Message from the Chair

As usual, this past year was an exciting one, very productive for most of our faculty and modestly productive even for me. First off, we continue to settle into the Olin Building, into which we moved two years ago. Major work over the summer has (we hope) solved the problems of foundation leaks in the basement. Work on other problems, including a dirty clean room and classroom noise, are pending. That aside, we have made great strides getting classrooms and labs organized and productive for classes and for a wide variety of research projects. We have gotten maps on the walls, and workspace made workable.

This past March we took 9 students to the Northeastern Section Meeting of the Geological Society of America, in New Brunswick, New Jersey. To my knowledge this is the largest Union contingent ever to attend NEGSA, and it even rivaled the group from Bates College! Our students were no spectators either; they presented 9 papers on which they were first authors or coauthors. One of the students, Jason Lederer (a Junior!) won the NEGSA award for best student poster paper. A wonderful achievement for Jason, his advisor John Garver, and for the Geology Department. Another student, Senior Nick Meyer, presented two papers. We have come a long way in the past 15 years.

We hired Joan Ramage as a two years sabbatical replacement for Don Rodbell (this year) and George Shaw (next year). Joan’s comes from Cornell, Penn. State, and Carleton College with expertise in remote sensing. Already she has plastered our walls with maps that are stunning in their detail. They have let us figure out parts of the local geology that were previously invisible. She has already proven to be a wonderful asset.

For me, one of the greatest achievement of the past year was a successful grant proposal to NSF (~$186,000 total), that allowed us to purchase a new state-of-the-art inductively coupled plasma mass spectrometer (ICP-MS), to replace our ten year old instrument. The original instrument was the first in the world at an undergraduate college. Now there are perhaps a dozen such instruments at undergraduate colleges in the U.S. We are the first to enter the second cycle with new technology. A second major achievement was the completion of a major self-study of our Geology program and our future goals. This work culminated in a meeting to discuss these matters at the Wyoming ranch of John and Jane Wold. Details on this are below. In all, this was a very productive year, though busy beyond all of my past experience. We continue to move forward.

Kurt Walliszer

Self Study 2000

The Geology Department has been involved in recent Union discussions on resource allocation (e.g., faculty lines) and the calendar issue (trimesters vs. semesters). As an outgrowth of these discussions we spent most of spring term, 2000, working on a self study of the Geology program at Union College. This major document formed the basis of discussion at a meeting in July, 2000, hosted by John Wold (1938) and Jane Wold at their Wyoming ranch at the foot of the Bighorn Mountains. The meeting was also attended by the Geology faculty, John Dreier (1964), and Carl Hobbs (1968). This self study describes the history of the department, its current state, and our future goals. We compared the Geology program to other departments at Union, looked at 25 other geoscience programs, solicited comments from alumni, and read reports outlining the recommendations of graduate schools and industry on the skills and knowledge geoscience graduates should have. Copies of the self study are available on request, and it is also available on-line at the Geology
Department web site (go to the web site above, and click on the Alumni Newsletters link). Among other notable items, in the past ten years the Geology Department has brought in over $2 million in grant money, published nearly 200 papers and abstracts, and doubled the standing number of Geology alumni. Although Union Geology has come a long way since its rebirth in 1985, and has exceeded original goals, we would like to continue moving forward. Here is the executive summary of the self study:

Background
1) This document is a self study of the Geology Department. It is the first such self study since 1994, when one was done in preparation for an external review of the Geology Department. Here we discuss our past history, current state, and future goals.

2) Geology began at Union under the umbrella of Natural Philosophy in 1809. For 85 years geology was combined with biology, and mineralogy was combined with chemistry. Mineralogy became linked to geology with the hiring of Charles Prosser in 1894. Geology attained department status, in more or less its modern form, with the hiring of E.S.C. Smith in 1925. From 1809 until 1957, nearly 150 years, Geology had at most 1 dedicated faculty member. In 1957, Phil Hewitt and later Leo Hall, after Smith's retirement, continued a standing faculty of 2 until the dissolution Geology in 1967. With a substantial gift from John Wold, the Geology Department was restarted in 1985, and has grown to 4 faculty.

3) In recent years we have graduated about 10 majors a year, with additional interdepartmental majors, double majors, and Environmental Studies majors who concentrate in Geology. For 3 of the past 6 years (1995-2000) Geology has had the second largest number of graduates in the sciences, after Biology. It has an extremely strong record of involvement of students in advanced research projects.

4) Geology has approximately 150 living alumni, and half of these have graduated since 1990. About 50% of recent alumni go on to graduate school. Nine of the 13 majors in the class of 2000 are graduate school bound, our most impressive class to date.

5) The current Geology curriculum is Spartan. Little is offered beyond the barest core of courses. Most courses have a strong field component and hands-on work. Research and research-like projects are a vital part of most courses.

6) Geology is the smallest department on Campus, ranking last in the number of courses offered and second to last in the range courses available to its majors. Students have few options to pursue interests and career goals, and lack some skills and knowledge when they enter graduate school or the geoscience industry. Faculty have little teaching flexibility: almost all courses taught are vital to the basic curriculum and so restrict Geology faculty from designing new courses, participating in terms abroad, team teaching, and participating fully in the GenEd program. Geology cannot offer new courses that could expand the pool of potential majors and better educate the wider audience of Union College students about their home planet.

7) Most jobs in the geosciences in the U.S. are in industry: the petroleum industry, environmental fields, and mining. The current geology curriculum at Union is does not adequately reflect skills needed for these disciplines.

8) The Geology Department has an aggressive research program that has resulted in nearly 200 publications and $2 million in grants since about 1990. Many students are coauthors on papers and some are first authors. Most of our graduates present their work at the Union College Stienmetz Symposium, and many give presentations at regional and national scientific conferences, including the Geological Society of America.

9) The Geology Department should be held out as a model of excellence for Union College departments. Geology can contribute much to improve the quality and value of a Union College education, and Union would do well to carefully consider the proposals offered here.

Proposals to reach goals
1) Facilities and space in the Olin Building are a significant improvement over those previously available. However, control over space, student work space, and basic teaching lab space are substandard or absent and need to be addressed. Proper furnishing of Olin rooms needs to be completed, and some serious technical problems with the Olin Building remain.

2) The Geology Department budget is inadequate for many basic teaching needs, and cannot permit the program to advance to the next level on several fronts: teaching equipment, equipment maintenance, transportation, and field course support.
3) We must increase our introductory level offerings in order to attract majors, to better support the Environmental Studies Program, the Educational Studies Program, and Civil Engineering, and to offer better options for Union's GenEd science requirement. Possible new introductory courses include: Mineral Resources and Society, Geologic Hazards and Society, Earth Systems, Meteorology, and Oceanography.

4) Fill upper level curriculum gaps with courses: A) recommended by branches of the geology industry, B) frequently taught at peer geoscience programs, and C) recognized as important by Geology faculty. This will give Geology majors the ability to pursue their interests and career goals, and prepare them better for the geologic profession. Specific courses we should add are: Field Camp, Economic Geology, Hydrogeology, GIS and Remote Sensing, Climate Change and Records, Tectonics, Paleontology, and Sedimentary Petrology.

5) We propose three additional faculty lines to bring the total number of Geology faculty to 7. The three new lines would be in the general fields of Economic Geology, Hydrogeology, and Climate Change. Expansion of the curriculum, as described above, is impossible without these new positions.

Geology Steering Committee Meeting, Fall 1999

At the start of the October homecoming weekend there was a meeting of the Geology Steering Committee. In attendance were Gaela Schweizer (1995), Mark Dobday (1975), and Carl Hobbs (1968). They first met with the Geology faculty and students, and then with some administrators, including Christie Sorum, Vice President for Academic Affairs and Dean of the Faculty. The purpose of this group is three fold: 1) to keep conversations going between Union Geology faculty and geology alumni; 2) to give us periodic feedback on our program and on the requirements of graduate schools and industry; and 3) to inform the administration of their perception of our immediate needs and long term program goals. To put it another way, the Steering Committee helps keep us headed in the right direction, and tells the administration how they should be helping us along. The committee recommendations for the Geology Department were included in our 2000 Self Study (above), and we have taken action on some of them, particularly keeping in better touch with alumni (except for this excessively late newsletter, of course). The Administration response has been less clear.

Ballston Lake initiative

The Ballston Lake Initiative (BLI) was spearheaded in 1998 by Geology faculty to foster expanded, environmentally-oriented, interdisciplinary teaching and research at Union. The BLI was funded by $220,000 in NSF grants for equipment and curriculum development. The BLI has far reaching effects on faculty and students involved with the Environmental Studies Program and associated departments, including Geology. The BLI has helped unify part of the Environmental Studies program by supporting a lake systems focus for many of its associated courses, and by fostering teaching and research links between courses in different departments. The BLI focuses on Ballston Lake as an environmental system that has evolved through time. To date, the BLI claims among its successes:

- It has directly and indirectly involved a dozen faculty.
- It has spawned new laboratory projects for at least 10 courses, and one course focuses entirely on the lake.
- It has resulted in cross-departmental team teaching of one newly modified course (Lakes and Environmental Change, GEO-113).
- It has resulted in a new innovative project undertaken by two concurrent courses in different departments.
- It has funded 14 summer research students.
- To date, some 10 senior theses have focused on Ballston Lake and issues surrounding formation of the lake basin and the adjacent Mohawk channel.

Winter Seminar Series

The Environmental Studies Program, under the direction of John Garver and with partial support from the Geology Department, hosts annual public interdisciplinary colloquia series which have engaged many faculty, students, and local residents. These are some of the only interdisciplinary seminars on campus. In winter, 2000,
the seminar series was on the Adirondacks. This series of five public talks drew a total of ~650 people and covered the politics, natural setting, and arts of the Adirondacks. It was organized in a partnership with the Association for the Protection of the Adirondacks. In fall, 2000, the Geology Department also helped sponsor a seminar series celebrating the 150th anniversary of the Erie Canal.

Mini term abroad

John Garver and Don Rodbell have finally ironed out preliminary plans for a mini course in the Andes. It includes a field trip aimed at exposing students to the glacial geology, geologic hazards, and general geologic history of the Cordillera Blanca outside Lima, Peru. The excellent setting of the Andes allows for a number of valuable field projects including understanding glaciation in the tropics, aspects of El Niño and La Niña climate change, deposits and mechanics of the catastrophic release of glacial lakes, earthquake induced landslides, and bedrock geology. The area has easy access, and the logistics are not too complicated. Don has an excellent network of local Peruvian scientists who are willing to help. This course will be aimed at geology, environmental studies, and biology majors.

The principal area of study will be the National Park in the Cordillera Blanca, northeast of Lima. This past July Don and John scouted out the area, looked at the local geology, and worked on logistical matters. They went up several of the glacial valleys to look at moraines, and to see the tectonic influence on these deposits that include active faults that are related to the growth and movement of the Andes. In the course, Don will focus on the glaciation and climate change records, and John will focus on the tectonics and bedrock geology. The goal is to have the students see an integrated view of this interesting area.

Don and John want to establish a research presence in the area, because Senior thesis involvement by our Geology majors is one of the best ways for everyone involved to learn about the important scientific issues. Don will use the sedimentary records in glacial lakes to help reconstruct climate change. John will focus on the timing and rates of tectonic uplift and exhumation of this part of the Andes. The earliest that we will be able to offer such a trip is in the summer of 2002. In the summer of 2001 it looks like Joan Ramage will be running a different trip, to the island of Santorini in the Aegean Sea. More on that in a later newsletter.

Notes from the Faculty

Mark Brandriss. Mark finished his visiting appointment with us in good form, spent the part of the summer in Alaska and part in Scotland, and landed a longer term position at the Smith College Geology Department. We wish him well and expect to see him from time to time.

Robert L. Fleischer. I have made a good start on the personal-radon-dosimetry-using-eyeglass-lenses project, demonstrating that eyeglass records are present and readable, and calibrating how much radon exposure is implied by a given number of tracks on eyeglasses. Nick Meyer presented the results at a national meeting of the Health Physics Society at Philadelphia and also presented it at the 2000 NEGSA meeting in New Jersey. A manuscript has been submitted to Health Physics. In May I will give an update to the International Radiation Protection Association meeting in Hiroshima (I expect to get a big bang out of that experience). It will also give me a chance to talk directly with some Japanese scientists with whom I have been corresponding about retrospective neutron dosimetry using induced fission tracks in glass that was within about 1 km of the atomic bomb at Hiroshima. The work this year has been carried out by two of our students, Steve Hadley (2000) and Nick Meyer (2000). They are co-authors of the paper just mentioned. Editing work has led to four new, partly reprinted volumes on intermetallic compounds, and another, completely new volume is in progress.

John Garver. My main research still focuses on the geological evolution of mountains. Currently I have projects in the European Alps (France, Italy), the Southern Alps of New Zealand, the Western U.S. and Canada Coast Ranges, and Kamchatka in the Russian Far East. I am interested in determining the time when driving forces started mountain development, and how mountainous topography is controlled by erosion, uplift, and tectonics. Most of this work uses fission-track ages of detrital zircon from sediments in flanking basins or rivers.

A new project in Italy is aimed at understanding the long-term evolution of the European Alps by looking at sediment shed to either side of the orogenic belt. This is being worked on by Matthias Bernet (a German Ph.D. student at Yale) who does the fission-track work at Union College. This collaborative effort includes colleagues at the University of Bologna (Italy) and the University of Florence. In a recently submitted paper we suggest that, in the Alps, isostatic uplift has balanced erosion for the last 15 Ma or so. Union undergraduates Sarah Shoemaker (2000) and Brandi Molitor (2000) recently completed their senior theses as part of the larger effort to understand the uplift and erosion history of the Alpine-Himalayan chain.

In New Zealand I have focused on the exhumation history of the Southern Alps collision zone, in collaboration with Peter J.J. Kamp, University of Waikato. We collected zircon samples from modern rivers on either side of the Southern Alps to establish a baseline for future studies. The Southern Alps are characterized by an exhumed
crustal section underlain by sedimentary rocks of the Torlesse terrane. Since Late Miocene, rapid uplift has formed the orogenic belt. Zircons from rivers draining to the east (hinterland) have pre-orogenic fission track ages of 80 Ma or older. Zircon color turned out to be the key to understanding the zircon source. Zircons change color over time as radiation damage produces color centers at rare earth elements in solid solution. On the eastern (hinterland) side of the orogen, the zircons spent their entire history at shallow levels (\(<\sim 7 \text{ km}) and fission tracks and color remained intact. Zircons from rivers draining to the west (foreland) side are derived from rocks uplifted from deep levels and have young fission track ages (\(<\sim 10 \text{ Ma}) Most are colorless due to recent thermal annealing. I hope to soon have students working on quantifying the relationship between radiation damage, zircon chemistry, and color annealing in zircon to provide a better understanding of this potentially powerful thermochronometer.

My work in Russia has centered on the tectonic evolution of Kamchataka, and has been aided by periodic visits to Union College of Alexie Soloviev, Deputy Director of the Institute of the Lithosphere of Marginal Seas (part of the Russian Academy of Sciences, Moscow). Our work has demonstrated, among other things, that the collision of the Olutorsky terrane—a far-traveled Cretaceous island arc—collided with the northeast Asian margin in the Eocene; a much more precise age than previous estimates. The next project is to determine the timing and dynamics of the plate reconfiguration that led to the isolation of the Bering Sea and to the establishment of the Aleutians. Ironically, the Aleutians aren’t a good place to answer this question as most of the rocks are underwater or under thick volcanics. Nearby Kamchatka holds the key. The Union team will be working with Mark Brandon (Yale) and Russian geologists Alexie Soloviev and Galina Ledneva (Institute of the Lithosphere, Moscow). Ledneva has also spent time at Union, having visited in 1993-1994 as part of the Eastern European Scholars program, an Alumni funded program to support scientists from the former Soviet Union by bringing them to Union College. Some of you may remember Nik Sobolov (Russia) and Marian Lupulescu (Romania) who were part of the same program. This past summer the Union-Yale team, which included Union Geology major Jason Lederer, did 5 weeks of field work that included Karaginski Island, a remote and uninhabited island off the east coast of Kamchatka. Like Alaska, Kamchatka is wild and remote and has many claims to fame. Foremost among these are bears, volcanoes, submarines, and salmon. In 1996, our plane had to divert around the ash plume of the erupting Karimsky volcano. Of course we see "Kamchataka Bears", a type of Grizzly, reputed to be the largest bear in the world. They seem large, but we didn’t test size estimates with a tape measure. We do our fieldwork in August because the salmon are running and the bears are too busy eating to bother with geologists.

Kurt Hollocher. I have been working for several years on the igneous rocks of the Taconic volcanic arc that collided with North America in the late Ordovician. This study of these metamorphosed plutonic rocks in western New England is almost done, and a paper is almost finished. The conclusions involve the nature of the arc crust, and the timing of collision (continued into the latest Ordovician). Some igneous activity apparently continued into the Silurian, probably associated with detachment and foundering of the subducted slab beneath the arc.

A second igneous rock project is on the West Warren pluton, a body of Acadian (Devonian) ultramafic through intermediate rocks in central Massachusetts. Remarkably, this pluton contains about half of all Devonian mafic rocks in southern New England. I hope this work will tell us something about the processes that went on in the mantle and crust both before and during formation of the pluton. Geology major Mike Nigro spent this past summer on this project, extending the work of Shelly Rourke (1999), though in the end Mike picked a different project for his thesis.

A third igneous rock project involves a series of metamorphosed mafic rocks (dikes?) that were collected by Peter Robinson and colleagues in the late 1960's. These samples are from excavations of the Northfield Mountain pumped storage hydroelectric project near Greenfield, Massachusetts. These irreplaceable samples languished in a basement at the University of Massachusetts, but were bequeathed to be by Peter on his retirement in 1999. The host for the mafic rocks is the Dry Hill Gneiss, a 603 million year old, thick sequence of metamorphosed felsic alkali-rich volcanics. These rocks are unique in this part of New England and their origin and tectonic implications are obscure. Analysis of the mafic rocks should shed light on the origin of this unusual suite. Undergraduate student Heather Barrett (a Freshman!) is eagerly processing these samples, and will soon start analyzing them.

The Saratoga Springs have puzzled people for more than two centuries. Four years of new data, acquired with new instrumentation in the Geology Department, have yielded interesting results. We have been able to model the composition of the deep carbonated, saline water before it has a chance to mix with fresh water and degas on its way to the surface. This is important because no samples of unmixed deep water have ever been recovered, to our knowledge. It seems that the deep waters have a CO_2 content equivalent to about 5 bars P_CO_2, and are saturated with calcite, dolomite, pyrite, and microcrystalline quartz. The Cl/Br ratio of the springs is ~110, much lower than the oceans but similar to some deep sedimentary basin waters. I speculate that the deep, saline, carbonated water may come from central Pennsylvania oil and gas fields, flowing through fracture and solution porosity along a hypothetical extension of the Ordovician Saratoga Springs-MacGregor fault. These are difficult waters to analyze, and work is continuing to better characterize them and to refine geochemical models. Several undergraduate students and one MAT student has worked on this project, now joined by Mike Nigro.
I have been working on a dino poop project for some time, now finally reaching the publication stage. This work demonstrates the first occurrence of fossil bacteria in dinosaur coprolites, and demonstrates a well preserved, bacterially mediated sequence of decomposition and fossilization of the original coprolite.

Finally, our ICP-MS is an ideal instrument for analyzing nannogram quantities of lead in fruit flies raised by a team at the SUNY Albany Biology Department. These analyses are an essential part of research on the behavioral and physiological effects of lead at doses much lower than those studied previously. The work has implications for people because fruit fly nerve and brain biochemistry and microstructure are similar to those in humans. The most puzzling conclusion is that a little bit of lead seems to be good for fruit flies.

**Joan Ramage** has been using satellite remote sensing images to study recent glacier changes in Alaska, and the interaction between mountain glaciers and the atmosphere. Satellite images make it possible to view remote regions of the earth, and to make observations over large, inaccessible areas. Joan works on the Juneau Icefield on the Alaska-British Columbia border, where she has been combining satellite data from the last decade with field observations of snow conditions and meteorology. The field observations help refine interpretations about the surface snow pack using the satellite data. These observations show that many of the Juneau Icefield glaciers shrank dramatically from the 1980s to the 1990s, and her ongoing work is to understand where and why changes occurred. Data for this project come from several different satellite sensors, some of which are very sensitive to whether the surface is melting or not. Determining the length and intensity of the summer melt season is an important factor for determining how much the glaciers are changing. She is collaborating with atmospheric scientists at Cornell University who use a climate model to simulate the atmosphere linked to the glacier surface in order to determine the cause of observed changes in glacier melting. She is also taking advantage of being at Union to learn more about past glaciations in eastern New York State and to explore other interests in geology.

**Don Rodbell.** I am fortunate to be on sabbatical leave this year, which will give me time to write up numerous data sets and to submit a grant proposal to the National Science Foundation to continue research work in Peru. My work has continued to focus on the record of glaciation and climate change in the tropical Andes of Peru, Ecuador, and Bolivia. This work involves senior honors theses at Union College, and graduate students at Syracuse University. This past year, Stefan Bagnato (2000) helped complete a project on the tephra stratigraphy of southern Ecuador. This project started with Jeffrey Nebolini's (1995) senior thesis, and we will submit this work for publication this year. In June 2000, Nick Balascio (2001) joined Professor Geoffrey Seltzer (Syracuse University) and I on a trip to Bolivia and Peru to core a small lake on the west side of Lake Titicaca, and to sample erratics on moraine crests for cosmogenic exposure dating (26Al and 10Be). We then traveled north to Peru and met John Garver and Chris Moy (1998) in Huaraz, Peru, to preview a course that Garver and I will be teaching on geologic hazards in mountainous regions. Finally, Nick and I traveled to Lake Junin in the central Peruvian highlands to reconnoiter caves, alpine lakes and moraines for an upcoming NSF grant proposal involving Union College, Syracuse University, University of Massachusetts, and Lawrence Livermore National Labs.

I have continued research on lakes in eastern New York, and this work was led by two senior thesis projects. Jaime Garrand (2000) focused on developing a record of vegetation change around Ballston Lake for the past 11,000 years as recorded by pollen grains preserved in lake sediment cores. Ian White (2000) completed his thesis on developing a 1500 year record of Mohawk River flooding preserved in sediment cores from Collin's Lake in Scotia New York. This project began with Kevin Allison's (1995) senior thesis.

**George Shaw** has been most active in the hydrogeochemistry of karst terranes, most notably in the Town of Wright, southwest of Schenectady in Schoharie County. He has designed and built a set of automatic water samplers for dye tracing experiments, set up several automated stream gauges, and set up a weather station. This study is being funded by the Town of Wright. Two undergraduates have been actively involved in this research using their work as senior thesis projects: Alexander Bartholomew (2000) and Paul D’Annibale (2001). George has also gotten involved with a group at the University of Washington that wants to install long-term sea bottom monitors at some of the East Pacific Rise hydrothermal vents. George is constructing a prototype automated sampler that will collect water samples periodically for as long as a year, 2 km below the ocean surface. The object is to understand short-term and long-term changes in hydrothermal water chemistry in order to model water-rock interactions and the evolution of the hydrothermal systems over time. He has ongoing work using the chemical compositions of phenocrysts in altered volcanic ash layers (bentonites) as long-distance fingerprints for these important time-stratigraphic markers. George is also devoting somewhat less time to experimental high pressure research, the state and thermal histories of planetary and asteroidal scale objects in our solar system, numerical modeling of stream drainage network development, and shallow seismic methods to examine the effect of bedrock topography on shallow groundwater circulation in peatlands in conjunction with researchers at the University of Minnesota and Syracuse University.
Alumni notes

John Wold (1938) hosted the Geology Department faculty at the Hole in the Wall Ranch in Wyoming, described above. He and his wife Jane are doing well, though John tells us that he wishes trona prices would rise.

Jim H. Scott (1951) <JimHScott@aol.com> Writes: "My wife and I are still enjoying semi-retirement in Lakewood, Colorado. I have done a lot of hiking and sightseeing this past summer, and I look forward to another winter of downhill/cross-country skiing. I continue to work about halftime at developing PC computer programs for seismic refraction analysis and interpretation. We expect to release a Windows version of all of our DOS programs in January."

Donald M. Hoskins (1952) <dmhoskin@ix.netcom.com> Don writes that: "After nearly 43 years of service with the Pennsylvania Geological Survey, I will retire from the position of State Geologist and Director of the Survey on December 29, 2000. I will continue to be involved in geology. One of my personal plans is to rewrite Fossil Collecting in Pennsylvania, one of the most popular publications of the Survey. Having no longer to deal with the management side of science and the bureaucracy of state government will allow me the time and pleasure to fulfill this long set aside goal. Additionally, working with the Capital Area Math & Science Alliance, I will participate in the training of middle and high school teachers in meeting the newly adopted state standards for geoscience [education]. I also have a couple of geology related book writing projects in mind. So I guess I shall be able to keep busy as well as to sail on the Chesapeake whenever the winds call."

David W. Glamm (1954) <dglamm@aristotle.net> Dave writes that he has been busy playing golf! He writes: "[I] Didn't add much to the field of geology, but after 25 1/2 years in the Air Force, and 16 years with the State of Arkansas, decided I had accomplished all I was going to so went into retirement. Unlike some, it suits me fine, keeps me busy, and expect to continue it for many more years."

Donald Zenger (1954) <DZ004747@pomona.edu> Writes: "In June, 1999, I retired from my teaching position in the Geology Department, Pomona College, after 37 years of service. I handled the soft-rock offerings over those years. I still have a (spacious) office-lab in the geology building and spend most of my time here. Am in the midst of two projects involving dolomitization, one in late Cambrian rocks of west-central Wyoming and one in the Madison Limestone (Mississippian) near Lander, Wyoming. During this period I spent several summers working on projects under the New York State Geological Survey and from 1984 to 1996 was a part-time visiting geologist at Unocal's Research Center, Brea, California. From 1969 to 1974 I served also as head coach of the men's varsity soccer team applying some of the experience I gained as a player on Union's soccer team, 1951-1953. I also coached the first year of women's varsity soccer in 1985. Over the past 13 years I have been an assistant, part-time coach of women's softball. Since 1975, I have taught at the University of Missouri's geology field camp in the Wind River Mountains of Wyoming. I plan to continue this on a year-by-year basis. We have a cabin one mile from the field camp which makes it handy to "commute" to the camp and to get to lots of Paleozoic dolomites! My wife Ann (SUNY Albany) is a high school girl friend who retired from graphics several years ago. Our two children live nearby, David (construction scheduling) and Susan (teaching high school, Spanish). … Don writes that Julie Griswold (1996) had "lots of spark and energy!!" during field camp last summer."

Dick Wagner (1964) <wagnerr@mail.uww.edu> Writes that he is busy with: "Not a thing to do with Geology—I am a Professor of Management (I teach Human Resources) at the University of Wisconsin, Whitewater. Happily married for 33+, live on 3 acres, 2 daughters and 2 granddaughters—only rocks I see are the ones on my property that I move (a glacial moraine—for what it is worth)."

Dick Foland (1966) <rfoland@alaska.net> Writes: "I am a geophysicist with the federal government (MMS/BLM). I work on oil and gas exploration on Alaska's north slope (NPRA and ANWR). I spend most of my time interpreting 3D seismic data. I have a daughter, Julia, studying architecture at Cornell and wife, Mary Ann, who practices medicine in Anchorage."

Rev. William D. Warcholik (1968) <bill144@earthlink.com> Bill writes: "As a lover of the outdoors, I backpacked on the AT and climbed Mt. Katahdin in Maine a few months ago. As a Pastor assigned to two Seventh-day Adventist Churches in Rhode Island, I'm having a great time teaching people how to enrich their lives by personally connecting with the Creator of heaven and this world through logging on daily at www.Bible.loveletter.God."

Bob Stone (1970) <RBSOffice@aol.com> Writes: "Although my degree was in Geology, I have spent the past 27 years in the insurance industry. I have been with Prudential for my entire career and will be retiring at the end of the year (at age 52). Even though my career did not utilize my degree, geology has continued to be an area of interest personally as has archaeology. Now that I may have some time to do some things I would really like to, I may just volunteer for a dig somewhere."

Rick Major (1973) <rpm@cedar.olemiss.edu> stopped by the Union Geology Department recently on a trip. He is Chair of the Department of Geology and Geological Engineering at the University of Mississippi. Rick was one of the last Geology students to graduate after the dissolution of the Geology Department in 1967, and has
fond memories of long chats with Herman Zimmerman. Rick and I were both struck by the similarity of problems in our respective geology departments: both are relatively small, under appreciated programs with little respect from administrators despite obviously strong research and teaching programs.

Eric T. "Rick" Morton (1991) <ERIC.T.MORTON@SAIC.COM> Rick writes: "I received my Masters in Physical Oceanography in 1996 from the University of Connecticut. Since then I've worked for Texas A&M University, Ocean Surveys, Inc., Analysis & Technology, and presently Science Applications International Corporation (SAIC) in Newport, RI. My work has taken me around the world. I've worked in Oman, Egypt, Puerto Rico, Japan, South Korea, and all over the US. In fact, I am e-mailing you from a vessel off the coast of Japan. Last year, I became involved with the installation of trans-oceanic fiber-optic telecommunications cables. Mainly, we are responsible for pre-installation route surveys using multibeam sonars, sidescan sonars, and subbottom profilers. We also do post-installation surveys and mapping, and navigation services for ROV and plow vehicles." Write: Rick Morton, SAIC, 221 Third St., Suite 1, Newport, RI 02840; (401) 847-4210

Todd Smick (1991) <Todd.Smick@LibertyMutual.com> Todd has moved back to Worcester County in Shrewsbury with his fiancée, who will become his wife next summer in South Jersey. Todd has been working for Liberty Mutual as an Executive Disability Sales Consultant, which means that "...basically I sell Insurance. I am what would be considered an 'elephant' hunter, going after companies with more than 1,000 employees, and business is going well." Todd is still an avid golfer and hunter and he has picked up fly fishing the past few years.

Philip Royston (1992) <proyect@stlawu.edu> Phil is director of Outdoor Programs at St. Lawrence University in Canton, New York. His jobs take him canoeing in James Bay and skiing in the Tetons. Phil spent some time with John Garver in northern Saskatchewan this last summer.

Pnina Miller (1992) <p.miller@reftek.com> Writes from Dallas: "I am the technical support engineer at Refraction Technology, Inc. in Dallas, TX. Ref Tek builds digitizers for weak and strong motion accelerometers, and other digitizers for geo-EM/mining applications. My role involves customer support; testing of new instruments, repair of existing instruments and organizing project details. I am finding electronics very interesting and I really like working with the instruments for various applications. Dallas is a big change from the Pacific NW. I think we are finally starting to acclimate to so much sun."

T. Jeff Scott (1993) <tjscott@acsu.buffalo.edu> Has finished his PhD in Philosophy at U. Buffalo, and has moved to NJ. Write at: 1300 Clinton Street, Apartment 422 Hoboken, NJ 07030 (201) 239-7797

Janet Finn (1994) <janetefinn@yahoo.com> Writes (here condensed): "After Graduation I moved to Denver, and worked in Seismic Data Processing for about a year and a half. But then in July of 1996 I landed on a boat in the North sea for about six weeks, left that and ended up sharing an apartment with my sister in Budapest, Hungary. Eventually I had to find another job and became employed by a company in England working on a seismic vessel in the Gulf of Mexico. This I can partially recommend as I worked six weeks and then had six weeks off. Since they considered my home Budapest they flew me back there every time. This allowed me the freedom to go on long vacations wherever I pleased and I was able to really see quite a bit. After about two years I felt I needed one last proper vacation before returning back to the U.S. to settle down a bit, so April 1, 1999, I quit my job. I then spent a month in Poland hiking in the High Tatras. I made my way across the top of Europe—Poland, Holland... then met up with a friend in England. Goofed off there for a few weeks, saw the Rolling Stones at Wembley and then we bought bicycles and went riding in France. We rode through the Loire Valley visiting Chateaus and tasting wine. My friend had to get back to England and I proceeded to Marsaille and rode my bike along the coast to Nice. There are very big rocks along those roads. In Nice I was tired and hopped a train to Bologna, Italy to see friends and do some sightseeing. I finished the summer with a month and a bit on the Croatian seaside where I had previously spent a quite a few of my previous vacations. Last August I moved back to the U.S. and found a job in my home town working as a Software Tester. I have been here for almost a year now, and last month I was married. My husband is a Croatian who I had met two years before on my seaside holidays. We met up in Zagreb over Easter and he came back to the States with me. We will pretty much be settled here for a while—at least two years or so until he is free to leave and enter America. I am learning tons about immigration procedures. It is nice to be living a more settled life after living out of my backpack for two years. We are having a baby at the end of January, so I guess I am really entering a new phase of life."
Jeff J Bigelow (1995) <Jeff.Bigelow@worldnet.att.net> Jeff works as an environmental consultant for Delta Environmental in Salt Lake City, UT. He writes that he has "...gotten hooked on the skiing and mountain biking, so I probably will be here for a while."

Kevin Allison (1995) <AllisonKP@aol.com> Kevin is teaching Earth Science at Shenendehowa High School (Capital District) and having a great time. He writes: "I am married...to Shelley (Reed) Allison [Union] class of '95. We are living in Burnt Hills with our little dog Abbie. The BIG news is that Shelley and I are expecting a baby in January!!!" Congratulations Kevin!

Scott E. Lewis (1995) <EPH333@aol.com> Writes: "Things here are real good [here]. I moved back down to Virginia after a 1.5 years in New Jersey. I came back to Virginia to be with my fiance, Elyssa. We are planning to marry in January, 2001. I am working as a geologist for ERM in Richmond. I actually like this job a bit more as my responsibilities and workload have expanded. ERM is a much smaller office than the one I worked at in New Jersey, and there's much less fighting for work. [My brother, and recent Union Alum] Mikey is doing well in his second year of med school in Guadalajara, Mexico. My family and I intend to visit and climb a volcano or two while he's still there." Write: Scott E. Lewis; 700A Richardson Run; Williamsburg, VA 23188; 757-258-2482

Adam Goodman (1996) <agygood@earthlink.net> Adam finished his MS degree at Syracuse University in 1998, and now is working for a small consulting company in northern California. His job is to find suitable soils for planting unusual plant species that concentrate metals from serpentine-rich soils; he reports that there are both bioremediation and economic geologic benefits from such plants.

Chris Sears (1996) <chrisopher.sears@us.pwcglobal.com> Chris is Manager at Price Waterhouse Coopers in the Global Risk Management Solutions (GRMS) division. Chris and Heather Rock married a year ago, and it seems that married life is treating them well (as Chris writes, "the former Heather Rock, Union '96. A geologist, even a non practicing, one has to marry a rock."). He writes that (while in Calgary, Alberta, recently): "we made a day trip up to Lake Louise, Lake Moraine, and Banff. Some awesome Geology up there." Chris and Heather live in Salem, Massachusetts--The Witch City. Chris is still skating a couple of times a week.

Julie Griswold (1996) <griswold@pdx.edu> Julie has been working for LBG (Leggette, Brashears & Graham) in Trumbull, CT for 3.5 years and she writes that they need entry level hydrogeologists. Apparently LBG has hired three Union students in the last three years! She recently started graduate school with Professor Scott Burns at Portland State University where she is studying landslides. Julie met Union alum, Don Zenger (1954) at field camp last summer. She writes: "Don was the sed. strat. specialist and field geologist for the University of Missouri's field camp in the Wind River Range of Wyoming. We shared memories of the Potsdam Formation back in New York, and he recalled that West Hall was brand new when he was a freshman! Don lead the infamous "Paleozoic Death March" and earned the nickname "The Zengalope" Her goal is to continue in the environmental geology field in consulting or government.

Shane P. Holunga (1996) <sholunga@oees.com> Shane is working for a geological consulting firm in Massachusetts. Shane and Julie Ivanyi married last spring on the Cape. Shane and Julie first met in "The Earth and Life Through Time" and were lab partners throughout the entire term (with Chris Sears, of course).

Cara Rothfuss (1997) <cara.rothfuss@mw.com>.

Jeremy Newman (1997) <jhn2@axe.humboldt.edu> Jeremy is finishing up pre-med course work at Humboldt State University in northern California. He is applying to medical school to specialize in emergency medicine. He has become an accomplished rock climber and skier, and reports that this fall he ran the annual Tioga Pass Run--a 12.4 mile continuous hill climb from 6,400 to 9,900 feet, and his latest passion is kayaking.

Mike Bullen (1997) <mebulle@dellnet.com> Mike is working for ExxonMobil and is finishing up a short training stint in New Orleans, but he has moved back to Houston. He and John Garver have been working on a paper for GSA based on Mike's thesis work in the Tian Shan. Mike writes: "New Orleans ROCKS. This is a cool city with tons of personality." He recently wrote: "I just returned from 5 days out in California, 3 of which we spent hanging my butt over 100's of feet of open air at Yosemite Valley. ...Now I am back in Houston--the flattest state in the universe."

Anne Swasey (1998) <aswasey@smartenergy.com> Writes: "I moved on from JuniorNet in July and have been working in the operations department at another start up called SmartEnergy. We're offering energy supply (electricity and natural gas) to customers in deregulated territories in New York, New Jersey, and Pennsylvania. It's new and exciting and keeps me VERY busy--a good thing now that my partner in crime Karin Lichtenstein (1998) has moved down to the University of Georgia in Athens! I'd love to here from any georats!"

Aaron Mango (1998) <mango@quartz.gly.fsu.edu> is teaching the mineralogy lab again this year at Florida State University, and he says "It is a great class to teach and I am glad I did it last year." He recently passed out the boxes of unknown minerals and rigged a triple beam balance for specific gravity measurements [sounds like old times]. He reports that his thesis work is coming along nicely; it is entitled: Tidally-induced pressure wave propagation and attenuation in an unconfined coastal aquifer. He received a research grant from GSA and can now build a physical model of his thesis area. He is planning on finishing his M.S. degree by the end of the spring
Alexandra Beuchert Perry (1998) <alex@xibis.com> Writes: "I'm quite happy to be settling in to a bit a 'normal' life for the time being. Simon and I returned to England in July, after backpacking around the world for a year (plus one month in New York to visit friends & family). It was a fantastic time and we've had some great experiences. Our first 3 months we hitchhiked around western Europe (especially loving the fine wines and food of France), next 3 months saw us go over to India & Nepal (we did a 2 week trek in the Annapurna range of the Himalayas, and got very sick during our time in India--continuously!), then 2 months in New Zealand (hitchhiking again, both islands are great having their own attributes), 2 weeks in Sydney and just outside Canberra, then our last 4 months working our way up from Singapore to Vientiane and all around Thailand and Malaysia. When it came time to finish up (bank account going dry, as we'd not worked all year long!) we were quite ready for it actually. After a great month in New York, we returned to England and picked Leicester (~110 miles north of London) as our home base. We've started up the business we left before we went travelling, and so far it seems to be working again. Simon creates web-based database software, mainly for on-line shops and b2b; I work on the client accounts and tax rubbish. I also have been getting involved in the community by pursuing some volunteer activities, including working at a Youth Offender's Prison visitors center, photography for particular charities, and befriending foster kids through a special scheme. We're both busy with a local Rambler's Club for 20-30 year olds as well (that's walking for you Americans!)."

Amy Dougherty (1998) <adougher@bu.edu> Amy is working on her MS degree at Boston University on coastal sedimentology. She ran across the Union crowd at the 2000 NEGS meeting in New Brunswick, New Jersey. She has been TA in a summer field course in Ireland and loving it. She hopes to finish in May 2001. She recently chatted with fellow grad student Lacie Quintin (2000) who has filled Amy in on recent Departmental news.

Bill Chazey (1998) is on ODP Leg 192 right now in the western Pacific (Ontong Java Plateau) as a petrologist. See him at: http://www-odp.tamu.edu/public/life/192/week1.html

David Conner (1998) <symorgh@hotmail.com> Dave writes: "For the past year I've been working as an engineering geologist for Dente Engineering/Evergreen Testing & Environmental Services, a small company that focuses on geotechnical engineering, consulting, and testing in the construction industry. My responsibilities range from soil sampling and testing to drilling and subsurface investigations to construction inspection. I do much of our lab work, which consists of testing the engineering properties of soil and concrete from construction sites around upstate New York."

John J. Gara (MAT 1998) <JJGara@aol.com> Writes that he is still teaching Earth Science at Shaker High in Albany. He is still keeping up with the Mohawk River and canal activities.

Karin Lichtenstein (1998) <klichs@yahoo.com> Writes: "I finally left the architectural firm in Boston and started my MS in Geoarchaeology at the University of Georgia in Athens, Georgia this fall...I don't have a thesis title yet, but hope to be working at the Etowah Mound site in northwest Georgia by next term. I am adjusting to the south pretty well and really love Athens, the department and University of Georgia, but occasionally I get a few odd looks when people see my Vermont license plate. Other than that, things are going really well!"

Christopher M. Moy (1998) <cmmoy@mailbox.syr.edu> Chris just finished his MS thesis at Syracuse. Chris worked with Geoff Seltzer on paleo-El Niño events recorded in lakes in Peru and Ecuador. Chris hopes to be working for NOAA in Boulder, and perhaps to enroll in a Ph.D. program in a year or so.

Rachelle "Shelly" Rourke (1998) <rourke@nmt.edu> Shelley writes: "I'm about a month from finishing up [my MS degree] here at New Mexico Tech. My thesis work involved chemically fingerprinting the most explosive Holocene eruptions in Kamchatka [Russia] through electron microprobe major element analyses. I'm looking for a job too. So far I've got interviews with Texaco and ERM (Environmental Resource Management) in Houston." Shelley has been running road races with her beau and travelling around the world for races: "We went to Hawaii for a race and he's got one coming up in Florida. We also went to Switzerland for New Year's and while we were there we went to Italy too."

Rick Lederer (1998) <rlederer@sageenvironmental.net> Rick finished his MS on hurricane frequency recorded in coastal settings in CT (at Brown University). He is now working for Sage Environmental.

Sally Hodges (1998) <srhodges@yahoo.com> Sally moved to Boston with her Saturn. She writes: "This past spring I left my position as a hydrogeologist with LBG in New Jersey. Now I'm in the Boston area, working in the municipal group of a private engineering consulting firm (Woodard & Curran), focusing mainly on water-supply projects (all clean-water). The company and the people are great to work with (engineers included!). I've gotten to
work on some interesting engineering projects (stormwater management related to cleaning up the Charles River) and hydrogeo projects (intensive aquifer studies for determining safe withdrawal amounts for water-supply). Future projects will get me into groundwater modeling, and I'll also be continuing my interests in the analytical capabilities of GIS." Write: Sally Hodges; 66 Rockway Ave #43; Weymouth, MA 02188.

Kathy Ruggiero (1999) <K2west@aol.com> Kathy is at Manhattanville College and is finishing up her Masters degree (MAT). She writes: "I am planning on doing my student teaching in the spring and will hopefully have a job in the fall of 2001. I am getting certified in Elementary Education, with a specialization in math, science, and technology. I am also getting additional certification in middle school science. This fall I am also coaching high school volleyball at a local private school."

Michael Sherwood (1999) <Msherwood@handexmail.com> Mike is currently working for Handex Environmental, as a hydrogeologist near NYC; Write at: 61 C Carolyn Boulevard; Farmingdale, New York 11735; Phone: 631 752 7878 ext. 108. Mike is taking night courses in an environmental management program at SUNY Stony Brook.

Peter J. Castiglia (1999) <castiglp@unm.edu> Peter is in his second year as an MS student at the University of New Mexico, Albuquerque. His MS research is focused on the paleoclimatic record preserved in playa lakes in western Mexico. This year he plans to drill one of the playas, in between rock climbing, skiing, and hiking trips in the southwest. He writes "...my focus is on Quaternary climate change in northern Mexico. I designed a project that will examine a record from a rift basin in northern Chihuahua, and another playa in central Chihuahua. Instead of the techniques that I have used in the past for retrieval, this time we're drilling! A new endeavor that we hope will prove successful. Been biking and climbing a lot, but favorite daily activity is bouncing up and down on our new trampoline. A goal next semester will be to defeat the...UNM faculty quadrathlon team in this year's Mount Taylor Quad race."

Todd Hollenbach (1999) <Todd_Hollenbach@earthtech.com> Todd is working for EarthTech here in the Capital District. He is busy with groundwater issues as well as some hard rock work with the local limestone quarries.

Charlie Moxham ran into John Garver at the Calgary airport this summer. Charlie is just starting out in a program at the University of Calgary in Landscape Architecture.

New graduates, 2000

Alexander Bartholomew (2000) <si1078@hotmail.com> Alex, or "Kidd" as everyone knows him, is at the University of Cincinnati in Ohio, studying biostratigraphy with Professor Carleton Brett. Kidd was recently sighted at the NYSGA meeting in Geneva, NY. He 'reckons' that he'll do his MS thesis on Devonian stratigraphic sequences in the Castkills, although he was also looking into working on the Schenectady Formation or equivalents. Kidd is TAing a course in Environmental Geology and is also teaching part of the course.

Brandi R Molitor (2000) <molitorb@lycos.com> Brandi is at Western Washington University in Bellingham, and is TAing an introductory course in Geology. She writes ".wow. It's so hard teaching kids that don't (care) and really couldn't care less...their first term of college after high school and they expect me to spoon feed the information to them. In the first lab we looked at maps: they go to the maps and just stand there with blank faces and when I come over and ask them what they see, one guy says, 'nothing' "...such is life as a teacher. Brandi will be headed off to GSA in Reno and may be working on glacial sequences in the Sierra Nevada for her MS.

David B Barnett (2000) <barnett.17@wright.edu> Dave is studying groundwater at Wright State University in Dayton Ohio. He writes that he "...will be working with Dr. Robert Ritzi, [who] is working on making a unified model for ground water flow through any multi-media buried valley aquifer." Dave's thesis involves working on part of the Ohio Valley aquifer. He also indicates that teaching is "interesting."

Ian R. White (2000).

Jaime (Garrand) Toney (2000) Jaime has started at Northern Arizona University and writes that she loves Arizona! She did a field camp last summer with Sarah Newell (2002), and writes "I just got back from 5 weeks in the Nevada desert on an archaeological field study with University of Nevada Las Vegas. I met a lot of really cool people and had an absolute blast." Address: 1000 W. Forest Meadows ST #239 Flagstaff, AZ 86001

Lacie Quintin (2000) <quintin@bu.edu> Lacie is at Boston University and is currently in the middle of applying for an NSF fellowship. Lacie writes: "Things here in Boston are going well, certainly busy. I am taking an Advanced Geochemistry course and then another discussion group called Climate and Tectonic Linkages, as well as a Statistics course. Most of my energy is focused on reading and research." Lacie will be working on the significance of dispersed ash in the western margin of the Pacific Ocean as recorded in ODP Leg 185. Her work will address an understanding of chemical fluxes in the oceans and specifically at subduction zones.

Mathew S Scheller (2000).
Nick Meyer (2000) <JEEPSROCK@aol.com> Has started his MS degree with Bruce Watson at RPI in Troy, New York. He spent the summer trying to grow zircon with rare earth elements, and now he is wrestling with courses including Diffusion. He is TAing Mineralogy. He loves RPI, despite the fact that he is at Union's rival. Nick bought a new truck, so he might have to change his email address. (just learned that he actually did!).

Sarah Shoemaker (2000) <sshoemaks@yahoo.com> Sarah is at the University of Arizona (Tucson) and loving it. She will be doing her MS thesis on rocks in western Mexico associated with a core complex. She is TAing an intro course and writes: "I am even enjoying teaching more than I thought I would...not that I teach really, just set the kids up for their lab projects and grade them, but still. It is definitely a strange feeling to be in that position..."

Stefan Bagnato (2000) <bagnato@atmos.albany.edu> Stefan is at the State University of New York at Albany and will be working on isotopes in coral from the Southwest Pacific to sort out El Niño and La Niña cycles. He needs to learn to SCUBA dive before upcoming fieldwork early in 2001 and is enrolled in a SCUBA course. Stephan is TAing a Sedimentology course and a Stratigraphy course, and working with Professor Rodbell to publish his senior thesis.

Stephen A. Hadley (2000) was interested in the Peace Corps, last we heard.

William Kahn Flick (2000).

Awards
This year the decision for awarding the ESC Smith Prize, for “a Geology student showing high professional potential”, was very difficult. The senior class was outstanding, and most were strong candidates. After much argument, we finally divided the prize among three students: Jamie Garrand (now Toney), Sarah Shoemaker, and Stefan Bagnato. Jamie is at Northern Arizona University in Flagstaff, Sarah is at the University of Arizona in Tucson, and Stefan is at SUNY at Albany.

The Geology Faculty Prize, for “the Geology student contributing most to the department”, was awarded to Sarah Newell. Her cheerful face, involvement in Departmental affairs, constant presence in the labs, and outstanding academic competence have all helped make the Geology Department more of a professional family.

Rouges Gallery
We would like to start a photographic gallery of sorts in the Geology Department rotunda in our new building. The purpose will be to present an interesting and fun historical perspective of the Geology Department, its faculty, and its students. I am principally interested in photographs (with captions or explanations), stories, or anecdotes of the Geology Department and its people in Union’s past. I am also open to suggestions. The idea is to eventually have a sizable display that people will enjoy looking at and reading. I would be happy to receive items from any period of time. Each displayed item will mention the person who submitted the piece. I do not need originals, good reproductions are fine, and I can arrange for reproductions of originals. I will happily return any item sent to me after reproduction. We will be upgrading the lighting in the rotunda for the display.

Geology Funds and Support
Donations to the Geology Department can be made to two dedicated funds. The Geology Alumni Fund, is used for items not covered by the normal department budget. These include special equipment for student research, travel for students to conferences, and some field trip support. The Geology Field Fund, the endowment for which has grown to $125,000, is half way to our initial goal of $250,000 but a far cry from our ultimate goal of $1,000,000. This fund sponsors extended summer field trips, weekend sonar and coring excursions to northeastern lakes, course-related extended field trips (e.g., Bahamas, Andes, Santorini), and for field camp scholarships. This past year the fund provided scholarships for all four students who attended field camp. These are the first of our students to attend field camp, in my recollection, since 1988 when Josh Holden (1989) went. Ultimately we would like the Geology Field Fund to be able to fund full field camp scholarships for all of our students. Lastly, we are always interested to hear of opportunities in the geosciences, including as internships and jobs, that we can tell our students about. They are a great bunch!