertebrate paleontology. It is organized exclusively for educational and scientific purposes, with the object being to advance the science of vertebrate paleontology.

The first two presidents of the SVP were Alfred S. Romer of Harvard and George G. Simpson of the American Museum of Natural History, two giants of twentieth century paleontology. **Michigan professors Claude W. Hibbard (faculty '46-'73) and John A. Dorr (faculty '52-'85)** served as the 20th and 27th presidents of the society, respectively, and our graduate alumni **John A. Wilson (AB '37) and David W. Krause (PhD '82)** were the 12th and 51st presidents, respectively.

Catherine received her BA in Geology from Radcliffe College (Harvard), an MFS in Forestry and Environmental Studies from Yale University, and her PhD in Biology from Yale. She came to Michigan in 1982 as a postdoctoral fellow sponsored by the Michigan Society of Fellows, and she has since risen through the research and teaching ranks in Geology, the Museum of Paleontology, and the U-M Residential College. Catherine is best known in research for her contributions to taphonomy, a term for the host of processes and selective filters by which living organisms become preserved and available for study as fossils, and she has long been a central figure in the now 30-year Yale-Harvard-Geological Survey of Pakistan research project on Miocene-Recent Siwalik stratigraphy and paleontology of South Asia. Catherine's teaching has ranged from introductory geology to taphonomy, biogeography, biodiversity, and environmental studies.

Vertebrate paleontology as a science spans the full diversity of vertebrate life through the whole of Phanerozoic time, involving a very wide spectrum of geological and biological processes. All of these interests are represented in the SVP, and it takes a special person to lead such a society. Congratulations to Catherine!

Broken arms and collateral damage: Clues to predator-driven evolution

by Nancy Ross-Flanigan
U-M News Service

(Editor's note: the following article describing some of Tom Baumiller's current research appeared in the *University Record*, a weekly news medium within the University. The research described in the article was published in *Science* on September 3, 2004.)

Ever since Darwin's day, scientists have been trying to understand how interactions among living creatures—competition and predation, for example—drive evolution. Recent work by paleontologists **Tomasz Baumiller of U-M and Forest Gahn (PhD '04)** of the Smithsonian's National Museum of Natural History offers new insights into the process. A report on their research appears in the September 3 issue of *Science*.



Biologists long have speculated that predators and prey play a game of evolutionary one-upsmanship, in which an adaptation on the part of one—say, sharper teeth in a predator—prompts a “go-you-one-better” response in the other—tougher hide in the prey, for instance.

Hints that this has occurred are scattered throughout the fossil record, but not evenly, Baumiller says. During one part of the Paleozoic Era known as the Middle Paleozoic Marine Revolution, for example, the diversity of shell-crushing predators increased explosively. Around the same time, some 380 million years ago, mollusks and other shell-bearing marine animals developed better protective devices, such as more spines or more tightly coiled shells. Apparently, the prevalence of shell-crushers prompted development of better defenses against them. But simply finding evidence of changes in both predators and prey doesn't prove that one caused the other, Baumiller notes. “You have to provide evidence that they, in fact, were interacting.” To search for such evidence, Baumiller and his former graduate student Gahn studied fossil crinoids, a group of marine animals related to starfish and sea urchins. Crinoids, also called sea lilies, have feathery arms that they extend to catch bits of plankton or detritus passing by in the current.

Like their starfish cousins and other animals in the group known as echinoderms, crinoids are capable of regenerating lost body parts. Because modern-day crinoids usually lose—and regenerate—their arms as a result of attacks by fish, Baumiller and Gahn reasoned that arm regeneration in fossil crinoids would be a good indicator of predator-prey interactions in the geologic past. To test their idea, they examined more than 2,500 Paleozoic crinoids for evidence of arm regeneration, focusing on fossils from the Ordovician to Pennsylvanian periods (490 to 290 million years ago). As predicted, they found that the only significant increase in regeneration frequency was during the Middle Paleozoic Marine Revolution.

“Indeed, the frequency of regeneration, which we regard as a proxy for predation intensity, was low during intervals before the Middle Paleozoic Marine Revolution, and then there was a sudden increase, coincident with the diversification of predators and the increase in the evolutionary response of the prey,” Baumiller says. That’s not the whole story, though. Baumiller and Gahn suspect that crinoids were not the intended targets of the predators that inflicted damage upon them, and that their broken arms were simply “collateral damage.” Crinoids, Baumiller explains, play host to a variety of other organisms that take up residence on various parts of their bodies, and the predators probably were going after those creatures. One way to test this would be to look for correlations between the degree of infestation and the rate of regeneration, and Baumiller, Gahn and **Carlton Brett (MS ’75, PhD ’78)**, a paleontologist from the University of Cincinnati, have applied for funding to do just that.

The current research was supported by a Fulbright Research Fellowship to Baumiller and by grants from the Geological Society of America, the Scott M. Turner Fund (U-M) and the American Chemical Society.

Now You Can Google GeoClub

by

Frannie Skomurski, GeoClub President

While geology students are undeniably fascinated with ages of the past, there is nothing archaic about the University of Michigan’s GeoClub website. For students, faculty, staff and alumni alike, our website: <http://www.geo.lsa.umich.edu/geoclub/geoclub.html> provides information on GeoClub activities, departmental events, t-shirt sales, graduate students, and more. A survey of the new graduate-student body indicates that departmental web pages are widely used by prospective students when browsing potential graduate school programs. Currently, less than 25 percent of graduate students within the department have web pages linked to the departmental site. As such, one of GeoClub’s goals is to help current graduate and undergraduate students develop personal web pages that can be linked to the GeoClub and the departmental websites, in order to provide additional information about current students and research that goes on in the department.

Another use of the website is to help promote geology t-shirt sales, which serve as a fundraiser for GeoClub. We encourage alumni to visit our website for ordering and design information. New designs are generally available each fall; please see the website for further details. Note: we are happy to ship shirts across the country (or out of the country) if need be!

Finally, the annual line-up of departmental events is taking shape, and details can be found on-line. The second weekend in September provided beautiful weather for the *Welcome Back Student Picnic* held at Burn’s Park this year. The annual *Fall Picnic*, following tradition, was held at Bruce Wilkinson’s farm, on Saturday, October 23rd. Although the weather was less cooperative, there was abundant food and drink and the usual big bonfire to keep everyone warm. And, if you are in town next spring, please join us for the yearly *Spring Banquet* that will be held at Cobblestone Farm in mid-March or early April (T.B.A.). Before closing, I would like to thank all the students who help make GeoClub a success, and post a special thank you to Chris Malvica who generously provided his culinary expertise for a special banquet dinner last spring. On that note, please stop by our website for a visit!

Drilling in the Arctic Ocean

by
Ted Moore



I participated in the first scientific drilling expedition in the Arctic Ocean during August and September 2004. ACEX, the Arctic Coring Expedition was the second expedition to take place under the new Integrated Ocean Drilling Program (IODP). It left Tromsø, Norway on 8 August 2004 and headed for a drill site on the Lomonosov Ridge at approximately 88°N, 140°E. The expedition included an armada of three icebreakers: the *Sovietskiy Soyuz*, a Russian nuclear icebreaker; the *Vidar Viking*, newly equipped with a moonpool and drilling rig; and the *Oden*, the home base for science operations and ice management. Ted and Jerry Dickens (PhD '96) from Rice University, were among 17 scientists from the USA, Germany, Japan, The Netherlands, United Kingdom, Italy, and Sweden who sailed aboard the *Oden*. The main objective of the expedition was to gain a better understanding of the paleoceanography of the Arctic Ocean from the time of the “hot-house” world of the early to mid Eocene up until present day.



At four different Sites, ACEX was able to drill through the complete 400 m section of hemipelagic sediments sitting atop the Ridge. About 70% of this section was recovered. This constitutes the first relatively complete Cenozoic section ever sampled in the deep Arctic basin. Scientists on board the *Oden* were only able to look at the core catcher samples from the cores collected. The cores themselves remained sealed and are being transported back to the University of Bremen Core Laboratory in Germany, where they will be opened, scanned, and sampled later this year. But even from these meager core catcher samples we were able to learn quite a bit about the history of the Arctic Ocean. Based on the recovered microfossils, the upper layers of the Arctic Ocean in the early part of the Cenozoic were probably even less salty than they are today. High riverine input and low evaporation resulted in a very stable upper layer of brackish water overlying a



more salty, deeper ocean. At least the upper part of this deeper part was anoxic during the warm early to mid Eocene. Around 100 m of black, laminated, organic rich sediments were deposited on the Ridge during this time. The present best guess for the near-surface salinities of the early Cenozoic in the Arctic is something less than 20 ppt. Based on the character of the diatom, silicoflagellate and dinoflagellate assemblages and on a flood of fresh-water fern spores around 49 Ma, the temperature of the summer Arctic Ocean during the Eocene warm period may have been near 20°C, or even warmer!

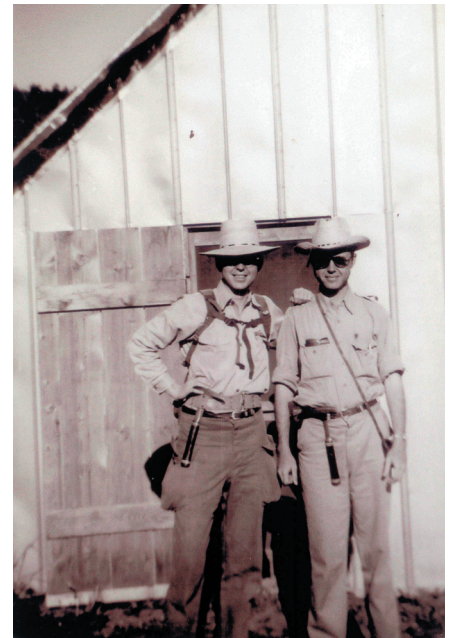
Chesley (Ches) Herndon (MS '52) from Oklahoma City, and brother **Tom Herndon (BA '50, MS '51)** of Tulsa sent this photo of their days at Camp Davis.

Jan Kappmeyer (MS '82) has closed her environmental consulting firm Cypress Environmental in Sunnyvale, California after almost two decades of very interesting and challenging projects. Jan and husband **Drew Isaacs (BS '78, MS '81)** now live in St. Helena, California in the heart of Napa Valley wine country, where they operate a small vineyard known as The Screaming Squirrel. Jan has enrolled in the viticulture program at U-C Davis to hone her oenological skills, while Drew teaches in the Haas Business School at U-C Berkeley.

Keith Long (MS '88), with the USGS, has returned to the USA after working in Bolivia from 1989 to 1995. He writes that "I've been working on the history and impact of mine tailings disposal in the Coeur d'Alene district, laying the ground work for a future resource assessment of the district, developing economic filters for bulk-minable gold and copper deposits, evaluating the economics of very large crushed stone quarries, forecasting future mineral exploration scenarios on Forest Service land in Idaho and Montana, and, more recently, analyzing the interaction between copper mining technology and conversion of resources into reserves. About five years ago I got married. Kay and I became licensed foster parents, and we have had three so far. We are close to completing construction on a new house."

Bart Tichelaar (PhD '91) with wife Naz and boys Denis and Imre attended the Alumni Getaway at Camp Davis. Bart is currently with Shell Exploration and Production Company in New Orleans, after earlier postings with Shell in the Netherlands and in Scotland.

Suzanne Hurter (PhD '92) writes from The Hague in the Netherlands that her employer Royal Dutch Shell "has been reorganised and we are just getting used to the new set of acronyms and reference indicators. The good news is that where I sit is now called EPT-R, the R standing for research (before we were called something else). I interpret it as a good sign when the word Research is used to designate this part of the organisation. The atmosphere is quite academic too. Some colleagues teach at universities. Graduate students and post-docs are part of the team. Last year I spent mostly writing proposals, especially for joint projects between industry and academe. The rest of the time I spent learning 'Shell-Speak'. This year began with good news: both a Dutch and a European initiative of which my proposals were part will be funded. The European proposal (CO2SINK) consists of 14 partners being coordinated from the GeoForschungsZentrum Potsdam in Germany. Having worked there three years before joining Shell, I am enjoying being able to cooperate and visit with former colleagues and friends. The project is to inject CO₂ into a Triassic saline aquifer in the North German Basin quite close to Potsdam and Berlin as a means of reducing CO₂ emissions from power plants (Europe has ambitious emissions reduction goals). I coordinate the activities around numerical modeling. Number crunchers of the University of Stuttgart, Aachen Technical University, the Geological Survey of Denmark and Greenland and Shell (me!) are investigating the short-term (months to years) and the long-term (thousands of years) fate of the CO₂ injected. In addition to the reservoir management aspect we support the group working on risk assessment."



Debra Tjoa (MS '97) writes with the big news that she is now engaged to musician Michael Tomczyszyn. “Who is Michael? You can find a brief description at <http://tow.com/people/detail.php?person=Michael.Tomczyszyn> and a photo of an old line-up of his band (he’s on the left) at http://images.ofoto.com/photos412/9/30/71/65/40/0/40657130903_0_ALB.jpg.

No plans are set yet for the happy event, but one of these days, we’ll put our heads together and start thinking about details. For now, we’re just enjoying the moment and taking things one day at a time. After nearly three years we’re still very much in love and having barrels o’ fun, and this appears to be what adults do, so it seemed like the natural next step. I’m grateful to all of you for your support and friendship over the years—we’ll be in touch.”

Nat Usher (BS '82) writes from Houston that “Once or twice a year, a number of Michigan GeoAlums in the west Houston area get together to reminisce and talk of retirement and other such age appropriate conversation. The latest of these gatherings was held on April 17th at the home of Dave Brewster. Attached is a photo of this festive event.



Front row (left to right): **Adam Collins (MS '02)**, **Andrea Cicero (MS '00)**; back row (left to right): **Dan Newman (BS '70, MS '77)**, **Dave Brewster (MS '79)**, **Dan Eastman (MS '82)**, **Lana Czerniakowski (MS '82)**, **Nat Usher (BS '82)**, **Steve Henry (BS '73, MS '78, PhD '81)**, **Krys Swirydczuk (MS '77, PhD '80)**. This photo is actually a monumental first of its kind. Notice that no one photographed is holding a beer!

Leah Joseph (MS '97, PhD '00) has left Hobart and William Smith College in upstate New York to take a new position as one of two faculty in Environmental Sciences at Ursinus College outside of Philadelphia. She writes that “We’ve got some great motivated students, my position represents an expansion, not a replacement, the administration is supportive (in concept and financially) of our campus greening activities, and the other faculty member and I get along really well and have similar ideas about the future of the program. They don’t have a geology department, but that means I’ll actually get to teach geology, and they probably don’t know my hidden goal of eventually growing a geology department. Bryn

Mawr is nearby and I'm hoping to work with Arlo and to join up with their fieldtrips to get to know the area."

Steve Glass (MS '78) and Bret Peppard (MS '02) were recently back on campus recruiting for Shell Exploration and Production Company. Bret introduced current students to some aspects of his work in a talk titled "Managing Uncertainty in Subsurface Evaluations".

John LeGolvan (BS '97) works as a hydrogeologist for the environmental consulting firm Haley & Aldrich in Plymouth, Michigan. He recently did his patriotic duty of buying a house in Ypsilanti Township. John attended the Alumni Getaway at Camp Davis this past summer, insisting on staying in a student cabin to fully relive his student experience of 1997.

Kate Lewis Kenedi (MS '03) is living in Durham, North Carolina, where she has begun a PhD program at Duke, working as part of a team studying Caribbean volcanism, all the while juggling the joys and chores of motherhood.

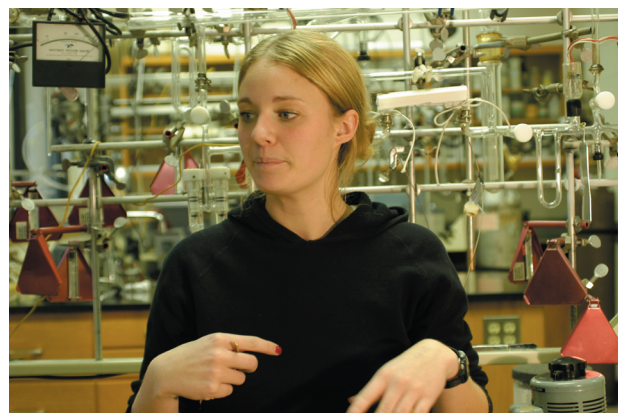
Sarah Smalheer (MS '02) and John Hansen (BS '94) were married on June 19, 2004, on Maui, Hawaii. Sarah has sent a picture of John and her in Michigan gear standing at the edge of Kilauea Crater, on the Big Island of Hawaii, on June 21. "What better way to celebrate our marriage than by making a trek to an active volcano? We also got to see lava flowing into the ocean. It was a geologist's dream come true." Sarah and John are living in Chelsea, Michigan.



Sarah Smalheer and John Hansen

Rachel Kornak (BS '03) is also working at Haley & Aldrich in Plymouth, Michigan. She notes that H & A are looking to hire one or two entry level environmental scientists in the next 3-6 months. They may also be hiring in Cleveland, Ohio or Rochester, New York. For more information email Rachel at rkornak@haleyaldrich.com.

Jill Van Tongeren (BS '04) is an intern for a year at the Joint Oceanographic Institutions office in Washington, DC. In January she will be headed to the Dry Valleys of Antarctica for a field expedition/workshop addressing Antarctic volcanism.



Jill Van Tongeren

In Memoriam

James Chrow (BS '57, MS '58) passed away on August 4, 2004 in Kirksville, Missouri.

Betty Stumm Goddard passed away on September 16, 2004 in Kalamazoo, Michigan at the age of 92. Betty was preceded in death by her first husband **Erwin Stumm (faculty, 1950-70)**, and her second husband **Edwin Goddard (faculty, 1950-73)**.

Camp Davis Alumni Getaway – 2004



10-16 AUGUST

This summer, the Department celebrated its third *Camp Davis Alumni Getaway*, a week of alumni and family activities following the departure of students from Camp Davis. During mid-August, over 50 alumni, family and friends participated in the week long event. This year's distinguished alumni included: **Jack Barnes (BS '51, MS '53)** and his sons Dave and Jim Barnes; Giselle and **Earl Brabb (MS '52)**; Godela and **David Brosnahan (MS '77)**; Charlie and **Heather Daas (GS 116)**; Diane and **Jim Ferritto (GS 440, '86)**; **Ken Keenmon (BS' 46, MS' 48, PhD '50)**; Kate and **Kevin Mackey (GS 116 and GS 440, '86)**; **John LeGolvan (BS '01)**; **Annette (BS '83, MS '86, PhD '89)** and **Mitch Lyle (BS '73)**; Bea and Ted Logan; Martha Morrow; Debby Nelson; John Pollack; Bob and **Liz Sugar (GS 116 '78)**; Naz and **Bart Tichelaar (PhD '91)** and Dan and Mary Ziegler. Geology faculty hosts included Kacey Lohmann, Henry Pollack and Peter van Keken along with an excellent staff of Chris Malvica (Camp Manager), Anna Lutey, Allison Momot, Shawn O'Donnell, and Max Owen.

Alumni Camp was happy to see the return of Jack Barnes to the bi-annual event. Jack has provided numerous gifts to the Camp Davis Endowment which has enabled the renovations of student cabins as well as expanded the curricular offerings available to students at

all class levels. The Department is most grateful for his continuing support of the educational mission which has long characterized the Camp Davis experience. We look forward to his return at the 2006 Alumni Getaway.

Ken Keenmon (BS' 46, MS' 48, PhD '50) also made his second appearance at the Getaway. Ken who loves to drive, always plans an extended trip during the summers when he visits Camp Davis. This summer was no different with a long drive from Houston where he resides after his long career with Shell Oil.

Many alumni have made Camp Davis a favorite summer excursion and look forward to the opening of camp for alumni activities. Representatives of the GS 440 'HELL CAMP', Jim Ferritto and Kevin Mackey, returned in full force with their families that comprise a cadre of little "wiggles". They note that Camp Davis is a perfect environment for children as they can explore for hidden treasures of arrowheads and socialize with other kids in complex games without concern about their safety. We expect to see both families return for the 2006 event.

What has become tradition is the initiation of the week's events to kick off with a group float trip down the scenic Snake River after a day of geologic lectures given from the top of the Tetons. This was followed by a day of hikes into Teton National Park which include scenic walks up Cascade Canyon and around Jenny Lake or a more challenging excursion up Garnet Canyon. The remainder of the week's activities included Whitewater Rafting, a Geologic Overview down the Hoback and up Little Granite Creek, and ascents up Cream Puff and Ann Peak.

Following long days of activities, campers were always treated to the culinary creations of Chris Malvica, a world-class chef whose talents as the Camp's manager are matched by his imagination and skills in the kitchen. Evening fare included slabs of salmon and barbequed ribs, rack of lamb and a feast on elk tenderloin. Camp activities also included evening lectures by the faculty on topics of climate change, Antarctic paleoclimate and 3-D visualization that were followed by night long gatherings around the campfire.

The great success of the Camp Davis Getaway ensures that the Department will continue to provide this opportunity in coming years. Plan on joining us during the Summer of 2006 for a week of outdoor activities and renewed memories. Mark it on your calendars: **CAMP DAVIS ALUMNI GETAWAY – AUGUST 2006**



Jack Barnes



Ken Keenmon



Welcome back to Camp Davis. This summer, the extended family of Ted and Bea McLogan, the daughter of Prof. Bouchard who started Camp Davis in 1927, organized a group reunion to revisit Camp. This included Bob and Liz Sugar, Mary and Dan Ziegler, Debby Nelson, Martha Morrow and the full cadre of children.



John Pollack takes a brief break with Imre and Denis Tichelaar during their hike up Cascade Canyon



Naz and Bart Tichelaar (PhD '91), who traveled up from New Orleans where he works for Shell Oil, take a short break during their morning hike up Cascade Canyon in the Teton Natinoal Park.



Earl and Giselle Brabb relax around the campfire after a long day of activities at Camp and around the Jackson Hole region.

Summer Field Excursions: From the Grand Canyon to European Exploration



The success of the Departmental Spring Field Trips has blossomed over the last couple of years as a result of a generous endowment from one of our distinguished alumni. This year, two major field excursions were undertaken: one to the Grand Canyon and Colorado Plateau region and the other to the Spanish Pyrenees. These trips have provided unique opportunities for both undergraduate and graduate students of the Department to explore the wonder of geology in their natural setting. The faculty and students of the Department are grateful for the establishment of the Field Excursion Fund that has heavily subsidized the costs for student participants and enabled their participation on multiple annual excursions.

Grand Canyon and Colorado Plateau

Reported by Samuel Haines

For the last several years, a spring term sedimentology field trip for both undergraduate and graduate students has become something of a Department institution, usually led by Professors **Bruce Wilkinson, Kacey Lohmann and Carola Stearns**. This year's trip to the national parks of the southwest was an unusually large one, involving forty-four students, ranging in age from sophomores to post-docs, and five professors (Prof. **Linda Ivany** of Syracuse University, and U-M Profs. **Ingrid Hendy** and **Shanan Peters** joined the trip this year). The trip lasted just over two weeks and investigated the geology of the 'Four Corners' region, and the remarkable Mesozoic sedimentary successions of the Colorado Plateau.

After the thirty-six hour drive from Ann Arbor to Santa Fe, New Mexico, the group met up with **Prof. John Geissman (BS '73, MS '76, PhD '80)** of the University of New Mexico for two days of the geology of the Jemez Caldera, Tent Rocks National Monument and an introduction to the Mesozoic sequences whose names were to become very familiar during the next fourteen days – the Chinle, Morrison, Dakota, and many others.

Leaving northwest New Mexico, the group swung west into Arizona, then north into Utah, then east into Colorado in a clockwise loop around the Four Corners region in two weeks, taking in Petrified Forest, the Grand Canyon, Zion, Bryce, Capital Reef, Goblins State Park, Natural Bridges, Goosenecks State Park, Mesa Verde, Colorado's only (and unfortunately rather bashful) geyser, Black Canyon of the





Gunnison, and Colorado National Monument.

Highlights included descending the south rim of Grand Canyon, where Kacey Lohman guided about twenty intrepid souls 2,000 meters to the bottom and a tour through 250 million years of passive margin sedimentation on the climb back up. Those not inclined to endure the 95° heat and climb went to San Francisco Peaks and indulged themselves with world-class cinder cones like S.P. and Surprise Craters. Nearly all of the group did the full day's hike at Zion National Park, possibly the most extraordinary exposure of an aeolian sequence on the planet.

Trips such as this are special in that one doesn't see just isolated scraps of outcrop, and then have to connect the dots in one's head. The phenomenal exposure allowed one to see not just individual structures, but how each structure can be put together with those right next door, to tease out a depositional environment. Instead of seeing a few cross-beds at outcrop, and visualizing the 200 m long meandering river channel bar in one's head, the whole preserved bar is right there in front of you, every last foreset frozen in time. We were also afforded the opportunity to see directly how units such as the Navajo and Morrison thicken and thin across the plateau, disappear altogether, or laterally grade into other coeval lithofacies. We were also able to



see paleo-topography directly, both locally, such as the scree-slope faces preserved on the cliffs at Bryce, and at the regional scale, the Uncompaghre uplift and the height of the basal unconformity. For many on the trip, these were some of the best outcrops we'd ever seen; photos people took on this trip will undoubtedly be used in teaching geology years down the line.

The group camped every night, minimizing the cost to the students. The Department, through a generous gift from an alumnus, substantially subsidized the trip, enabling a remarkable number of people to take part.

The Spanish Pyrenees

Reported by Josep M. Pares and Ben van der Pluijm

“Hasta luego”- that's how we said 'goodbye' at the Barcelona airport, after eight days of traveling through Catalonia and the Spanish Pyrenees. This European trip was co-sponsored by the Department through a generous gift from an alumnus, and by U-M's International Institute. The financial support allowed fifteen students and three faculty to visit one of the best exposed and well-studied orogenic belts. The Pyrenean Range is a fold and thrust belt that developed during the Tertiary, as the Iberian block converged towards the European

Plate. Its metamorphic core marks the border between France and Spain, with foreland structures verging into both countries.

Our trip, designed to recognize the deformed Mesozoic and Tertiary cover, started on May 28, when the group arrived at Barcelona from Detroit. After checking in the Spanish Council Residence (CSIC), most of us went to explore downtown Barcelona. The Cathedral, Gothic Square and Gaudi architecture were among the spots visited by our students. A few landmarks could be seen in the hours before we had our group dinner. Paella, gazpacho and oviparous salads were the choice selection at our first dinner in Spain, a preview of what would come in the next several days.



The geologic part of the trip began the day after, about 150 km north of Barcelona, next to the famed Costa Brava (Girona). We enjoyed visiting the Cap de Creus area (inspiration point and home of the Catalan painter Salvador Dali), where a set of ductile shear zones in the Paleozoic basement is marvelously exposed. Professor E. Druguet (Universitat Autonoma) kindly guided us through the area. The following day we headed west, across the Ebro Basin, the southern Foreland Basin of the Pyrenees, towards the town of Jaca. We visited the southern Pyrenean deformation front in the Ebro Basin, including progressive unconformities, syntectonic deposits and thrusts of Mesozoic units on Tertiary conglomeratic sandstones (molasse). We spent the night in Jaca, in a small “fonda” in front of the Cathedral. The church was built in 1077-1130, right after the Christian re-conquest of the town, which had been taken by the Muslims years earlier.

Jaca is located in a large approximately E-W trending synform that developed during the Paleogene as a piggyback basin ahead of the evolving Pyrenees. Driving east, we looked at several structures related to the Central Pyrenean Unit thrust sheets, as they were emplaced toward the south. These structures include N-S trending anticlines, almost perpendicular to the main Pyrenean thrust faults, which were probably related to lateral ramps of the southern Pyrenean frontal thrust. The following two days we stayed



in Ainsa, a lovely medieval town. The Monte Perdido National Park, north of Ainsa, is probably one of the most spectacular and vibrant parks in the country. We hiked in the park to visit the famous “Gavarnie nappe”, possibly the first thrust described in any orogenic belt (L. Ramond, in 1801, noticed Cretaceous limestones beneath Paleozoic rocks, a feature that was difficult to reconcile with the prevailing idea of “neptunism” of that time!).

Our next destination was Tresp, in the Central Pyrenees. The Tresp-Graus piggy-back basin forms an E-W trending synform that contains Eocene platform and continental sediments. In the footwall of the upper thrust sheets, these sediments grade into deeper marine turbidite and pro-delta marls. Like the Ainsa Basin visited earlier, the Graus-Tresp Basin was



incorporated into the Southern Pyrenean thrust system, where new piggy-back basins developed. During these days we joined a group of students from the University of Barcelona, led by Prof. J.A. Muñoz, who were exploring the cover structures along the ECORS profile. The ECORS (short for Étude Continentale et Océanique par Réflexion et Réfraction Sismique) is a 250 km long deep-seismic survey from the Aquitaine Basin to the Ebro Basin (N and S foreland basins of the Pyrenees) across the Pyrenean fold-and-thrust belt. This survey was co-sponsored by Spanish and French institutions and oil companies. Michigan and Barcelona students and faculty shared views and field discussions for the next couple of days,

which was a geologically as well as culturally enriching experience. Along with the Spanish group we visited the south segment of the ECORS profile, from Balaguer (southernmost Pyrenean deformation front) to Pobla de Segur, where we studied Paleozoic rocks that were involved in antiformal stacks.



Not without some sadness, we returned to Barcelona on Thursday, June 3, with most students departing the day after. On the way back, we took some time to look at Montserrat, an impressive massif made up of Paleogene fan delta conglomerates that were deposited in the Southern margin of the Ebro Basin, while the Pyrenean thrust were being emplaced in the North. We spent the last night again at the CSIC Residence, in downtown Barcelona, capped with a pleasant group dinner. Overall, the trip to the Pyrenees was a great experience for both students and faculty. We believe that such international experiences will become a regular dish on the University of Michigan's geology menu.

A summary of the trip, along with photos, maps and cross-sections, can be found at <http://www-personal.umich.edu/~jmpares/Pyrenees-Trip.html>

William T. Smith Lecture Series, Fall 2004

The Department of Geological Sciences hosts a lecture series throughout the Fall and Winter terms. Lectures are generally Friday afternoons. They are held in Room 1528 C. C. Little from 4:00 to 5:00 PM. A reception is held afterwards in room 2540 C. C. Little. The events are free and open to the public.

Date	Speaker	Institution	Title
17-Sep	Mark Leckie	University of Massachusetts	Linking tectonics, climate change, and biotic evolution: The oceanic anoxic events of the mid-Cretaceous (~120-90 Ma)
24-Sep	Megan Miller	Central Washintgon University	Periodic silent earthquakes along the Cascadia subduction zone
1-Oct	James Kirchner	U-C Berkeley	Chemical weathering, physical erosion, and climate: a cosmogenic perspective
8-Oct	David Chapman	University of Utah	From tectonics to climate change: a tribute to Henry N. Pollack and reflections on his forty year career at the University of Michigan
15-Oct	Shanan Peters	University of Michigan	A new high-resolution analysis of the stratigraphic record: implications for paleobiology
19-Oct	Derek Briggs	Yale University	Case Lecture: Death and construction -- the preservation of soft-bodied fossils
22-Oct	Jie Li	University of Illinois	What is the Earth's core made of?
29-Oct	Greg Ravizza	University of Hawaii, Manoa	Impacts, continental flood basalts and abrupt climate change: Can Os isotope stratigraphy reveal connections?
19-Nov	Nita Sahai	University of Wisconsin	Controlled biomineralization of Silica in diatoms and apatite in vertebrates
3-Dec	Lina Patiño	Michigan State University	Primary and secondary geochemical signatures of arc related rocks: Central America case study
10-Dec	Manfred Strecker	Potsdam University (Germany)	Tectonics and Climate of the Southern Central Andes

Faculty News

Ben van der Pluijm reports that the structure/tectonics group has several new members. In alphabetical order. **Sam Haines** has started to work on gouge in normal faults of the western USA as part of his dissertation research. Radiometric dating will be his particular focus, in collaboration with research scientist **Chris Hall**. **Jim Hnat** is collecting rock magnetic evidence on the potential rotation of volcanics in the mid-continent rift, as part of ongoing orocline projects with fellow tectonocist **Rob Van der Voo**. **Sara Tourscher** is the most recent addition to our group and will work initially on the characterization of recently collected San Andreas Fault Observatory at Depth (SAFOD) cores and cuttings, in a project that involves research scientists **Roland Rouse** and **Bjorn Klaue**. **Philip Ong** has just completed his project on the origin of curvature along the Pennsylvania Salient, which shows an interesting decoupling between thrusting and folding, an observation that has the potential to resolve several long-standing issues in the area and perhaps elsewhere. **John Solum** will complete his dissertation on clay gouge characterization of several faults later this year, after which he will start a Mendenhall post-doctoral fellowship at the USGS. **Noralynn Hassold's** project on Antarctic Circumpolar Current flow, a collaboration with oceanographer **David Rea**, is similarly bearing fruit. During the summer we hosted several international visitors, working on clay alteration in the Rhine Graben, friction melts along the Alpine Fault and experiments on glacial tills.



The recent experiences of our field trip to northeastern Spain, led by colleague Josep Pares, are described elsewhere in this issue of *Geoscience News*. Ben hopes that such international experiences will continue to be offered, as they enrich our students intellectually and culturally, and leave a lasting impression on our graduates. The support of the Department's field trip fund (created by an endowment from a generous alum) and U-M's international program are gratefully acknowledged. Ben also returned to camp, with son Wouter, to assist with the use of GeoPads, an educational project with colleague Peter Knoop that just received funding by the NSF for full curricular integration. The Hewlett-Packard Foundation

funded the introduction of PocketPCs, which offer a parallel introduction of field-oriented information technology in our introductory field classes ("GeoPocket"). Expect more on innovative class use of GeoPockets with AOSS's Perry Samson in an upcoming issue. Several NSF-related activities, meetings, teaching and *GEOLOGY* editorship duties are on Ben's schedule for the remainder of the academic year, while parenting two teenage boys occupies all other 'free' time. A summer trip through Shenandoah with the boys and wife Lies included a scenic geologic stop in late Proterozoic Catoctin basalt that is shown in the accompanying picture.

Philip Gingerich's research on the origin and early evolution of whales continues. This spring graduate student **Iyad Zalmout** and Geological Survey of Pakistan geologist **Munir ul-Haq** were able to spend six weeks prospecting in Eocene strata of the Sulaiman Range of eastern Balochistan following up on discoveries made in 2000. They succeeded spectacularly and were able to ship several new and unusually complete skeletons to Ann Arbor for preparation and study. Munir is visiting this Fall term to continue work on this material.

Philip spent a week in Egypt following up on a proposal to restart field research on whales there. Our principal field site in the Western Desert, known as Wadi Hitan or 'valley of whales,' is being considered by UNESCO as a World Heritage Site. This will help authorities trying to manage tourism growing from the publicity generated by our research, but fortunately should not prevent further investigations. Professor **Hamza Lotfy** of El-Minia University is here working with **Rob Van der voo** and this has given us a chance to talk about possible future projects in Egypt too.

U-M paleontology field work on the Paleocene-Eocene boundary in Wyoming continues to generate national and international interest. Philip had a crew of undergraduate and graduate students including **Iyad Zalmout and Aaron Wood** at work on Paleocene-Eocene vertebrate paleontology. A paper published this summer in *Geology* with European colleagues Roberto Magioncalda and others describes the Paleocene-Eocene carbon isotope excursion in organic carbon, following up on earlier work on soil carbonates. Recent graduate **Ross Secord (PhD '04)**, now with the Smithsonian Institution, is leading a collaborative effort to publish the first radiometric age from a newly discovered Paleocene ash on Polecat Bench. Colleagues visiting this past summer included paleobotanist Kirk Johnson of the Denver Museum of Nature and Science, radioisotopist Sam Bowring of Massachusetts Institute of Technology, and geochronologist Fritz Hilgen from Utrecht University. **Josep Pares (faculty)** visited briefly with a section of GS 116. All of us are working to put together related funding proposals to work on the exceptionally thick and complete Paleocene section on Polecat Bench, where mammalian biostratigraphy is well documented as a result of many years of research including **Kenneth Rose's (PhD '79)** U-M dissertation and Ross Secord's recently completed dissertation. Faunal change across the Paleocene-Eocene boundary will be the subject of an international symposium at this year's Society of Vertebrate Paleontology meeting in Denver.

Geological Sciences New Grad Students Fall 2004

<i>Name</i>	<i>Previous College or University</i>	<i>Specialty</i>
Elizabeth Anderson	University of Louisiana-Lafayette	Microbial Geochemistry
Devapriya Chattopadhyay	Indian Institute of Technology, Bombay	Paleontology
Kathryn Clark	University of Michigan	Geology
Thomas Eiting	University of Texas-Austin	Vertebrate Paleontology
Janine Fisler	Penn State University	Climate Change
Kelsey Johnson	Penn State University	Geochemistry/Volcanology
Andrew Lammers	Miami of Ohio	Environmental Geochemistry
Cheryl Peysner	Dartmouth College	Geophysics
Gerald Pollack	Arizona State University	Geochemistry
Christopher Stefano	Kent State University	Geochronology
Sara Tourscher	Byrn Mawr College	Structural Geology
Wenbo Xu	University of Science and Technology, China	Tectonics/Geophysics

Degrees Granted: August 2004

MS

Thomas Mario Foster: Simulated Response of the Tropical Pacific Climate and ENSO Teleconnections to Glacial Conditions

PhD

Dan Core: Oxygen and Sulfur Fugacities of Graptoloids: Implications for Ore-Forming Processes

Erik J. Ekdahl: The Sediment Record of Crawford Lake, Ontario and Derby Lake, Michigan: Anthropogenic Modification of Diatom Communities and Paleoclimate

Forest J. Gahn: Parasitism and Predation on Paleozoic Crinoids

Jennifer McIntosh: Impact of Pleistocene Glaciation on Midcontinent Sedimentary Basin Fluids: Reorganization of Salinity Structure and Generation of Microbial Gas

Christopher Samuel Palenik: Isotopic Composition and Neutronics of the Okelobondo Natural Reactor

Ross Secord: Late Paleocene Biostratigraphy, Isotope Stratigraphy, and Mammalian Systematics of the Northern Bighorn Basin, Wyoming