

UGA Geology News



Spring 2005

Letter from the Department Head



Greetings from Athens, and I hope this newsletter finds you well. The Department remains healthy and lively in spite of four consecutive years of budget cuts, and of course we are all keeping our fingers crossed for a brighter financial future. We did not lose any faculty or staff positions and were actually able to improve at least some of our

instructional facilities. Remember all those ancient petrographic microscopes? Thanks to support from the College, we replaced them all last year. We were also able to add a GIS component and laptops to the field school, and LCD projectors and computers to most of our classrooms. We replaced one of our ancient vans with a new one last year, and will try to repeat this next year. The Department was awarded some of the renovation funds that we requested over the past few years, and we built labs in the GG Building for Bruce Railsback and Sally Walker. Room 200A though still has those orange seats (original with the building...), and we're hopeful that they too will go in a future renovation. This year, we requested that a new wing be added to the GG Building, though at this point we are just barely on the University's radar.

As the academic year winds down, we are preparing for a very full summer. Doug Crowe and Mike Roden will have their hands full with the Geology Field School which has one of its largest enrollments in a long time. Dave Wenner is directing the Summer Honors Interdisciplinary Field Program, which provides introductory students the opportunity to travel across the U.S. for 8 weeks and take entry-level geology courses in the field. Yes, I



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know – where was this program when so many of us were freshmen? Marta and Alberto Patiño-Douce developed a Study Abroad Program on the geology of Argentina. Low enrollments unfortunately prevented the program from going this summer, but we will try again next year. This promises to be an exciting opportunity for students as well. Just about everyone is looking forward to field work this summer and more time to focus on research.

The Department has had a number of recent successes. Have you seen Bruce Railsback's new

periodic table? By redesigning The Table in terms of ions rather than elements, Bruce has been able to illustrate a number of natural processes in a way that is much more meaningful for earth scientists. First published in *Geology* (September, 2003), Bruce's table has since been published (and well-advertised) by GSA and will soon appear in several major textbooks. It was reviewed in both *Nature* and *Science* and made the list of *Discover Magazine's* 100 Top Science Stories. The *Geology* paper by former graduate student Scott Harris and several geology faculty members on Georgia's Late-Eocene impact horizon also received considerable media attention and was featured on the University's web site this year. Steve Holland received the Paleontological Society's Schuchert Award at the 2003 GSA meeting, and Rob Hawman just received the J. Hatten Howard, III Teaching Award from the Honors Program. I'm sure many of you remember the late Dr. Hatten Howard, and of course it's entirely fitting for this of all awards to come back to *Geology*. Congratulations!

The Department's several endowed funds - Miriam Watts Wheeler, Gilles and Bernadette Allard, and John Sanford Levy, in addition to *Geology's* Foundation Account - are greatly appreciated and continue to fund some outstanding research by our graduate students. Our "playboys and playgirls", as Gilles Allard calls our dedicated student researchers, have been able to conduct field work in Peru, the Bahamas, and all over the continental U.S. thanks to the many student grants awarded from these funds. In addition, travel grants have provided the means for students to attend professional conferences and present their research. We can now add a new endowed fund to this list, the Joseph A. Berg Fund for student research in geophysics. Professor Berg was a UGA alum and member of the National Academy. We are very grateful to his family for establishing this fund which will make its first award this year. These funds are wonderful resources! They greatly expand the opportunities available to our students, and we cannot thank you enough for your support!

I certainly wish you all the best, and please be sure to stop and see us when visiting Athens. Have a great summer!

- Sue Goldstein

Faculty News

Doug Crowe

I have been working mostly on the NSF-funded Microbial Observatory project in Kamchatka, Russia. The project is funded to study the interactions between hydrothermal fluids and minerals and the thermophile and extremophile microbes (Bacteria and Archaea) that live in these environments. The specific field site is the Uzon caldera, which is an active geothermal system located about 200 km northeast of Petropavlovsk. The project was funded initially in 2003 and to date the group, which includes researchers from 5 other



institutions, has spent two field seasons in the caldera collecting samples. Two UGA *Geology* graduate students and 2 undergrads are participating in the research.

In other news, Chris Kelson is about finished with his Ph.D. working on the Hilltop District in Nevada. Chris has already published some of his data and has attended numerous national meetings to present his results.

I continue to oversee the Stable Isotope Lab, but Julie Cox has taken over the day to day running of the facility and as expected has and continues to do a great job. Field school continues to be a pleasure to teach, we'll be going to Colorado this summer with 22 students, so we'll be busy! Lastly, I'm wrapping up an interesting year as President of the Franklin College Faculty Senate, needless to say riding herd on a room with 50 Ph.D. folks in it has been a challenge!

Sue Goldstein

In addition to my duties as department head, I am continuing my research and teaching. In collaboration with some colleagues in New York, I'll start a new, 3-year funded project this summer on modern, primitive Foraminifera with field sites on the Georgia coast, Cape Cod and the Florida Keys. I can't wait! Nothing like field work to get me out of the office! I have also been working on dispersal in modern Foraminifera and chloroplast sequestration in some mudflat-dwelling forams, also in collaboration with colleagues. A new graduate student, now working with me, plans to look at forams along salinity gradients on the Georgia coast and their potential



applications in sea-level studies. I've been teaching a little less over the past few years to accommodate the increased administration, but I'm enjoying teaching Honors Historical, Micropaleontology, and a freshman seminar on geological myths and realities in movies and photographs... Ok – the last of these is just for fun, but it really brings into focus all the major misconceptions that beginning students have about geology and the earth in general. After 20+ years of teaching at UGA, this has been an eye-opener! I certainly wish you all the best!

Rob Hawman

I just completed field experiments for an NSF-funded, three-year study of the Blue Ridge Mountains in North Carolina. We collected three-component, wide-angle seismic reflection and refraction data using quarry blasts as seismic sources. The purpose of the work is to map out the crustal velocity structure and configuration of the Moho across the southern Appalachians. The big question here is whether this part of the orogen still has a mountain root. Data processing has just begun, but preliminary results suggest a significant



thickening of the crust from the Carolina Terrane northwest to the Blue Ridge, with significant variations in Moho depth within the Blue Ridge itself.

Steve Holland

I'm now working with my graduate students on a variety of problems at the interface between sequence stratigraphy and paleontology. In particular, we are using sequence stratigraphic frameworks to design sampling strategies for the fossil record that avoid some of its most pernicious biases. By doing this, we are able to address the causes and outcomes of regional-scale ecological crises, such as extinctions and biotic invasions. Mark Patzkowsky and I continue with much of this work on the Ordovician record of the Cincinnati



Arch and are primarily interested in the Richmondian biotic invasion that affected the eastern United States near the end of Ordovician. My graduate student Karen Layou is working on somewhat older rocks and is examining ecological changes associated with a mid-Ordovician regional extinction and the subsequent recovery interval in the eastern United States. My other current graduate student, Noel Heim, is beginning his work on a major

faunal migration event during the mid-Carboniferous in the south-central United States.

Jessica Allulee (formerly Allen) and I have recently finished preparing a manuscript based on her master's thesis on the depositional environment of some of the oldest-known fish found in the Harding Sandstone near Cañon City, Colorado. This work will be published in *Palaios* in the coming year. Together with Bruce Railsback, Doug Crowe, and former graduate students, Dan Hunter, Jen Diaz, and Mike Jordan, we recently published a paper on the evidence for subaerial exposure at sequence boundaries in the Upper Ordovician of the Nashville Dome in the *Journal of Sedimentary Research*.

Our family has been growing. In addition to our son Zack (4 this June), Tish and I have a second son, Alex, who is just over a year now. We keep a website with pictures of them updated weekly; you can see their latest antics at homepage.mac.com/stevenholland.

Valentine Nzungu

I am continuing to teach and strengthen my course offerings in environmental geochemistry and remediation of hazardous waste sites. During the last academic year, I recasted the Aqueous Environmental Geochemistry course to allow seniors and students in the undergraduate water certificate program to take the course. After a couple of years of teaching mostly our graduate course offerings, I am excited to return to teaching the introductory Environmental Geology in Fall 2005.



As a measure to increase enrollment and attract more majors, geology department faculty agreed at their last retreat to develop an environmental track. This also strengthens our existing course offerings in environmental science. In support of that initiative, I have recently developed a new course titled Environmental Geosciences. This new course application is under review by UGA's curriculum committee. The Geology Department plans to offer two new Environmental Geosciences courses during the next academic year.

My research focus on in-situ bioremediation technologies, such as phytoremediation and enhanced in-situ bioremediation, has enabled my research to take center stage in addressing perchlorate contamination in soils and groundwater. Of the seven graduate students I am currently advising, development or enhancement of remediation technologies for perchlorate and organics tends to be the big attraction. Liz Purvis is a doctoral student whose research focuses on the development of a new low-cost sustainable clay based sorbent to treat

perchlorate-contaminated drinking water, irrigation water, and spent brine produced during the regeneration of ion exchange resins. Dawit Yifru, a doctoral candidate is studying the use of green plants to clean-up (phytoremediation) perchlorate-contaminated soils and water. His research has shown that we can minimize uptake of perchlorate into plant tissues and instead biostimulate bacteria in the root zone of plants to mineralize perchlorate rapidly. Perchlorate is an emergent contaminant that is receiving a lot of press nationwide. Katherine Schroer, a doctoral student, is studying the fate of nitrogen from a multi use USDA agricultural research field station in Watkinsville, Georgia. Kathy's research builds on the strong collaboration between the USEPA National Exposure Research Laboratory in Athens and our department. Kathy's study is affiliated with the nitrogen farming study underway at EPA/ORD. Lina Wayo, a doctoral candidate, has been studying the use of nutrient amendments derived from agricultural waste to enhance the bioavailability and phytoremediation of polycyclic aromatic hydrocarbons. Jason Nail is finishing graduate course work and should begin his Masters Thesis research on abiotic degradation of aged explosives in soils this summer. Elena Ceballos, a new doctoral student joined our program this Spring semester and is interested in the rehabilitation of nutrient impacted surface water and lakes using floating wetlands. She will test her innovative wetland treatment system at Lake Herrick at UGA, which has been closed for use in recreational swimming due to high counts of toxic bacteria and high nutrient loading from non point sources. Eric Crisp is writing up his Masters Thesis after completing two years as a student researcher at the USEPA/NNEMS program

My research team is excited about the contribution we have and continue to make on the treatment of perchlorate in the environment. We are expanding our greenhouse utilization at Riverbend to accommodate Dr. Steve McCutcheon of the USEPA laboratory (on sabbatical at UGA) in Athens and a Russian colleague who are collaborators on some of our ongoing phytoremediation of perchlorate research. This is not to say there is not enough time left for my son, Kagho, and I to play soccer at Athens United Soccer.

Alberto Patiño-Douce

I have spent much of the last year trying to get two new research areas off the ground. One of them, in collaboration with Mike Roden, is a study of the behavior and history of the halogens in the terrestrial planets, with particular emphasis on Mars. This is a hot topic now, with two fantastically successful robotic explorers still driving around Mars more than a year after landing, and more planned for the very near future. We have developed a new thermodynamic treatment of halogen fugacities

which allows us to look at the interrelationship between halogens, oxygen and water in planetary mantles, and draw some inferences about what early Mars may have looked like. The first tangible result of this effort is a manuscript that we just submitted for a special volume on Early Mars. The second new research area is moving a bit more slowly (there are only 24 hours in a day) and has to do with application of critical phase transition theory to the Earth. I have produced virtual migmatites (i.e., in a computer) that look remarkably similar to the real thing, starting only from very simple physical laws that govern the interaction between (virtual) particles of melt and solids. Stay tuned! As if all this was not enough to keep me busy, I have also collaborated with Marta in the development of the Study Abroad program in Argentina, but she is the one who is doing most of the work so I'll let you read about that project directly from her.

Marta Patiño-Douce

This has been an incredibly busy year! Alberto and I devoted a lot of our time to get the UGA Geology in Argentina Study Abroad Program approved and organized. We visited Argentina during June and July of 2004 and spent over a month arranging the logistics of our ambitious operation: four weeks, thirteen localities, five different geological provinces and 7,000 km... a tour of the interesting geology and incredible landscapes of little-known Argentina. You can see some of the pictures and learn about our program at:
<http://www.arches.uga.edu/~mapatino/arghome.html>.

The program will start in Buenos Aires and then travel towards the West, from the Pampas plains to the highest parts of the South American Andes. Our students will sample a cross-section of the Geology of Argentina, intersecting several geologic provinces: the Pampas Plains (Cretaceous fault basins of the Rio de la Plata Craton, related to the opening of the South Atlantic), the Pampean Ranges (an exotic high-grade terrane accreted to the Western margin of Gondwana in the Late Proterozoic / Early Cambrian), the Pre-Cordillera (a fragment of the Early Paleozoic carbonate platform of Laurentia detached from the Ouachita Embayment and accreted to Gondwana in Mid to Late Devonian), Cordillera Frontal (a magmatic arc related to the accretion of the Chilenia Terrane in Mid-Devonian/Early Carboniferous) and the Cordillera Principal (Mesozoic shelf deposits thrust over South America during the Late Mesozoic and Cenozoic Andean Orogeny). This last segment encompasses the highest peaks of the Andes of South America (of the Americas, really, given that at 6,969 meters above sea level, Mount Aconcagua, on the Argentina - Chile boundary, is the highest mountain in the Western Hemisphere). On our way, we will visit several National and Provincial Parks as well as archeological sites. One of these parks

(Ischigualasto Provincial Park) is unique in the world for containing the stratigraphic record of the entire Triassic Period and a remarkably rich vertebrate fauna, encompassing early dinosaur and mammal evolution (these features earned it designation by UNESCO as a World Heritage Site). When early dinosaurs and mammal ancestors roamed this land it was dotted by lakes, and lazy rivers nourished fern and gymnosperm forests. Today, the barren land is painted in subdued pastels and grays, not a hint of green dresses the slopes. The wind blows constantly over a desolate landscape with outlandish erosional landforms: locals call this place “Valle de la Luna” (Moon Valley). Interestingly enough, in the middle of this most unlikely place, there is an on-site field museum under a huge tent run by the University of San Juan (the flagship higher education institution in this province of Argentina). Alberto and I had to check it out. The wind was blowing so hard that we thought that the tent was going to fly away at any minute... but once in, we were awestruck by the solid science and quality of the fossil displays. Everything was presented in a style as engaging and scientifically accurate as that of any of the world-class museums in the US or Europe. Ischigualasto is one of the star attractions of our Study Abroad Program, which also includes a lot of work on tectonically and volcanically active regions of the Andes and treks at elevations of up to 17,000 feet in the Puna High Plateau. We are currently working on our recruitment efforts. It is likely that we will have to develop some creative strategies to bring in additional funding in order to lower the cost of the program for students who need financial aid. Argentina is beautiful, geologically interesting, fairly unknown, wild (in the good sense of the word, there are no shootouts at the O.K. Corral!) but terribly far away. Reaching Argentina is expensive. If you are interested in knowing more about our program and ways in which alumni can get involved, please contact me at mapatino@uga.edu. That’s all for now, may your year be as rich in experiences as the past one has been for us. Until next time.

Bruce Railsback

My research these days focuses on meteoric diagenesis of ancient limestones and on paleoenvironmental interpretation of speleothems. The former continues to look at



Ordovician limestones in conjunction with Steve Holland’s stratigraphic research. At present, M.S. student Bethany Purdin is following in the footsteps of Jen Diaz, Mike Jordan, and Dan Hunter by intensely sampling one outcrop to determine the variance of isotopic data there. Sadly, she’s going to convince us that we should have been taking five

or ten times as many samples as we’ve been using before. Meanwhile, the latter research on speleothems is in collaboration with George Brook in Geography and now involves stalagmites from Botswana, Madagascar, South Africa, China, Belize, Alabama, and who knows where else.

I’ve also kept busy churning out the Earth Scientist’s Periodic Table of the Elements and Their Ions, which first surfaced in the Earth Surface Geochemistry class a few years ago. The table was published in late 2003 in *Geology* and then republished after some revision in GSA’s Map and Chart series. I’ve been to UCLA and Cal Tech talking about it on one trip and UNC-Chapel Hill and East Carolina on another. At Maggie Rafter’s invitation I gave the talk to the Central Savannah River Area Geological Society as well.

The other great development in my research is that my lab recently escaped from the termites and dirt of Barrow Hall to Room 202 of Geology-Geography. The Institute for Behavioral Research finally got the University to come up with renovation money for a lab in 202, so that they could have my space in Barrow. I now have a climate-controlled clean lab space directly over my office; Jeff Clippard says I only need a fire pole to get from one to the other. You can see the lab (but not the fire pole) via the “Our Lab” link at www.gly.uga.edu/railsback.html.

Mike Roden

Over the last year or so, an exciting research event has been the publication of Scott Harris’ thesis as a paper (with Roden, Schroeder, Holland and Mack Duncan) in



Geology. Scott found shocked quartz in Coastal Plain sediments near Wrens, Georgia, and attributed its presence to the Chesapeake Bay impact – the same impact that produced the Georgia tektites (“georgirites”). Scott’s publication got quite a bit of press attention, and there were stories in the *Atlanta Journal-Constitution*, the *Georgia* alumni magazine, *Columns* and

several science-based websites...Steve tells me that we have also received some attention from people predicting the end of the world will be soon. I attach a picture of a grain of shocked quartz from the *Geology* paper. Other noteworthy student-related events was Dr. Doug Dvoracek’s completion of a very nice study of the peculiar titanite-rich mafic inclusions in the Danburg granite, and Adam Bedell’s completion of his M.S. on the rocks of Brevard Zone which were quarried from the large sewer tunnel that crosses the zone.

More recently, Alberto Patiño-Douce and I have been collaborating closely on two projects – one concerning very high pressure garnets (perhaps originally from the Earth's Transition Zone) in kimberlite xenoliths. These garnets are curious because they have exsolved minerals such as diopside, rutile and ilmenite much like the more familiar example of feldspar exsolution in perthite. One doesn't ordinarily think of garnet as exsolving other minerals but in this case the exsolution is a consequence of a very high pressure origin. A second project with Alberto is an outgrowth of our Planetary Geology course which I think is fair to say, is our favorite course to teach. The subject is in such a dynamic state with major new discoveries almost every month. Alberto and I started meeting once a week last fall discussing new developments to see if there was anything we could contribute...and slowly we began to focus on the use of apatite as a probe of halogen fugacities in planetary interiors. This subject has been fun to play with, and I direct you to Alberto's activity summary for more information.

Finally, but not least, I have a new Ph.D. student, Jeff Chaumba, who originally is from Zimbabwe. Jeff is working hard on developing a Ph.D. thesis to further test the hypothesis of Gilles Allard and Jim Whitney that many of the Piedmont ultramafic bodies were emplaced as portions of a thin thrust sheet. I'm looking forward to working with Jeff over the next few years.

Paul Schroeder

As usual I've got too many irons in the fire, which is just the way I like it! My involvement with Doug Crowe, Chris Romanek and 11 other scientists in the Kamchatka (far-



eastern Russia) microbial observatory project has been extremely exciting. This new branch of research has been leading my grad student, Jennifer Kyle, and me to reconsider almost all mineralization processes on the earth's surface, as it appears that most places have minerals forming in the presence of microbes and visa versa. Living in remote Russia for a month last summer was

an eye opener for how to get science done with minimal resources. More work is planned for years to come, unfortunately sans Jennifer Kyle, who has plans for pursuing her Ph.D. with full offers already coming from places like the University of Toronto.

Collaboration with my colleague, Professor Isik Ece, in northwestern Turkey continues as we are now publishing a series of papers about the alunite and halloysite deposits that we have been studying. Related to this, Professor Ece has been elected to Adjunct status in our department and undergrad Mike Smalley who worked in Turkey

as part of his senior thesis is leaving his internship with Schlumberger-Doll in Connecticut to go to grad school at the University of West Virginia.

I have been in collaboration with Dr. Glenn Stracher, from East Georgia College, working on the mineralogy coal fire sublimes from all around the world. An article about coal fire deposits in Wuda, China is soon to appear in American Mineralogist. Related to this, undergrad Matt Hastings is finishing his senior thesis on coal fire minerals in Centralia, Pennsylvania and he is scheduled this fall to start graduate school at the University of Nevada, Reno.

Most recently, I have been funded by NSF to continue the critical evaluation of carbon occlusion processes in modern soils and paleosols. My new grad student, Jay Austin and I plan to collect goethite from the Neda Formation in Wisconsin, Illinois, and Iowa this spring. Also, incoming grad student, Dan Bulger plans to start looking at the utility of cosmogenic nuclides for constraining soil mineralizing processes, thus joining Jay and me in our quest to use paleosols as recorders of past earth climates.

Other than the above, life is chugging along as usual. The XRD lab is still cranking out data and more students are integrating the FTIR lab into their repertoire of mineral studies. I'm still riding motorcycles and my family is growing fast and living a life as faceted as mine (the apple does not fall far from the tree...). If you plan to pass through Athens, please take the time to stop by the department and say hello.

Sam Swanson

With the new millennium, I started a "new" career as a teacher and researcher. After twelve years as department head (6 at the University of Alaska, 6 at UGA) it is nice to spend time thinking about students and projects rather than budgets and personnel issues.



My research is in the general area of hard rock petrology with an eclectic mix of topics ranging from granites to ultramafic rocks to volcanoes to ceramics and slag. I am fortunate to have wonderful students work with me. Recent students work in the areas of geoarchaeology and igneous petrology. Nikki Lyle (now Nikki Elkins, she found a Masters degree and the love of her life at UGA!) graduated in 2002. Nikki studied Roman-age slags from Carthage in Tunisia. She identified slag associated with iron and bronze working. Some intriguing samples contained traces of silver hinting at some recycling of metals to recover the silver. Nikki, and

her husband Joe Elkins (UGA Ph.D., 2002) are currently teaching at Bowling Green University and are instructors in the UGA Summer Honors Field Trip course. Colleen Stapleton (Ph.D., 2003) came to UGA with her project already in mind. Colleen has an excellent background in the study of ancient glass. She worked at the British Museum for several years before returning to the USA for her Ph.D. studies. Her work on 3500 year old glasses from northern Iran helped in our understanding of early glass-making technology. Colleen is currently working as an Assistant Professor at Mercer University teaching in a program for nontraditional students. Brian Veal (M.S., 2004) worked on the mineralogy of pegmatites in the Spruce Pine Mining District of North Carolina. Brian was shown around the Spruce Pine area by Alex Glover (B.S. UGA, sometime in the Tertiary). Brian demonstrated that the pegmatites are the same mineralogically as the host granites. He is currently working for an environmental company in southern Georgia. Rhonda Cranfill is currently working with me on a project involving Spanish pottery from colonial-era Old St. Mary's in Maryland. Rhonda is trying to find a petrographic protocol to distinguish the Spanish pottery from domestic or English ceramics.

Classroom duties are an important part of my schedule these days. Just this year I was asked to teach the UGA version of mineralogy (called Earth Materials). The course emphasized the occurrence of minerals in rocks and included a section on optical mineralogy. I also taught new graduate courses in Phase Equilibria and Stony Archaeological Materials this year.

Next Fall is my field trip semester. I was asked to contribute papers to both the Georgia Geological Society (GGS) field trip (to be based in Athens) and the Carolina Geological Society (to be organized by Bob Hatcher). The GGS trip will emphasize the Elberton Batholith and I will contribute a paper on textural perception by geologists, including a field trial. I need lots of folks to make this work, so please plan on this trip. The Carolina Society trip will explore the recent advances in terranes that Bob and his colleagues have made in the Tennessee, Georgia and Carolina Appalachians. I am working with Loren Raymond, Appalachian State University, and Rich Warner, Clemson University, on ultramafic rocks in this area and we will have a paper on how the ultramafic rocks contribute to the terrane model. It promises to be an exciting Fall. I'll see you in the field!



Sally Walker

Sally E. Walker continues her work on gastropod preservation and paleoecological dynamics in shelf and slope settings. This summer, she plans field work in the Bahamas and the Dominican Republic.

Dave Wenner

My most successful finding this year was to identify an area of nitrate groundwater contamination right here in Athens. This discovery arose from my involvement in the local watershed group, the Upper Oconee Watershed Network (UOWN). During our group's community watershed monitoring event last April, we found that one sample had an anomalously high level of nitrate. This was surprising since this sample came from a small stream from the State Botanical Garden of Georgia, the last place we expected to see evidence of pollution.

I did some followup sampling and discovered that a number of small springs and streams in the area had high nitrate levels. The spatial pattern of these streams pointed to several nearby farms owned by the university. One that clearly seemed to be a problem was a swine farm. A quick inspection indicated that the most likely source of contamination was the animal waste lagoons. Although leaking animal waste lagoons are a common problem in many agricultural areas, everyone was surprised that we had a problem right in our back yard.

Despite this bad news, the university responded positively by allocating money for the installation of monitoring wells to examine the problem further. What is particularly pleasing to me is that a number of people from different departments and colleges on campus as well as the EPA in Athens are very interested in using this site for research and teaching.

Jim Wright and Sandra Wyld

Sandra and I are continuing our work investigating the



role of margin parallel strike slip faulting during the Cretaceous evolution of the western North American Cordillera. We have two papers in press in a special volume

of the Geological Association of Canada, and have just submitted a manuscript to a volume in honor of Gary Ernst (Stanford University). We are currently writing a proposal to initiate a provenance study of the Great Valley Group, California using detrital zircon age determinations and Pb isotopic analysis of feldspars. We continue our work in the Caribbean and will be finishing up the mapping of the island of Aruba this May followed by more field work on Bonaire. The picture below is of pillow lavas on Aruba, from a field trip I led last year.



Emeritus News

Gilles Allard

Gilles Allard is busier than ever and at work in his small cluttered basement office every day. His efforts are concentrated on the organization and distribution of his lifetime collections. He has given 1100 slides to the Historical Society of Chibougamau covering the complete life of the town. He has also distributed over 4000 thin sections, a large quantity to the Quebec Department of Natural Resources, and recently hundreds of thin sections to professors researchers at the Universities of Brasilia and Bahia in Brazil. They are doing additional research on the areas mapped by Gilles, colleagues, and students in the period 1959-1964. Many of those great thin sections caused sufferings and lack of sleep to students in his classes.

The great geology alumni of UGA may not remember that Gilles attended zillions field trips all over the world and always came back with huge collections of samples. This great economic geology collection was given to the Georgia Museum of Natural History upon his retirement in 1991 but the lack of space forced their housing in Doug Crowe's office-lab, where many alumni studied

polished sections under Bob Carpenter. Working 6-7 hours per week with an intern, Gilles is creating a huge data base and more than 5000 samples have been done so far. Dr. Crowe intends to put that information on a website for the world to consult. The majority of the mines visited are now closed and flooded and researchers may find the collection a valuable research tool. The ore samples are always accompanied by country rock samples which add a great deal of value to the collection.

After 38 cruises, Gilles continues to prepare lectures for ship cruises and private jet cruises. However, he has slowed down for the last couple of years.

Gilles would like to thank those alumni who have contributed and continue to do so the Gilles and Bernadette Allard Geology Award Fund which was started by Jeff Reid after Gilles' retirement in 1991. The fund helps graduate students with the expenses of their field work. So far, 6 graduate students have received around \$1000 each to help defray their field work. Gilles would like to remind all alumni that a donation to the Fund is always welcome and put to good use and is tax deductible. Send it to the UGA Foundation with the mention Gilles and Bernadette Allard Fund and future graduate students will bless you!

Bob Carver

Since retiring in 1993, I have participated in Elderhostels, taught a flock of Elderhostel classes, written encyclopedia articles, consulted on Coastal Plain hydrology, built a 6x8 ft. garden-tool shed, and read a bunch of books about the Civil War.

In 2000, I flew to Reno, Nevada and rented a car to visit my daughter in Sacramento and my son in Medford, Oregon. I drove to the west coast in 2002 and 2003 and to the Canadian Maritimes in 2004. Earlier and in between there were many shorter trips, a drive up the Appalachian Parkway, and two trips to the Texas Gulf Coast. After I started counting in 2002, I visited 30 national parks, monuments, and battlefields. Altogether, I have seen a whole lot of territory with great geology. It has been lots of fun.

Norm Herz

I'm still working with archaeologists helping them find their marbles. One recent project was testing museum statues of Aphrodite to see how many of them are really ancient Greek and not later copies. It turns out that not many are Greek but since they usually are the sexiest marbles in any museum's collection they stay where they are now but change labels.

More exciting has been the fact that Europe is celebrating the sixtieth anniversary of the surrender of Germany in WWII. Celebrations are taking place all over, including a big one in Moscow, which the prime ministers of Lithuania and Estonia declined to attend, and a little one in the Azores Islands, sitting right on the Mid-Atlantic Ridge, which I will attend. My talk has a little geology but is mostly about my book "Operation Alacrity - the Azores and the War in the Atlantic". The photo at right is of me undercover on Santa Maria island during the war.



Triassic sandstones in Ischigualasto Provincial Park, renowned for its rich vertebrate fauna that records the early evolution of dinosaurs and mammals. This is one of the stops on the UGA Geology in Argentina Study Abroad Program. See Marta Patiño-Douce's description of this fantastic program on page 4.

Student Accomplishments

Monica Carroll

Carroll, M., C.S. Romanek, and L. Paddock, 2004. Hydrogen isotopes as a complimentary geochemical record of environmental variation in the shells of freshwater bivalves. *Geological Society of America Abstracts with Programs*, 36 (6).

Advisor: Chris Romanek

Noel Heim

Heim, N. A. and S.M. Holland, 2004. A null biogeographic model for quantifying the role of dispersal in shaping taxonomic richness and similarity patterns. *Palaeontological Association Newsletter* 57: 122.

Heim, N.A., K.M. Layout, L.B. Railsback, S.M. Holland, J. Cox, and D. Crowe, 2004. Geochemical evidence of subaerial exposure at parasequence boundaries in Middle Ordovician limestones from the Nashville Dome, Tennessee, U.S.A. *GSA Abstracts with Programs* 36 (5).

Hughes, N. C. and N.A. Heim, 2005. Cambrian. In R.C. Selley, L.R.M., Cocks, and I.R. Plimer (eds.), *Encyclopedia of Geology*. Elsevier, Amsterdam, 163-175.

Research grants awarded by The Paleontological Society and The Geological Society of America for "Regional biotic response to global climate change: a comparative study from the Carboniferous for the eastern Great Basin and the Pedregosa Basin, western U.S."

Advisor: Steven Holland

Chris Kelson

University Outstanding Teaching Assistant Award, University of Georgia.

Kelson, C.R., D.E. Crowe, and H.J. Stein, in press. Geochronology and geochemical study of part of the Battle Mountain – Eureka trend, Nevada; *Goldschmidt 2005 Conference Proceedings*.

Kelson, C.R., D.E. Crowe, and H.J. Stein, in press. Geochronology and geochemical study of the Hilltop, Lewis, and Bullion mining districts and surrounding area, Battle Mountain-Eureka trend, Nevada; *Geological Society of Nevada 2005 Symposium Proceedings*.

Kelson, C.R., and D.E. Crowe, 2004. Origin and significance of melnikovite pyrite from the Hilltop gold deposit, Lander County, Nevada; *Geological Society of America Abstracts with Programs* 36 (5): 354.

Research grants awarded by the Society of Economic Geologists (Hugh E. McKinstry Grant) and The Geological Society of America for "Geology and geochronological study of the Hilltop mining district and surrounding area, Battle Mountain – Eureka trend, Nevada: An examination of upper plate precious metal mineralization". Additional research funding provided by Placer Dome U.S., Inc. (Cortez Joint Venture) and by a Dissertation Completion Award from the University of Georgia.

Advisor: Doug Crowe

Karen Layout

Layout, K.M. and S.M. Holland, 2004. A quantitative null model of expected changes in ecological community structure following an extinction. *GSA Abstracts with Programs* 36 (5).

Heim, N.A., K.M. Layout, L.B. Railsback, S.M. Holland, J. Cox, and D. Crowe, 2004. Geochemical evidence of subaerial exposure at parasequence boundaries in Middle Ordovician limestones from the Nashville Dome, Tennessee, U.S.A. *GSA Abstracts with Programs* 36 (5).

Research grants awarded by The Paleontological Society, The Geological Society of America (Gretchen L. Bledschmidt Award and Honorable Mention for Outstanding Student Grant), Sigma Xi, and the American Museum of Natural History (Theodore Roosevelt Memorial Fund) for "Biotic recovery from a regional extinction event: An example from the Late Ordovician of the Appalachian Basin of the eastern United States."

Advisor: Steven Holland

Joey McKinnon

Research grant awarded by South Carolina Coastal Conservation League for "Determining runoff mechanisms generated by large precipitation events."

Advisor: John Dowd

Bethany Purdin

Outstanding Teaching Assistant Award, University of Georgia.

Purdin, Bethany J., L.B. Railsback, S.M. Holland, and D.E. Crowe, 2005. Significance and variation in $\delta^{13}\text{C}$ and $\delta^{18}\text{O}$ across surfaces of subaerial exposure in Ordovician limestones of the Nashville Dome, TN. *Geological Society of America Abstracts with Programs* 37 (2): 11.

Research grant awarded by Sigma Xi for “Geochemical evidence of meteoric diagenesis of Ordovician limestones from the Nashville Dome, Tennessee.”

Advisor: Bruce Railsback

Kathy Schroer

Research grant awarded by Sigma Xi for “Tracer study to determine biogeochemical controls on the fate of nitrate along a ground-water to surface-water flow path”.

Advisor: Valentine Nzungung

Nina Serman

Serman, N., 2005. Use of ground-penetrating radar and gradiometry in identifying domestic activity areas within the Kolomoki Mounds Archaeological Site. Program with abstracts, AGU (American Geophysical Union) 2005 Joint Assembly, New Orleans, LA, 23 – 27 May, 2005.

Advisor: Erv Garrison

Sheldon Skaggs

Outstanding Teaching Assistant Award, University of Georgia.

Research grant awarded by the Southeastern Section of The Geological Society of America for “A preliminary isotopic study of the provenance of dexfixiones from Carthage.”

Advisor: Sam Swanson



Field work in the Uzon Caldera, Kamchatka, Russia, at an NSF-funded Microbial Observatory, led in part by UGA Geology Faculty, Paul Schroeder (front row, second from left), Doug Crowe, and Chris Romanek. Jennifer Kyle (front row, second from right) is conducting her master’s research in the Uzon Caldera, will defend her thesis in the near future, and will attend the University of Toronto for her Ph.D. studies this coming fall.

Graduate Theses & Dissertations: 2003-2004

2003

Jessica L. Allen, M.S., “Sequence Stratigraphy and Depositional Environments of the Harding Sandstone, Central Colorado: Implications for the Habitat of Early Fish”, Advisor: Steve Holland

Adam L. Bedell, M.S., “Polymetamorphism and Deformation within the Brevard Fault Zone, Outside of Atlanta, GA”, Advisor: Mike Roden

Mirta A. Carpenter, M.S., “An Evaluation of Groundwater Flow and Mass Transport Modeling in Fractured Karst Systems from Theory to Applications for Revising the Georgia Wellhead-Protection Plan and Rules for Safe Drinking Water”, Advisor: John Dowd

Veronica C. Ciavarella, M.S., “Mesozoic Deformation and Pluton Emplacement in the Northern Luning-Fencemaker fold-and-thrust belt: New Evidence from the Bloody Run Hills, Nevada”, Advisor: Sandra Wyld

Kelly Gragg, M.S., “Archaeogeophysical Investigation of a Samnite Site, Monte Pallano, Italy”, Advisor: Erv Garrison

Robert S. Harris, M.S., “Evidence for Impact-Generated Deposition on the Late Eocene Shores of Georgia”, Advisor: Mike Roden

Joshua Lawson, M.S., “The Importance of Geologic Setting in Developing Groundwater Fractured, Metamorphic Rock Aquifers in the Vicinity of the Gwinnett County Airport and Collins Hill Road, Gwinnett County, Georgia”, Advisor: Todd Rasmussen

Gayle M. Levy, M.S., “Using Morphometric Analysis to Determine Patterns of Evolution in the Upper Ordovician Brachiopod *Sowerbyella rugosa* from the Kope Formation of Northern Kentucky”, Advisor: Steve Holland

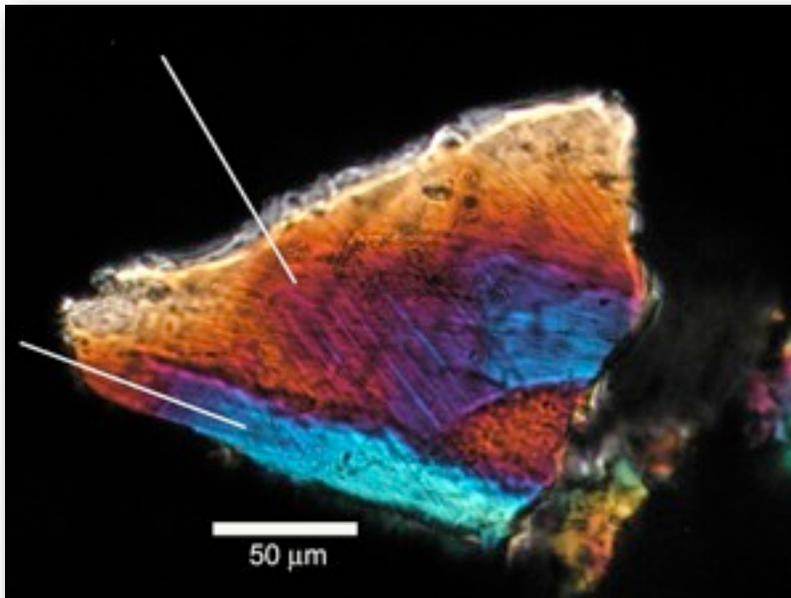
Colleen P. Stapleton, Ph.D., “Geochemical Analysis of Glass from Hasanlu, Northwestern Iran: Constraints on Manufacturing Technology”, Advisor: Sam Swanson

Donald M. Thieme, Ph.D., “Stratigraphic and Chronometric Investigation of Alluvial Deposits of the North Branch of the Susquehanna River”, Advisor: Erv Garrison

2004

Vanese Flood, M.S., “Coral Community Structure and Abiotic Controls on Reefs in Castle Harbour, Bermuda”, Advisor: Ray Freeman-Lynde

William Veal, M.S., “Mineralogy of the Peraluminous Spruce Pine Plutonic Suite, Mitchell, Avery, and Yancey Counties, North Carolina”, Advisor: Sam Swanson



Grain of shocked quartz found by Scott Harris. Scott's 2003 master's thesis documents the evidence for the Late Eocene Chesapeake Bay impact in the sediments of the Georgia coastal plain. This research was graciously facilitated by UGA Geology alumnus, Mack Duncan, of the Huber Corporation.

Departmental Awards to Graduate Students

Allard Fund

Chris Kelson

Wheeler-Watts Fund: Research

Noel Heim: Regional Biotic Response to Global Climate Change: A Comparative Study from the Carboniferous of the Eastern Great Basin and the Pedregosa Basin, Western U.S.

Elizabeth Hollingsworth: Stable Isotope Geochemistry of the Uzon Caldera, Kamchatka, Far East Russia: Developing an Evolutionary Model for the Hydrothermal System

Elizabeth Hollingsworth: Geochemical Influences on Microbial Communities within the Hydrothermal System of Uzon Caldera, Russia

Chris Kelson: Geology and Geochronological Study of the Hilltop Mining District and Surrounding Area, Battle Mountain-Eureka Trend, Nevada: An Examination of Upper Plate Precious Metal Mineralization

Jennifer Kyle: Biomineralization and Biomineral Production of Microorganisms in Siliceous Sinter Deposits from Winding Stream, Uzon Caldera, Kamchatka, Russia

Joey McKinnon: Determining Mechanisms and Resident Times of Runoff Generated by Large Storms

Jason Nail: Comparison of Degradation Rates and Mineralogy Changes in Biologically and Chemically Remediated Explosives-Contaminated Soils

Bethany Purdin: Geochemical Evidence of Meteoric Diagenesis of Ordovician Limestones from the Nashville Dome

Christian Schrader: Experimental Determination of Source Material and P-T -a (H₂O) Melting Conditions for Early Extension-Related Alkaline Magmas, Trans-Pecos Magmatic Province

Nina Serman: Ground Penetrating Radar and Gradiometer Studies of Selected Areas at the Kolomoki Archaeological Site (9ER 1) in Southwestern Georgia

Lina Wayo: Enhancement of Rhizodegradation of Polycyclic Aromatic Hydrocarbons (PAHs) Using Nutrient Amendments

Eric Wysong: Hurricane Effects on Biotic Death Assemblages and their Facies: San Salvador Island, The Bahamas

Wheeler-Watts Fund: Travel

John Allen: Sequence Stratigraphy of the Late Eocene Dry Branch Formation in the Georgia Coastal Plain (GSA Annual Meeting)

Monica Carroll: Hydrogen Isotopes as a Complimentary Geochemical Record of Environmental Variation in the Shells of Freshwater Bivalves (GSA Annual Meeting)

Noel Heim: Geochemical Evidence of Subaerial Exposure at Parasequence Boundaries in Upper Ordovician Limestones from the Nashville Dome, Tennessee, U.S.A. (GSA Annual Meeting)

Noel Heim: A Null Biogeographic Model for Quantifying the Role of Dispersal in Shaping Taxonomic Richness and Similarity Patterns (Palaeontological Association Annual Meeting)

Elizabeth Hollingsworth: Hydrothermal Alteration Facies in the Uzon Caldera, Kamchatka, Far East Russia. (GSA Annual Meeting)

Chris Kelson: Melnikovite Pyrite from the Hilltop Gold Deposit, Lander County, Nevada (GSA Annual Meeting)

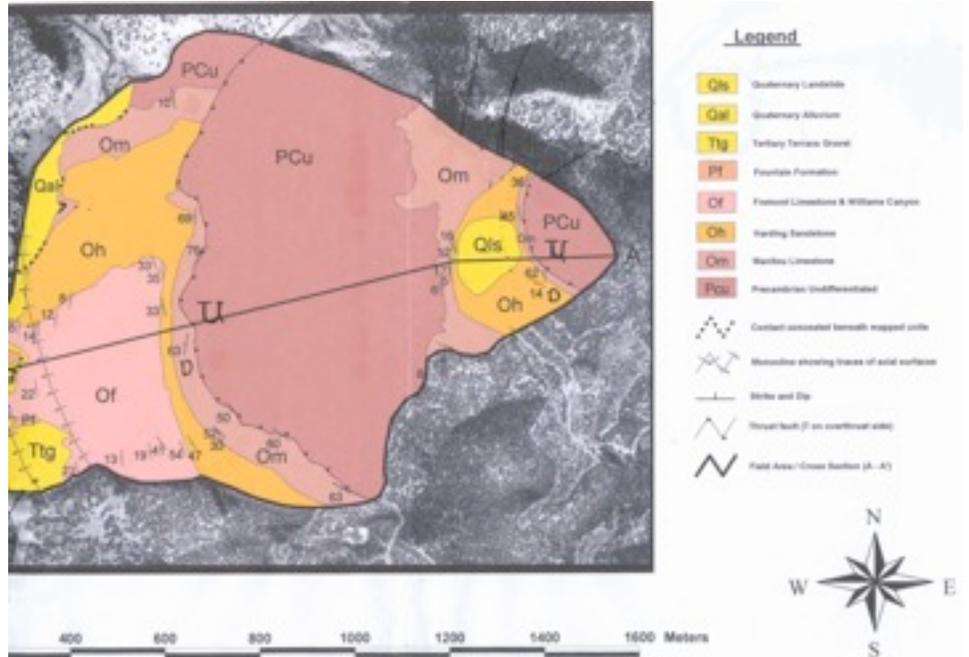
Jennifer Kyle: Evidence for Biomineralization and Preservation of Microorganisms in Siliceous Sinter Deposits from the Uzon Caldera, Kamchatka, Russia (GSA Annual Meeting)

Karen Layout: A Quantitative Null Model of Expected Changes in Ecological Community Structure Following an Extinction (GSA Annual Meeting)

Field Schools

Geology Field School

Our summer field school still is based out of Cañon City, Colorado, but it has changed in some important ways over the last few summers. Firstly, the students now produce several of their maps on laptop computers using the GIS software, ArcView (photo at right). Generally this leads to some great gnashing of the teeth, but by the end of the course most students have become quite skilled with this widely used software. The students also plot their positions while in the field using handheld GPS units; these devices are incredibly useful as long as you remember that a little common sense goes along way.



Secondly, we have combined with the University of South Carolina and now run a joint field school. Professor Matt Kohn (University of South Carolina) helps with instruction. We did this because it helps with our fi-



nances and elevates the enrollment to the levels we need to sustain the school. This summer will be our second year collaborating with USC.

Some things haven't changed however. Doug Crowe, Mike Roden and Diane Kamola (University of Kansas) still share teaching duties, and we are still based out of beautiful Ullathorne Hall at Holy Cross Abbey. For the past 5 years we have been working with Paula Sheagley at the Abbey, and she has been a joy to work with after all the yo-yos that proceeded her. The Abbey is once again for sale, and we're not sure how much longer our symbiotic relationship will continue. We also still go on the two long field trips to Utah and northern New Mexico, and I include pictures of Spanish Peaks and Dead Horse Point to remind you of the beautiful scenery of those trips.

- Mike Roden



Honors Interdisciplinary Field School

In 2004, we had another successful summer field program traveling with 26 students for eight weeks throughout the county, mostly in the west. This program offers students up to 15 hours of credit in introductory classes in geology, anthropology, and ecology. We even offer one hour's credit for physical education since we do lots of hiking. The accompanying pictures will give you a flavor of what we do and where we go. Do you recognize where these scenes are from? If not, see the answers to the quiz at the end of this newsletter (and you thought you were through with tests – but after all, this newsletter is from a university!). See page 21 for the answers.

- Dave Wenner



Photo 3 - How about here?



Photo 4 - Here we are climbing up to see an archaeological site, so where do you think we are?



Photo 1 - I know you know where this is from!



Photo 2 - And this place?



Photo 5 - We are looking at cyanobacterial mats in the stream, so where are we?

Views from the Shallow Geophysics Field School

- Erv Garrison



Resistivity training in front of the Geology-Geography Building



Ground radar at a prehistoric site near Comer, Georgia



EM / Conductivity meter practicum in front of Geology-Geography Building

Alumni / Alumnae

Polly Bouker (M.S., 1996)

I am finishing my 4th year teaching introductory geology courses at the Lawrenceville Campus of Georgia Perimeter College, and have also been serving as Assistant Department Chair in the Science Department for 2 years.

Since leaving UGA, I have adopted 2 children, Hannah (7) and Jonathan (6). Due to the special needs of my son, I have become quite involved in learning about federal laws regarding special education (IDEA) and advocating for individuals with brain disorders.

Bob Chernow (M.S., 1984)

After 10 years in the oil industry in Louisiana, Texas, and Alaska, and 15 years in environmental consulting mostly in New Jersey, I am now a high school earth science teacher in Randolph, New Jersey. Should have made the switch earlier. Patty and I have 3 kids with lots of activities and sports.

I'm involved in sports coaching and the local planning board and open space committees—we need to wisely manage the remaining open space, and the geologic perspective I provide is respected and appreciated. There is a severe science teacher shortage up here—I'd be happy to talk to any students looking for employment in any of my 3 fields of experience. Good luck.

Mack Duncan (B.S., 1968)

I work for J.M. Huber Corporation in middle Georgia where we mine kaolin. I am in charge of Exploration, Mining and Land Management. We have three mining areas: near Macon, Sandersville and near Augusta. I would love to hear from other alumni and would be happy to give you a tour of our operations.

My wife, Julie, and I live near Thomson, Georgia. Julie is a botanist, and we really enjoy getting out to new areas and enjoying the plants, animals and rocks. We also enjoy being with other people. So, if you would like to share a trip with us, please call us. We would be happy to join you at one of your favorite places, or we would be happy to share some of our favorite places. Give us a call at (h) 706-595-4643, (c) 706-340-5474 or email us at trinca@classicsouth.net.

Margaret Fraiser (B.S., 1998)

I will be getting my Ph.D. this May in Geobiology from the Department of Earth Sciences at the University of Southern California.

Kevin Gantz, P.G. (B.S., 1984)

Married and moved to Ball Ground, Georgia in 1987. Worked 16 years in the environmental consulting trenches (literally, this was before trench safety rules - how were we to know?) Broke out on my own in 2002 and launched Gantz Environmental (how original). Have had a lot of fun so far mostly doing Environmental Compliance, ISO 14000, and some property assessments. I spend my free time doing Boy Scouts and Young Life. If you are ever in downtown Canton, look me up and let's have coffee!

Ken Gillon (B.S., 1976; M.S., 1982) and Ann (Meierkord) Gillon (B.S., 1976)

Ken and Ann Gillon wish to say hello and wish the best to all at our alma mater. We are still happily married after nearly 26 years, with three kids, and living in Aiken, South Carolina, where Ken works as a principal geologist for Bechtel Savannah River, Inc. cleaning up VOC and rad contamination at SRS. The kids, Alex (16), Stephanie (14), and Ellie (10) are all wonderful students, and show the results of Ann's careful nurturing as a full time Mom since she left Cad and engineering geology work behind in 1993. We left UGA in 1980 for St. Louis, Missouri, where Ken worked for Hanna Mining (Pb/Zn exploration), and Ann working for Shannon & Wilson (eng. geology). The mining industry took a big nose dive, and after a lay-off at the end of 1982, Ken joined Kennecott Exploration. This resulted in us moving to Columbia, South Carolina, in Jan 1984. Ann began working for Steve Schamel doing Cad and research at USC's Earth Science Research Institute, and Ken began a 9 year stint of Au exploration, including a lot of work on the predevelopment of the world-class Ridgeway Gold Mine. Ken authored several field guides (GGS, GSA, and IGCP) and GSA abstracts on Blue Ridge geology and gold during this time. In 1993, we needed a career change, so it was off to Greenville, South Carolina, where Ken began environmental consulting with RMT. Ken had a lot of successes at RMT, applying geology to the clean up of environmental sites and presenting abstracts on this work. Ken was also asked to consult for Kennecott at the Ridgeway Mine, where he mapped structure and ore controls for the North Pit. This work led to Ken's lead authorship in two field trip guides to Ridgeway for the SEG & CGS. In 2002, a post-9/11 business slump layoff caused us to

look elsewhere again. We were fortunate to come to Aiken and SRS. We really enjoy living here, but with the cutbacks at SRS, we don't know for how long. Aiken's a great place to raise a family, and we've found a great Methodist Church that encourages and actually appreciates our peculiarities as geologists. What we have to say to the new crop of students as well as the alumni and department folks is that you are all loved, and that your desire to learn and practice geology is a gift. Pursue it with a passion, and persevere through the hard times ... email us at gillonfamily@gforcecable.com).

Mark Hall (M.S., 1991)

My wife, Lynn, daughter, Sherrie, and I live in Athens. I am an Advanced Geologist with the Georgia Environmental Protection Division. For the last 15 years, I worked for the Georgia Geologic Survey, the last 10 of which I was the Scientific Drilling Program supervisor, ran and interpreted geophysical logs, and oversaw special projects. I currently work at the Northeast District EPD office here in Athens doing regulatory work. Lynn and I are very proud of Sherrie. She won the coveted UGA Geology Department Engraved Rock Hammer at State Science Fair this year and will be attending the Georgia Governor's Honors Program in Chemistry this summer. (She obviously takes after her mother!)

Stephen Harper (Ph.D., 1996)

I am about to complete my 13th year in the Department of Geology at East Carolina University in Greenville, North Carolina. On the teaching front, my typical teaching semester includes 2 sections of Physical Geology and 1 section of Environmental Geology. As has been the case since I first arrived in the Geology Department in 1992, part of my teaching duties still include training and mentoring our Graduate Teaching Assistants to teach our Physical Geology labs. Our departmental curriculum still has me teaching Geomorphology every other spring semester, which includes the current spring semester of 2005. I will be in the teaching rotation for the UNC System-wide Geology Field School in New Mexico and Colorado in May-June 2005 for the seventh straight year and will be teaching at the Abiquiu, Taos, and Cuba, New Mexico sites. For the 2005 field course, we will have 32 students enrolled in the summer geology field course from 7 universities in North Carolina, Virginia, and Pennsylvania.

I received my 4th teaching grant stipend since 2000 for ~\$7800 from the Office of the Provost at ECU plus \$925 expense funds to purchase a high end Nikon slide scanner. The grant is to create a series of Photo-based Field Trips on the department WEB site to support my teaching efforts in Physical and Environmental Geology. I con-

tinue to be a passionate field and landscape film photographer.

My primary research interest is evaluating the role of mass wasting and surface and sub-surface dissolution in the evolution of tower karst in coastal areas of Krabi and Phang Nga Provinces along the southwest coast of Thailand. I am also looking for approaches to date high sea level stands along the western coast of Thailand, indicated by notches 3-5 meters higher than modern notches. My focus on the high notches is on the exterior tufa stalactites that have grown down from the visors of the high notches. During my travels around Krabi and Phang Nga Bay, I will be looking for tsunami deposits from the December 26, 2004 Tsunami Event. I have a potential tsunami deposit, collected in Krabi, that yielded a radiocarbon age of ~600 years BP. So, I am curious to see if I can find deposits with similar characteristics from the 2004 Tsunami Event since there are no reliable historical records for southern Thailand. During the summer of 2005, I would also like to check out the pinnacle karst in Yunnan Province of southwest China and return to Ha Long Bay in north Vietnam to see more tower karst there that I did not get to see in 2002. Perhaps a bit ambitious!

John Hayden (B.S., 1985)

I am Vice President of Environmental Services and staff geologist for the National Stone, Sand & Gravel Association (NSSGA) in Alexandria, Virginia. (Or, as Dr. Dallmeyer used to say, I'm doing "driveway geology"!)

I got married two years ago to a geologist in Utah and commute every other weekend to St. George, Utah, home to fabulous Zion National Park, Bryce Canyon, and other red rock wonders. (I'm looking for a job out that way if anyone has an opening!) My wife Janice works for the Utah Geological Survey out of St. George mapping the quads in the southwest portion of the state. I get to help her with her field work every chance I get. While the majority of my work at NSSGA is related to keeping track of environmental laws and regulations for the aggregates industry, I still enjoy being the liaison with the USGS, the Association of American State Geologists and other geotype groups. I am also quite proud of NSSGA's program to help build aggregate-related curriculum in several U.S. mining schools. We now have student chapters at University of Missouri - Rolla, Colorado School of Mines, Southern Illinois, University of Nevada - Reno, Montana Tech, Virginia Tech and Michigan Tech. As one of the original geology field students at the first UGA field camp in Colorado in 1985, I am pleased to see that UGA still goes back to Cañon City every year and that we have not yet been thrown out of the Abbey!

Steve Henderson (Ph.D., 1984)

I'll catch you up on some of the things that I've been doing and I'll have Kitty do the same when she and my daughter return from spring break in Chicago.

Last June (2004) I took students to Scotland to do my course "Geology and Culture in Scotland" with an English professor. We did geology and Scottish literature. Hiked up and over Arthurs' Seat with a geologist and then hiked around it with a storyteller two days later. Ended up at the Sheephead's Inn in Duddingston where the 90 shilling Scottish Ale is the best! Spent a good deal of time on Skye (great volcanics), Lewis, and Harris. Then in July I went out to Washington, Idaho, and Montana to visit old friends. We went to a number of Lewis and Clark sites and did some plant fossil collecting with Bill Rember at his property in Clarkia, Idaho. I recently had my paper on the geology of the Battle of Chickamauga published. It is a chapter in Caldwell, D.R., Ehlen, J., and Harmon, R.S., 2004, *Studies in Military Geography and Geology*, Dordrecht, The Netherlands, Kluwer Academic Publishers, 348 p. This was the result of the International Conference on Military Geology and Geography in June of 2003 held at West Point. At Southeast GSA last year (March 2004) we had a session on Civil War geology and I presented on the geologic strategic importance of Chattanooga during the Civil War. Over spring break this year (March 05) I co-led a trip to Ecuador associated with a course entitled Change in Developing Societies. This is a sociology course that one of my good friends here at Oxford College started. This is my third time participating in this course. The trip to Ecuador was fantastic. The Andes with their volcanoes and the rain forest ecology are incredible. I've been busy trying to catch up and just finished grading tests and term papers from all my courses. Tony Martin and I will be taking students to Big Bend National Park in May as the field trip portion of my course Desert Geology. We enjoy team-teaching this course.

Beth Kinstler (B.S., 1979)

I have undergone many metamorphoses since my graduation, and although I never really worked in the field, I still maintain a high interest in natural science.

I am currently a certified antique and residential contents appraiser, estate liquidator, and auctioneer. I live in Savannah, Georgia, where I have resided since leaving Athens. At this point, I can barely remember most of my classmates, with the exception of Jeff Skarda, for whom I always had great respect.

I would love to hear from anyone who remembers me and wishes to reminisce. I can be reached at either my email or 912-355-5451, but email is better because I work by the hour and am frequently on the client clock.

Kalen Kramer (B.S., 1997)

I am currently working in the environmental department for United Consulting, Inc. in Norcross, Georgia. I am conducting a wide variety of geology and non-geology related work. I have done some geophysics, environmental drilling, remediation, hazard assessments, chemical modeling, and even a little mapping for the Tennessee DOT. In addition, I have been married for 6 years and have two little girls, ages 4 and 1. Luckily, I have a pretty understanding wife, and I still get out to do a good bit of backpacking, climbing, running, etc. Looking back at this point, I have to say that my time in the UGA geology department was some of the most fun I've had. At this point in my career, I have worked with many people from different universities and backgrounds. I have come to understand that I left UGA with a better understanding of geology than most people I've met, and our geology field camp is the most intensive undergrad field camp in the US. I hope everyone is doing well.

John LeGolvan (M.S., 2001)

After some job-hopping I'm finally settled down in southeast Michigan. I work for Haley & Aldrich, an environmental consulting and civil / geotechnical engineering firm. I purchased my first house last year, and am enjoying the ups and downs of home ownership. If anybody finds themselves in the vicinity, feel free to drop me a line.

Vince Matthews (B.S., 1965; M.S., 1967)

Vince Matthews was appointed State Geologist and Director of the Colorado Geological Survey (CGS) in 2004. He formerly was responsible for CGS' geologic mapping, earthquake hazards research, and outreach programs. After spending twenty years in the petroleum industry, he returned to academia in 1997 and then joined CGS in 2000. Vince received Bachelors (1965) and Masters (1967) degrees in Geology from the University of Georgia and a Ph.D. from the University of California, Santa Cruz. He has held tenured positions at two universities and has taught geology at the University of California, University of Northern Colorado, Arizona State University, the Frank Lloyd Wright School of Architecture, and the University of Texas of the Permian Basin. As an executive in the petroleum industry for Amoco, Lear, Union Pacific, and Penn Virginia, Matthews explored in virtually every basin in the U.S., including Alaska and the Gulf of Mexico. He is the author of more than 50 technical articles and abstracts and was senior editor and author of the multiple, award-winning publication, *Messages in Stone: Colorado's Colorful Geology*, published in 2003. One of his publications is widely cited as the most definitive evi-

dence for large-scale displacement on the San Andreas fault.

Maggie (Rafter) Millings (M.S., 1997) and Ted Millings (M.S., 1999)

Ted and Maggie are living in North Augusta, South Carolina, with their 3 shelties (Hasell, Natalie and Cooper). Maggie is a scientist at the Savannah River National Laboratory where she's been working for the past 4 years. Ted is going on 5 years working as a geologist for the South Carolina Department of Health and Environmental Control. He currently works in the Aiken district office. We love being back in the area after living in South Florida for several years. We often take trips to visit family and friends in Atlanta, Charleston and Charlotte. Several months ago we were delighted to have Bruce Railsback come and give a talk about his Earth Scientist's Periodic Table at the local CSRA (Central Savannah River Area) Geological Society meeting!

Allan Nix (B.S., 1991)

After all these years, I have never forgotten Roden's undergrad petrology class and his analogy between mineral phases and the head on a beer. Also memorable was my drive to Cañon City with the late Dr. Howard in 1990. Like so many degreed geologists who dreamed of a career in oil exploration, I ended up as an environmental consultant. I have run my own home-based consulting business, Environmental Advantage, since July 1997. Currently, I am a licensed professional geologist in Georgia and Florida. I am married with a 9-year-old son. For recreation, I have been an avid league and tournament bowler for 25 years.

Scott Pike (Ph.D., 2000)

My life in Virginia is soon to be a thing of the past. I have accepted a position at Willamette University in Salem, Oregon, starting this fall. My appointment is the the Environmental and Earth Sciences Department. The webpage claims Willamette to be the oldest University west of the Mississippi and the department to be the oldest of its type west of the Rockies. My future e-mail address will be: spike@willamette.edu

Colin Polk (B.S., 1997)

I moved to Midland, Texas to work in the oil patch in early 1998. Later in the year, as the industry so often does, Oil and Gas went belly up so I moved to Austin, Texas and worked in the Environmental / Geotechnical field for two years. Following a short reentry into Oil and Gas with Schlumberger Wireline, I relocated to Portland, Oregon in May of 2001. After traveling around the

Northwest for a few months and generally just being a bum, I buckled down and found employment with a regionally based Environmental / Geotechnical Consulting Company. Things have been gang busters since. I have been learning and advancing nicely in my career obtaining my professional registration in the state of Oregon last year. I do love it out here and plan on sticking around (unless a cush gig in Australia comes my way).

Marty Robinson (M.S., 1975)

Greetings from Saudi Arabia. Marty and Annie Robinson are alive and well in Dhahran, Saudi Arabia. I am enjoying my work as an explorationist for Saudi Aramco. After an 18 year career with ARCO, I was surplused in 1996 and signed on with Aramco in December of 1996. Work has been very rewarding as I have been involved in a very active gas exploration program in the Kingdom. And with the price of oil being what it is, we are once again getting involved in exploration to build up both the Kingdom's oil reserve base and oil production output.

Our two sons, Peter and Kai, have attended boarding school at the Northfield Mount Hermon School in Northfield, Massachusetts. Peter graduated in 2002 and is currently a Junior at Vassar College in Poughkeepsie, New York, where he has a double major in Astronomy and Physics. Peter has secured a job this summer in his field of interest at the Lawrence Livermore lab in California. Kai graduates this June (2005) and will be attending Brown University this fall. Kai's love is springboard diving. He was ranked as the #2 independent school diver in the country last year.

Annie and I recently bought our "retirement home" and when we get the kids through college plan to retire to Vashon Island in the Puget Sound between Seattle and Tacoma. Annie has spent a good part of the last two years (during the Iraq War) in the states working on the house. Major project last year was remodeling the kitchen, which was completed in time for Thanksgiving dinner!

David Bacchus, another Georgia geology alum is also working here in Saudi.

Erin Rust (B.S., 1998)

I am currently teaching high school earth science (and occasionally oceanography) in Christiansburg, Virginia.

Kathy (Fitzpatrick) Sanford (B.S., 1981; M.S., 1982)

Professionally, I'm busy, busy, busy with various regulatory matters related to exciting Trenton-Black River drilling activity in the southern tier/Finger Lakes area of New

York. Several significant natural gas discoveries at depths of 10,000 feet and greater have occurred since 1999. I've been working in the Bureau of Oil and Gas Regulation, Division of Mineral Resources, New York State Department of Environmental Conservation since 1985. I currently supervise a small unit which oversees oil and gas well permitting matters, well spacing, forced pooling, underground natural gas and LPG storage, solution salt mining and drilling deeper than 500 feet for other purposes such as stratigraphic evaluation or implementation of geexchange technology. I am a member of the American Association of Petroleum Geologists, AAPG's Division of Environmental Geoscience and the Hudson-Mohawk Professional Geologists' Association (HMPGA). I recently "retired" from two years on HMPGA's board of directors and five years as newsletter editor. Personally, I live in upstate New York, about halfway between Albany and Saratoga. Winters here are way too cold and way too long, and I definitely miss Athens in the springtime. I married Jim Sanford, an environmental engineer, in 1992. We spend as much time as we can east or southeast of home, including in Rockport, Massachusetts,

various parts of Florida, various Caribbean islands (or on a Windjammer tall ship in the Caribbean), and in Ireland. We hope to visit New Orleans sometime in 2005, and would love to connect with any fellow alums who remember me and might still be there!

Jason Shiflet (M.S., 1999)

Professionally, I've been employed by Zapata Engineering (almost exclusively) since 1998. I am a PM with the company, have obtained my professional license and conduct various environmental investigation and remediation (mostly petro-chemical and RCRA metals) projects throughout the southeast. I expect to enter a doctoral program this Fall at UNCC in the Civil Engineering Department in a program called Infrastructure and Environmental Systems (geotechnical course of study). Personally, Becca and I have two sons (Will is 3 years old. and Evan is 2) and a daughter expected in early September of this year. We will celebrate our 10th wedding anniversary this December. We returned to our hometown of Gastonia, North Carolina and have settled quite nicely.

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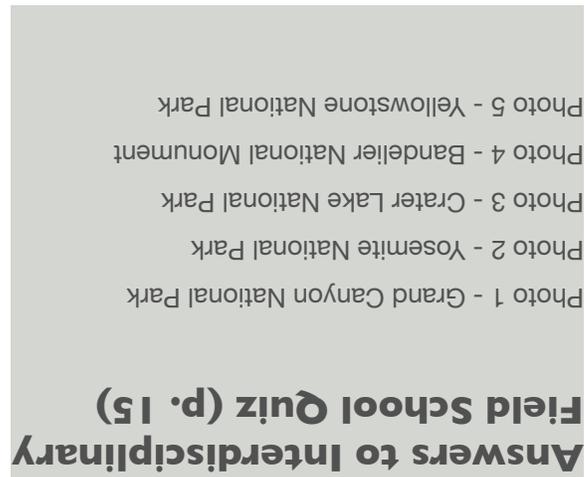
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Have suggestions?

Please contact Susan Goldstein at sgoldst@gly.uga.edu or Steve Holland at stratum@gly.uga.edu

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