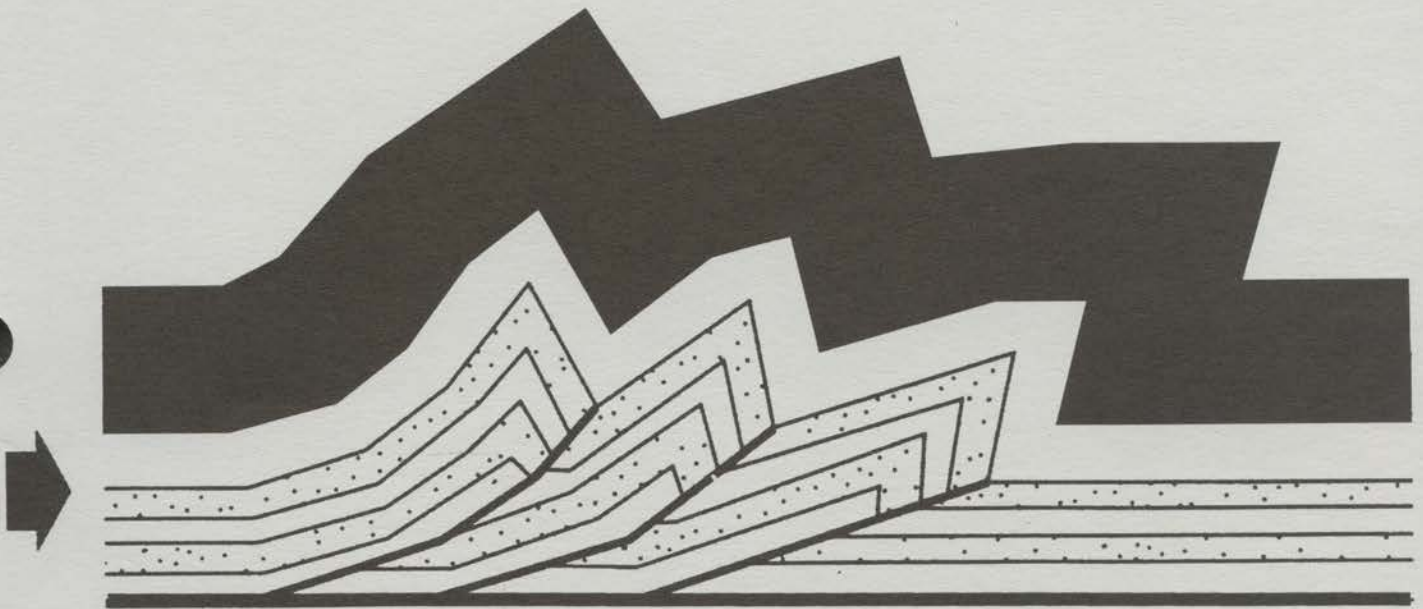


Carleton Geology Newsletter

Volume XXV

2000



Published By
The Department of Geology
Carleton College
Northfield, MN 55057

The cover design is from this year's Geology T-shirt,
designed and drawn by Luc Mehl '00.

The Carleton Geology Newsletter is edited by Timothy Vick.

Geology Department funding for The Newsletter is supplemented
by contributions from The Career Center
and the Office of Alumni Affairs.

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**Department of Geology
Carleton College
Northfield, Minnesota 55057**

June 21, 2000

Dear Friends,

Greeting from the land of cows, colleges, and contentment! It has been a busy, exciting year here, and the geology department is still going strong. We graduated 21 wonderful seniors this year and as always, we are delighted and amazed to see how much they've grown and accomplished during their time here. I encourage you to read the titles of their comps projects; you'll see that they've done some impressive things. We had students doing fieldwork in Norway, Italy, Belize, Newfoundland, along the San Andreas, and even Northfield.

Bereket Haileab was on leave this year, spending most of his time in Utah using the labs there to carry on his research on East African rift volcanics. In addition, he got married in the fall; and he and Freweyni are now the parents of a very cute baby girl, Delina, born June 23. Bereket has been working on the development of a geochemistry class that will be a new addition to our regular curriculum.

Clint Cowan is presently in the Bahamas (poor thing) preparing for a winter break off-campus program next year that will involve about 12 students, studying modern carbonate environments (or at least that's the official line). Winter break off-campus programs are a new thing for the college, and this one is sure to be a hit. Clint continues to keep all of us on our toes with his rapier wit.

Ed Buchwald is now half time in the department as he gears up for his retirement, which will certainly involve a good deal of sailing. When he is not sailing, Ed has been writing thoughtful essays on the "big picture" and appearing on NPR, discussing science education.

Mary Savina continues to wear several hats within the College — archeology, ENTS, and several important committees compete with geology for Mary's time. Mary and Bereket are leading a Keck summer research project for sophomores here in Northfield and continue to work on setting up instrumentation to monitor the Spring Creek watershed (which includes Lyman Lakes).

Shelby Boardman returned to the geology department after 5 years as Associate Dean and jumped back into the world of geology with his usual energy. Some traditions refuse to disappear, as Shelby found out on the last day of Petrology when a group of majors staged an aqueous assault. Shelby is off to Colorado this summer with a group of students to work on the Precambrian evolution of Colorado.

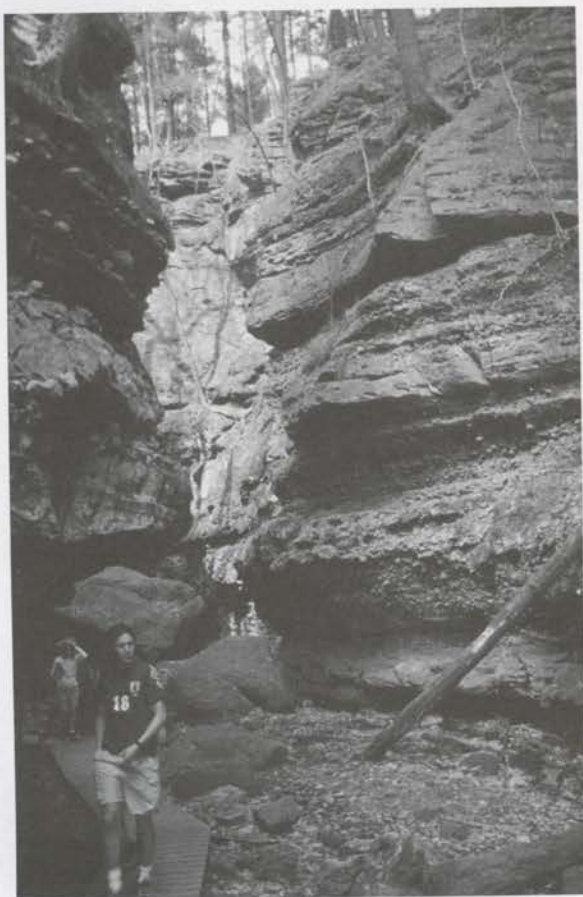
I spent the fall in Italy, leading the fourth Carleton Geology in Italy seminar, with 24 students and four assistants. We had a fantastic time as usual and set all kinds of records for eating. I finally completed my guide to modeling earth systems using STELLA and it is available for anyone to use on the web, through the geology department home page. I'm heading back to Italy this summer with two students to do paleomagnetic and paleoclimatological research.

Tim Vick and Betty Bray continue to be wonderfully adept at running the department and keeping everyone happy. After 25 years of dedicated, tireless service, Tim finally got a term off, to pursue a variety of interests. So, last fall, Tim and Jean came to Italy and spent 3 weeks with the Carleton off-campus program — it was great to have them along. Later in the fall, Tim spent some time at sea with the SEA semester program, where he carried out some experiments on ocean-atmosphere heat flow.

As always, thanks to all of you who provide help and support to our students during the course of the year — the network of geology alumni is really important to us.

Best Wishes,

Dave Bice



Spring Field Trip

This spring our departmental field trip was to Baraboo, Wisconsin and eastern Iowa. Twenty-four students participated and we were lucky enough to have good weather the whole trip.

At left, Kevin Uno '01 walks through the stratigraphic section at Parfreys Glen near Baraboo, Wisconsin (photo by Joanna Reuter '00). Above, Laura Cleaveland '01 checks out some little sand pedestals that were protected from erosion by the pebbles they support.

DEPARTMENTAL NEWS

Geomorphologists Launch Study Of Cannon River Tributaries

[By Mary Savina]

Professor of Geology Mary Savina and her students have embarked on a study of tributaries to the Cannon River, one of the larger rivers in south-eastern Minnesota. They will build on previous work done at Carleton on the Little Cannon River in 1995 and 1996 by students of Ed Buchwald's, and on the lower reaches of Spring Creek on the Carleton Campus in 1999 and 2000 and on results obtained from other research, including work done at the USGS, Minnesota Pollution Control Agency, Department of Natural Resources and Department of Health and the University of Minnesota's Department of Soil, Water and Climate.

The main scientific objectives for this project involve establishing baseline geomorphic and environmental conditions for certain reaches of the Cannon and its tributaries so that their status can be monitored in the future. The Keck Geology Consortium has approved projects involving undergraduate students from across the country for summer 2000 and summer 2001. In summer 2000 under the leadership of Mary Savina and Bereket Haileab, the project is focusing on Heath Creek, Rice Creek and Wolf Creek, west of the Cannon River. In 2001, the focus will be on the Prairie Creek watershed east of the Cannon River. Work on the Spring Creek basin will continue through this period. In Spring 2001, progress will be evaluated and plans for more detailed studies or further reconnaissance of other basins will be made.

They will attempt to answer questions such as:

- What is the source of the surface water that flows through these creeks? How much water comes from lakes, surficial deposit aquifers, bedrock springs (and from which units) and how much from surface runoff during storms?
- What are the sources of the sediment transported by the streams and what is the sediment distribution along the stream channel?
- Where are the "hot spots" for pollution of water and sediment?
- What are the dimensions of measured cross-sections and what bank conditions prevail at this time?
- What happens to these creeks during severe summer storms?
- What is the "health" of these stream systems?

- How should the streams and watersheds be protected from agricultural runoff and sediment, from roads and from possible suburban development?

Results of mapping and hydrologic and chemical measurements will be integrated into a GIS for each of the study areas (these have already been created).

Geological Background

The Cannon River is near the eastern margin of the ~14,000 year old deposits of the Des Moines Lobe of the Laurentide ice sheet. The topography west of the river is hummocky, with lots of wetlands and lakes. The major tributaries draining this area may have initially been subglacial conduits draining the Des Moines Lobe of the Wisconsin (most recent) glacier. In 2000, we will study two of these tributaries (Heath Creek and Wolf Creek) and compare them with each other and with a smaller, spring-fed tributary that lies between them (Spring Brook or Rice Creek).

The local bedrock is Cambrian and Ordovician and nearly flat lying. Most of the section is carbonate rocks and sandstones, with only one shale unit (the Decorah) of any thickness. The Prairie du Chien group, primarily massive dolomite, and the Jordan Sandstone that underlies it form the major aquifer, which is the source of drinking water in this region. The Prairie du Chien is exposed along the Cannon River in the Northfield area.

By contrast, the areas east and south of the Cannon River have at most a thin cover of Wisconsin till above bedrock. Some of these areas are covered with loess deposits. Some drainages in this region are choked with glacial outwash; others are entrenched in bedrock. Because of the differences in recent geologic history, tributaries east and west of the Cannon offer interesting contrasts. In 2001, we will study one of the streams east of the river, Prairie Creek. Glaciofluvial erosional topography near the western headwaters of Prairie Creek in the Cannon City area shows clearly that subglacial lakes drained catastrophically from west to east across the present course of the Cannon River (Patterson and Hobbs, 1995). The eastern headwaters incise Ordovician bedrock in the vicinity of Nerstrand-Big Woods State Park. The lower reaches of the Prairie Creek valley are choked with glaciofluvial sediment.

Environmental background

The Cannon River watershed drains 1460 square miles in southeastern Minnesota. It is a major river system, one of only a few in Minnesota protected under the state's Wild and Scenic Rivers Act. Although much of its drainage area is currently agricultural, the watershed also contains the growing cities of Owatonna, Faribault, Northfield, Cannon Falls and Red Wing. The Cannon River is included in the U.S.G.S. National Water Quality Assessment Program (NWQAP) of the Upper Mississippi River Basin (see, for example, USGS WRI Report 96-4098).

Specific environmental concerns vary among the creeks under study, making them particularly good places for undergraduate student research projects. For instance, in the 2000 study area, the middle basin, Rice Creek, is a spring-fed trout stream, unusual in this part of the state. Although the basins to the north and south (Heath and Wolf Creeks) head in lakes in the glacial moraine, the biological health of these two streams is remarkably different; Wolf Creek has a sparse invertebrate fauna compared to Heath Creek and the Cannon River.

Because of their proximity to the cities of Northfield and Dundas, the lower parts of the Heath Creek and Rice Creek basins face development pressures. These include proposed bridge crossings of the Cannon River near the mouth of Heath Creek and of Heath Creek itself; and a large-scale development proposal that involves residential housing and recreation. These areas, though undeveloped, are currently zoned industrial. The comprehensive plans of both the City of Northfield and of Rice County are currently being revised. We hope that our project will offer data on the sensitivity of the streams and basins and suggestions on how to protect them in the face of development proposals.

In recent years, Prairie Creek has attracted attention and monitoring because of high non-point source pollutant loading in the vicinity of Nerstrand Woods State Park. It is not clear whether the pollutants are running off from agricultural land (including animal facilities), from rural houses with septic tanks or are present in the groundwater. Attempts to determine the sources of the pollutants are now underway in a cooperative project between Carleton College biologists and the University of Minnesota. Simultaneously, the local NRCS office in Rice County is beginning a study of the use of agricultural best management practices (BMPs) by farmers in the watershed.

Work on Spring Creek near the Carleton campus has documented the effect of a major summer storm in 1998 on bank stability, floodplain storage of

sediment and sediment transport into Lyman Lakes. With new development in the Spring Creek basin, including holding ponds, we can document the sediment movement more precisely and track the changes in sediment load and pollution that result from the change from agricultural to residential land use.

About the Keck Geology Projects

The summer 2000 and 2001 projects are "sophomore projects." In Keck Consortium parlance that means that most of the students will have finished their sophomore years. These students are not expected to work as independently as are students on "junior projects" who have finished another undergraduate year. Hence students will work in pairs or small groups and a considerable amount of faculty input will be needed. Another feature of sophomore projects is the emphasis on offering opportunities for students of color to experience a scientific research project, in the hopes that they will continue in science. Of the twelve students participating in the 2000 project, two are Asian-American, three African-American, two are Hispanic, and one is a Venezuelan citizen on the way to permanent resident status.

Carleton Authors Contribute To Book About Our Earth

Soil contamination... public lands... surface and groundwater pollution... coastal erosion, global warming. Have we reached the limits of Earth's ability to provide for us? If so, what can we do about it?

These are some of the important questions addressed in a new collection of essays by authors including Ed Buchwald, Cathy Manduca and Jim Evans '76 in "The Earth Around Us", edited by Jill Schneiderman, associate professor of geology at Vassar College. W.H. Freeman and Company publish the book.

The concluding chapter of the book, entitled "What Else Should My Neighbor Know?" is an essay by Ed Buchwald on how citizens should be educated to be responsible members of our global society. Ed is the Lloyd McBride Professor of Environmental Studies at Carleton College.

Ed writes, "I would like to ask the question, 'What else does my neighbor need to know to understand the predicaments of an environmentally precarious future?' That is, given that we are all busy living our lives, worrying about income and taxes, children and health, love won and lost, what is the most basic knowledge that we need to have to understand the complexity of modern environmental problems?"

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Cathy Manduca's and Jim Evans' chapters both appear in a section of the book entitled "Inventive Solutions."

Cathy Manduca until recently was the coordinator of the Keck Geology Consortium, based at Carleton College. She resigned in June to become Outreach Coordinator of the Digital Library for Earth System Education, but she remains a research associate at Carleton.

Cathy's chapter of the book is entitled "Living with Karst: Maintaining a Clean Water Supply in Olmsted County, Minnesota." She looks at the history of drinking water in Southeast Minnesota from the early part of the twentieth century, and traces the growing awareness of how karst systems can become conduits between waste disposal dumps and drinking water sources.

Jim Evans '76 teaches sedimentology, hydrogeology and mechanics of fluid motion in the geology department at Bowling Green State University, Ohio.

Jim's chapter details the history of the IVEX Corporation pond and dam on the Chagrin River in northeastern Ohio. The story of the construction and eventual catastrophic failure of the 19th century dam is a chronicle of changing technology, understandings and priorities. As the dam did its job, the pond trapped sediments recording the changes in land use and hydrologic character of the watershed over the 150 years the dam was in existence.

Pat Bickford Visits As Bernstein Lecturer

We were extremely lucky this February to enjoy a wonderful visit by Pat Bickford '54 as our 17th Geologist-In-Residence under the Parnassus Foundation, a gift of Raphael and Jane Bernstein.

During his visit Pat gave talks entitled "The Trans-Hudson Orogen: Reconstructing a Paleoproterozoic Continent Collision" and "Dial 1-800-ZIRCONS For Time And Temperature" in addition to several other informal gatherings and discussions with students.

Pat is an Emeritus Professor of Geology at Syracuse University. For several decades he has been a leader in the application of isotopic systems to our understanding of the geochronology and petrogenesis of the North American crust. A native of Winona,



Minnesota, Pat attended Carleton, graduating cum laude in 1954 with a major in geology. Following three years of service in the U.S. Army he entered the graduate program in geology at the University of Illinois, where he received his M.S. and Ph.D.

Pat's professional career of nearly 40 years has been in academia. After four years as Assistant Professor of Geology at San Fernando Valley State College, Northridge (now California State University, Northridge), he spent 24 years at the University of Kansas. For the past six years he has been on the faculty of the Department of Earth Sciences at Syracuse University, first as the Chairman and Jesse Page Heroy Professor and currently as Emeritus and Research Professor.

Throughout his productive research career, during which he has published more than 65 journal articles, 117 abstracts, and portions of two books, Pat has focused primarily on using geochronology as a powerful tool in unraveling the geological history of several parts of North America. Although most of his work has been in Proterozoic age rocks of the midcontinent, especially granites and rhyolites in the St. Francois Mountains of Missouri, bimodal volcanic terranes and associated granites in central Colorado, and the rocks of the Trans-Hudson Orogen of Canada, he has made important contributions to the petrology and isotope geochemistry of coastal Maine, the Adirondacks, the Idaho batholith, and the Smartville complex of California. His research has always been characterized by extensive collaboration with others, including his own graduate students as well as colleagues at Kansas and scholars from other institutions. He has been an invited or keynote speaker at numerous symposia and conferences, including three Penrose Conferences, the 1986 Rubey Colloquium at UCLA, the 8th International Conference on Basement Tectonics, and the Geological Association of Canada Symposium on Middle Proterozoic Crustal Evolution on the North American and Baltic Shields.

Pat's excellence as a teacher is on a par with his accomplishments as a scholar. He has received the University of Kansas Chancellor's Award for Excellence in Teaching and the Syracuse University Chancellor's Citation for Academic Excellence. His main subject areas are mineralogy, igneous and metamorphic petrology, isotope geochemistry, geochronology, and Precambrian geology, but he also enjoys teaching introductory geology.

Service to his department, university and profession has always been a significant part of Pat's professional life; his committee service is too extensive to list. He is a past Associate Editor and Editor of *Geology*. He currently is a fellow of the Geological

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Society of America, the Mineralogical Society of America, and the Geological Association of Canada.

In addition to being an alumnus, Pat has many other connections to Carleton, not the least of which is the fact that Betsy, his wife of more than 45 years, is a Carleton alumna. Pat was instrumental in steering Ed Buchwald toward Carleton back in the 1960s when Ed was a graduate student at Kansas. Dave Bice and John Hankins, a classmate of Dave's, did analytical work at the isotope laboratories at the University of Kansas as part of their Comps research. Pat was the thesis advisor of Bruce K. Nelson, a 1977 Carleton graduate and now a faculty member at the University of Washington. He was a participant at the Geology Department's 50th Anniversary Symposium in 1983 and contributed an article for the Symposium Volume. Shelby Boardman collaborated with Pat on research in Colorado during the 1980s that led to several publications.

Tim Vick Takes Jubilee Leave; Karen Gran '96 Fills His Shoes

Tim Vick celebrated completion of his first half century of life and a quarter century of service to Carleton College by taking a professional leave this year. The leave is part of a college program allowing administrative employees to take what a faculty member would call a "sabbatical." By definition, a sabbatical is a pause for reflection in one year out of seven. Since Tim has never had a leave and he passed his 50th birthday a few years ago, this leave is the one which would occur after seven sabbatical cycles in a person's fiftieth year. (The ancient rules for sabbaticals and jubilees are laid out in the Book of Leviticus but the college marches to its own drummer in the Staff Handbook.)

Tim's jubilee leave has been in three segments. The first was a visit to Italy last August and September. Tim and his wife Jean visited the Osservatorio Geologico di Coldigioco in Italy to participate in Dave Bice's off-campus geology program in Italy. They attended classes in geology and drawing and went on the two major field trips of the program. Upon his return Tim said, "It was a wonderful experience. The totality of the experience, comprising geology very different from the American Midwest and the human history of two millennia clearly etched in the landscape and structures was complex and fascinating. And all this in a wrapping of beautiful modern Italian culture." Pictures from this excursion are posted in the Geology Department web site in the field trip section.

During this phase of the jubilee Karen Gran '96 covered Tim's responsibilities in the Geology Department. Karen stepped right in and made things

work. She took care of all the needs around the labs and planned and participated in the fall field trip to Northern Michigan (even taking some pictures to etch the trip into history). Thanks, Karen! We appreciate your help and wish you well in your continuing graduate work at the Universities of Washington.

The second phase of Tim's jubilee was a three-week cruise on the square-rigged research ship Corwith Cramer with the Sea Education Association (sponsors of the SEA Semester program). Tim was on the boat in the Caribbean in December and conducted a study of heat transfer between the ocean water and the atmosphere jointly with a SEA Semester student. The third phase of the jubilee was a tour of the geology of Iceland this July. The focus of this trip was the rocks and spreading center features of the North Atlantic rift zone, plus of course the fascinating history and culture of our planet's oldest representative government.

Cathy Manduca Departing Keck Consortium To Lead Digital Library

Cathy Manduca has announced her resignation as coordinator of the Keck Geology Consortium, effective June 30, to become Outreach Coordinator for the Digital Library for Earth System Education (DLESE). Cathy will continue her affiliation as research associate with Carleton, but will be working out of her home in Rochester, Minnesota, for DLESE.

Cathy coordinates involvement of the geoscience community in the Digital Library for Earth System Education, a community based project to construct a digital facility to support learning about the Earth.

DLESE is envisioned as a web resource that will enhance geoscience education by making it easy for students to work directly with Earth data and for faculty to find materials to assist them in teaching. The library is being designed for learners and educators at all levels and will include a community center to foster the improvement of Earth science education.

From 1994 until June 2000, Cathy was coordinator for the Keck Geology Consortium, a group of 12 undergraduate, liberal arts, geology departments that cooperate on undergraduate research projects. Cathy has taught at Carleton College, St. Olaf College and Rochester Community and Technical College, as well as informally in community education, elementary and high school classes.

She serves on the Olmsted County Environmental Commission and recently published an article on "Living with Karst--Maintaining a Clean Water Supply for Olmsted County, MN." She received her

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Ph.D. in Geology from the California Institute of Technology and her BA from Williams College.

Seniors Munch Through Comps Thanks To Care Package Angels

Everyone knows how much of a grind the last week or two of comps season is for the seniors. They have to complete all their writing and put the fussy finishing touches on their papers, inserting graphics, adjusting margins and spell checking through the night.

Often they are aided in their quest for cogency with care packages containing sugary energy supplements and toys like Legos, paper trumpets and balloons, but this year was a year apart for the care package-craving seniors.

Shelby bought donut holes one day. Erich Heydweiller '99 sent a package. Several care packages were team efforts, such as one from Alison Anders, Kate Trafton and Mizu Kinney and another from Emily Burton and Kate Hofmann (all '99).

But the grandma of all care packages came from a person known to the seniors and the world only as "The Anonymous Wealthy Benefactor," who donated a sizeable chunk of change to keep the seniors fed for two weeks. Every day we put out a new care package filled with goodies, and finished it up on the last day with a Dairy Queen bonanza.

The seniors and the Geology Department want to say how much we appreciate the care packages. They make life much nicer for the seniors!

Thanks For Your Help!

We'd like to extend special thanks to a number of alums for special contributions this year:

Among our numerous speakers who visited the department this year, some were alums. **Sara Gran '96** was here in October and presented a talk entitled "Displacement history of the Nahef East Fault: A cosmogenic ^{36}Cl approach."

In February we had a pair of talks on GIS and remote sensing. **Anders Nilsson '98** spoke on "GIS systems for classifying GOES and AVHRR images," and **Bob Tipping '81** spoke on "Using GIS to map Quaternary deposits: examples from Washington County MN and Central Minnesota."

In April, **John Sharry '73** spoke on "The geology of the western Tehachapi Mountains and the Pelona Schist problem."

And in May, **Catherine Inman '91** stopped by to show slides and talk about the interesting work she's been doing at Dolpa, Nepal. She has started a non-profit organization to encourage traditional cultures and improve education in this remote area.

We also want to thank the people who have loaned us posters for our hallway displays this year. They include:

Megan Anderson '98, "Structural model of the San Bernardino Strike-Slip Basin, Southern California, from regional gravity and aeromagnetic data;"

Carol Ormand '89, "Analogue models of fault-bending folding: the effects of oblique ramping and tear faulting on hanging wall structures;"

Christine Siddoway '84 et al, "The eastern margin of the Ross Sea in Marie Byrd Land: structural and glacial evolution of the Ford Ranges, and integration into models for the West Antarctic Rift;" and

Karen Gran '96, "Effects of riparian vegetation on braided stream dynamics: experimental results."

And last but certainly not least, we warmly thank **Barbara and Mark Bach '78** for allowing the Vicks to park their minivan in the Bachs' driveway for several weeks while the Vicks were visiting the geology program in Italy. The Bachs also fed and consoled the weary travelers as they navigated the unfamiliar byways of New Jersey - good Samaritans for sure!

Stewart Fellows Named

Congratulations to four members of the class of 2001, Kate Anders, Laura Cleaveland, Anne Sawyer and Carl Tape, who have been named Duncan Stewart Fellows for the 2000-2001 school year!

The fellowship was established in 1976 by Daniel Gainey '49 in honor of Duncan Stewart, professor of geology at Carleton for nearly 25 years. It carries a stipend plus makes available funds that may be drawn on to cover research expenses. The principal criteria for selection are excellence in scholarship, a high level of intellectual curiosity, potential for scientific growth, a demonstrated ability to work independently and involvement in departmental activities.

These students will extend the number of Stewart Fellows to 68.

GSA Reception

The Carleton get-together at the 2000 meeting of the Geological Society of America in Reno will be held 6:30 to 8:00 p.m. the Monday evening of the GSA convention in the Reno Hilton Hotel. More information will be mailed out separately, but you are all encouraged to come and visit!

Topo Map Proves To Be Key Evidence In Waste Cleanup Case

It's been several years since we have been involved in a forensic geology mystery, but we did contribute tangentially this year to solving a case in a lawsuit over a hazardous waste site cleanup.

A year ago, Mark McBride '67 contacted us to borrow a copy of the 1958 edition of the Wauwatosa, Wisconsin, quadrangle topographic map. Since the request was easily met and Mark has always been a faithful supporter of Carleton, we were happy to oblige.

He later sent us a news clipping reporting that Wisconsin Electric Power Co. had been ordered to pay over \$104 million in damages, including \$100 million in punitive damages, by a jury that found the utility had intentionally polluted two sites in West Allis, Wis., with cyanide-tainted wood chips.

Mark explained the case:

"A few years ago, about 2000 truckloads of oxide box waste were found buried on a property in West Allis, west of Milwaukee. This is a residue from manufactured gas production, and consists of a mixture of wood chips and iron oxide, along with sulfur and cyanides that are removed when the gas passes through it. The city and the landowner were stuck with cleaning it up, at considerable expense, and with the loss of property value. Naturally, the city and the landowner wanted whoever was responsible to pay for the cleanup.

"Because of the quantity of waste, there were only two plausible sources, Wisconsin Electric (WEPCO) and Wisconsin Gas. The plaintiffs decided that WEPCO was at fault, and sued them. WEPCO didn't think they were responsible, so they in turn sued Wisconsin Gas and brought them into the case as a third party defendant.

"The topo map became important in establishing the timing of the dumping, and why it was probably done. In the NW quarter of Sec 31, T7N R21E, there is an elongate intermittent pond just south of a substation. The pond shows up on this 1958 quad, but not on later editions. We had aerial photographs, but the quad is in many ways more convincing as to the existence of the pond. It is based in part on field reconnaissance, and specifically identifies the pond as a water area rather than the 'dark area, probably water' that a photo analyst is likely to report.

"There is a power line running north-south adjacent to the east end of the pond. WEPCO built the substation and the power line in 1958-59, about the same time that they were also closing out their manufactured gas plant in Racine.

"The relation between the pond and the area where the oxide box waste was removed emerged as a

major point in the trial, so the Milwaukee team asked me to prepare an overlay showing the waste area at the same scale as the quad. The waste area coincided almost exactly with the pond. An enlargement showing the coincidence of waste area and pond turned out to be one of our most effective exhibits, and appeared to make a big impression on the jury.

"So we think, in the spirit of the classic English murder mystery, that WEPCO had:

... Motive - They wanted to build the power line through the pond, and found it most convenient to fill it to make construction possible. They also had a lot of oxide box waste from their Racine plant that had to be disposed of.

... Means - They had lots of oxide box waste available from Racine, and construction equipment available at the substation and power line site.

... Opportunity - They were working right next door, and so had easy physical access to the waste site.

"From the dates on the quad, we are sure that the pond existed in 1954-55, and probably existed in 1958. This constrains the filling to about the time that WEPCO was working on the substation and power line. The fact that the pond showed up only on the 1958 quad explains why I was so interested in getting hold of this particular edition."

Wisconsin Gas was cleared of any responsibility in the dumping.

Mark is currently with Capital Environmental, a Washington, DC consulting firm. Capital Environmental is an "affiliate firm" of Howrey Simon Arnold & White, a DC law firm that helped defend Wisconsin Gas.

Geology Department T-shirts Available By Mail

I have a good supply of geology T-shirts available that I can mail out. The cost is \$8 plus \$3 postage payable to Carleton College.

The 2000 shirt is bright yellow with black printing. The design is a geological take-off on the theme of Charlie Brown's striped shirt in the "Peanuts" cartoon series. 50/50 cotton/synthetic, S, M, L and XL are available.

The 1999 shirt is yellow with a TinTin cartoon " (see the cover of this Newsletter) on the front in black ink and the back says Carleton Geology 1999 on it; it is very nice. Large and one XXL are available. 100% cotton.

The 1998 shirt is dark "dusk" blue, a sort of grayish dark blue, with white ink. The picture on the front is a geologist at a bar trying to hustle the other patrons (fossils of different varieties) with the quote on the back of the shirt saying, "A geologist will date anything." Sizes M and L are available. 100% cotton.

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The 1997 shirt is light tan with brown ink. The cartoon on the front shows two stick figure people saying "Gee!" and "Oh!" the cheer of the Geo broomball and ultimate teams. On the back of the shirt is a Peanuts cartoon about the relationship between geologists and mud. I have many XL's and one XXXL. 100% cotton. -- Tim Vick

Liz Penny '00 Helps Design Internship

[from The Northfield News]

Northfield - As an intern for the newly established Journey Resource Center for Women in Minneapolis, Carleton College senior Liz Penny '00 has felt out of place distributing health pamphlets, flyers and condoms to women making their living on the streets. "You could just tell, I didn't belong," she said. The women were generally friendly and receptive to Liz's efforts, but other outreach workers teased her about being "so white" and "so rich." Being made aware of her own privileged position in society is part of why the experience has been so powerful for her.

Since January, Liz, a geology major from Los Altos, California, has interned two days a week at the center, which was founded by social worker Jenna Kalfsbeck to reach homeless women involved in prostitution.

To provide extensive services to a small group of women, Kalfsbeck has limited the size of the center, which offers free emotional and vocational counseling to women living on the streets, as well as bus tokens, health products, and information related to the many issues they face.

Kalfsbeck has relied on Liz's assistance the past few months, and the two women have designed the internship as a prototype for what they hope will be a continuing partnership between the center and interested Carleton students.

Liz's interest in the concerns of homeless women stems from personal experience. Her mother has lived near poverty, and when Liz lived with her during that time she became particularly sympathetic to issues affecting the poor. "When you walk by people who are living on the street," she said, "you don't always get that they're just as real as you, that they are just as much of a person as you are."

Liz recognizes a need to address this automatic dismissal, and although she often feels uncomfortable doing so, Liz believes strongly in personal responsibility. "It's my responsibility as an intelligent, empathetic member of society to go and find out about those who fall through the cracks of our society," she said.

"Prostitution and the things that go with it, like drug use, sexual assault and pornography, are not

the problems of prostitutes, they are the problems of every member of our community."

In addition to handing out information directly to the women who need it, Liz has observed Kalfsbeck counseling homeless women, and has transcribed from recordings the stories they've told Kalfsbeck, in an effort to collect information toward an understanding of the sociocultural effects of prostitution on women. The two women also discuss the directed reading Liz has done about prostitution, childhood sexual abuse, and drug addiction.

Ani Kameenui '01 Finds Environmental Day Camp

by Nancy Cook '00

When she discovered the summer job choices in her hometown of Eugene, Ore. didn't fit her interests of environmental advocacy, community building, and education, Ani Kameenui '01 sacrificed fast cash for a worthier cause. Together with a high school friend, the Carleton College geology major founded, organized and now oversees Whole Earth Kids (WEK), a grassroots, non-profit organization that runs free summer camps about environmental issues for children primarily from low-income families.

Ani, a geology major at Carleton, and her friend, Seth Newton, now a student at Stanford University, recognized that "community-grown" action is one of the most effective ways to address the root causes of social and environmental problems. Seeking to foster a personal connection between young people and their natural environment and create a sense of responsibility for that environment, the twosome established WEK to teach kids the skills needed to create an environmentally sound and sustainable community. The program's weeklong day camps blend community service projects with environmental education and outdoor recreation.

"I hope WEK is changing attitudes about youth and how they spend their free time," Ani said. "Kids have big dreams and great ideas. WEK is all about empowering kids to act on their ideas. As trite as it sounds, it's 'you can do it if you put your mind to it.'"

As the third summer of the successful program approaches, Ani, Seth, and another friend, Zoe Bradbury, are busy seeking funding and working out the logistics of establishing WEK as an official non-profit organization, which means the program must create its first board of directors and has chosen to hire a paid coordinator to help with organizational responsibilities.

WEK began in the summer of 1998, after Ani's first year at Carleton. She and Seth both grew up in an environment of activism-"he was the activist

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head, I was the service head, and now we're both" she said-and the idea for WEK literally sprang from many conversations that began with "wouldn't it be cool if?" They spent the early part of that first summer hammering out WEK's philosophy and then pitching the idea to anyone who would listen.

They were assisted by Committed Partners for Youth, a non-profit children's advocacy group that helped WEK gain insurance and office space. "It was crazy," said Ani about the early days. "People were calling me on my mom's cell phone and all I could think was 'this isn't the way most people conduct a business.'"

Eventually, Ani and Seth found funding through community organizations, retail stores, and friends. "It was important to us that we get funding from other grassroots efforts like WEK, and not from corporate giants like Coca-Cola and Nike, which are right in our backyard," Ani said. "We wanted to stay true to our philosophy and mission."

They recruited campers at homeless shelters, day-care centers for low-income families, churches, and schools. In August of 1998, they launched a successful five-day pilot program on watershed exploration for 13 campers ranging in age from eight to 12 years old.

The kids whitewater rafted, visited watersheds, worked in community gardens, and met with legislators in an effort to study the human, cultural, and political issues surrounding water.

Ani said her Carleton education has come in handy for WEK. "I've gotten a good grounding in earth sciences here," she said. She's also appreciative of the support she's received. "Community building is reinforced at Carleton and I've always felt commended for doing social activism."

With additional funding from Carleton's geology department and a grant from Stanford, WEK expanded in 1999 to offer a week-long session on community organization for high school students, which focused on identifying and understanding the implications of important social and environmental issues in the Eugene area. Additional advocacy training taught the teenagers how they could take an active role in these issues.

A few of the high school campers continued as counselors to younger campers, who studied urban ecology and ecosystem expression. In the urban ecology unit, campers were encouraged to view their urban surroundings as integral components of the natural environment. They wrote daily journals, worked in community gardens, studied urban planning, and spoke with city council members. The ecosystem expression session explored the environment through

storytelling, dance, music, photography, and various art projects.

Ani plans to have an integral role in the camps again this summer, but she also hopes that she can relinquish some day-to-day responsibilities.

"WEK's not about me," she said. "It's about kids embracing environmental concepts-getting excited by science they usually aren't introduced to until much later in life. I want WEK's success to plant the seed in other kids' minds that they too can start small, successful community projects."

Ed Buffington '41 Dies At 79

A letter from Lloyd Pray '41 last winter brought the sad news of the death of Edwin Buffington '41. Ed had been a pioneer in the field of marine geology.

After graduating from Carleton, Ed earned his MS in geology at the California Institute of Technology in 1947 and his Ph.D. in marine geology at the University of Southern California in 1973. He was either chief scientist or co-chief of 16 deep-sea expeditions and explored parts of the ocean floor three times in the Navy's bathyscape Trieste. He rose to the position of Head of Marine Geology at the Naval Undersea Center in San Diego.

Ed left the Naval Undersea Center in 1974 to join the US Geological Survey in Menlo Park, where he was in charge of scientific cruises as Associate Chief of the survey's Pacific Arctic Branch. He retired in 1980.

Ed, who rose to head of marine geology at the Naval Undersea Center in San Diego, died Dec. 29 at his Point Loma home.

In his note, Lloyd said, "Buff was a valued friend ever since we met as freshmen at Carleton in 1937."

Network For Lesbian, Bisexual, Gay And Transgender Alums

The Network For Lesbian, Gay, Bisexual and Transgender Geology And Natural History Alums provides students and alums with career information, fellowship and support. The network was founded in 1990 and now has 31 members from coast to coast.

The network has the twin objectives of helping reduce isolation among alums and helping to provide a more open, accepting and informative environment on campus for students in geology and related fields.

The network consists of a confidential list of names and addresses, circulated only to members of the network, maintained by Marilyn Yohe '88, Dan

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Spencer '79, and Tim Vick. Inquiries about joining may be addressed to any of them.

LGBT folks might also be interested in the general alumni group called Out After Carleton. We are happy to provide contact information for them as well.

2000 Awards

NSF Fellowships

Allison Anders

Gina Michl

Mortar Board

Debbie Goodwin

Carl Tape

Phi Beta Kappa

Caitilin Pope Daum

Joanna Reuter

Sean Sturges

Carl Tape

Sigma Xi

Christina Berglund

Sara Bertelsen

Alden Boetsch

Jean Dixon

Debbie Goodwin

Jon Jensen

Anders Matney

Luc Mehl

Anna Nelson

Joanna Reuter

Erica Richardson

Patrick Roehrdanz

Sean Sturges

Stacy Tellinghuisen

Liila Woods

Larry Gould Prize

Liz Penny

Independent Research Fellowship

Laura Cleaveland

Kresge Science Fellowships

Willy Amidon

James Bishop

Carl Tape

Trent Terriquez

Kevin Uno

Mellon Minority Fellows

Kizzy Charles-Guzman

Ani Kameenui

GSA Research Awards

Dave Barbeau '97

Julia Daly '94

Britta Gustavson '93

Cathy O'Reilly '94

Jen Wenner '92

Geology Majors - 2000

This year's seniors, their hometowns and titles of integrative comprehensive exercise projects:

Thomas Alcivar, Chesterfield, MO, Paleomagnetic dating of the Messinian: Attempts to refine the geochronology of the Messinian

Christina Berglund, Britt, MN, Characterization of Mangrove Peat in southwest Florida

Sara Bertelsen, Rockville, MD, Methods of reducing greenhouse gas emissions through agriculture

Alden Boetsch, Lexington, VA, A discussion of the natural and supernatural: Geom mythology in Devil's Marblyard, Arnold Valley, Virginia

Jean Dixon, Atlanta, GA, Biofacies zonation in a near-shore lagoonal environment of Belize: Influence of depth, sediment influx, hydrodynamics, and geography

Matthew Howard, Tulsa, OK, A faunal and sedimentological analysis of Upper Ordovician Strata, Grant Lake Formation, northern Kentucky

Jonathan Jensen, Baltimore, MD, Direct dating of Milankovitch cycles: Evidence for a 123 and 95 Kyr eccentricity cycles at Monte dei Corvi, Italy

Zachary Katz, New York, NY, The effects of topography on selected soil properties: Erosion relationships on "A-horizon"

Anders Matney, Northfield, MN, Developing and teaching a short unit on evolution using Cephalopods at Prairie Creek Community School, Castle Rock, Minnesota

Luc Mehl, McGrath, AK, Shear zones and basement deformation during Post-Caledonian collapse on the Island of Flakstadoy, Lofoten, north Norway

Anna Nelson, East Harwich, MA, The origin, entrainment mechanisms, and mode of transfer of supraglacial debris on the debris-covered terminus of a Polythermal Valley Glacier in Svalbard, Norway: A sedimentological approach

Elizabeth Penny, Los Altos, CA, Developing a nature writing workshop as a supplemental unit to Geology 120: Introduction to Environmental Geology

Joanna Reuter, Berryville, AR, Apatite (U-TH)/HE Thermochronometry in the Bighorn Mountains, Wyoming: Old age results from too many dates

Erica Richardson, Belgrade, ME, Uplift of Pleistocene Marine Terraces along the San Andreas Fault: Fort Ross to Gualala, California

Patrick Roehrdanz, Fargo, ND, Fluid inclusion analysis of quartz and alunite in acid sulfate alteration near Porphyry Peak, Bonanza Caldera, Colorado

Michael Stewart, Holliston, MA, Carbon isotope stratigraphy of an Upper Cambrian Platform, western Newfoundland, Canada

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Sean Sturges, Great Falls, MT, The importance of small scale variations in topography and geography for mixed siliciclastic and carbonate sediment deposition: An example from a nearshore area of the Belizean Southern Shelf Lagoon

Stacy Tellinghuisen, Nashville, TN, Using marine terraces to determine tectonic uplift rates and patterns on the Gualala block, California: Gualala to Point Arena

Nicholas Weinberg, New York, NY, Structure and related tectonic history of the rocks of Cochise Canyon, in the Catalina Core Complex, southeastern Arizona

Annie Winkler, Duluth, MN, Spring Creek assessment and monitoring project: A compilation and exploration

Liila Woods, Ettrick, WI, A study of infiltration rates and the revised universal soil loss equation in relation to soil erosion at an agricultural site in Rice County, Minnesota

Lauren Chetel
Elizabeth Clark
Benjamin Drummond
Nora Ferm

Andrew Gendaszek
Hilary Gittings
Melissa Hall

Andrew Hartley
David Hunzicker
Stefan Kaste

Matthew Kuharic
Katja Meyer

Mary (Casey) Murphy
Eric Nemitz

David Nickerson
Michael Robinson
Alyssa Thomas

West Newton, MA
Springfield, IL
Seattle, WA
Bainbridge Island, WA
Lambertville, NJ
State College, PA
Duluth, MN
Duluth, MN
Middleton, WI
Mounds View, MN
Meredith, NH
Maple Park, IL
Waterville, ME
Cape Elizabeth, ME
Big Horn, WY
Bothell, WA
Bend, OR

Class of 2001

Willy Amidon
Katherine Anders
Philip Anderson
James Bishop
Laura Cleaveland
Sara Decherd
Jonathan (Jake) Eaton
Matthew Hinckley
Scott Hynek
Kevin Jacobs
Sarah Johnson
Ani Kameenui
Kristen King
Maureen Kirch
Katie Kolarich
Isaac Larsen
Jamie Levine
Elizabeth Lowham
Peter McAuliffe
Stefanie Morrison
Anna Moyles
Aleshia Mueller
Edmund Phillips
Anne Sawyer
Trent Terriquez
Elizabeth Valaas
Kevin Uno
Galen Ward

Charlotte, VT
Minneapolis, MN
Rochester, MN
Wheeling, WV
Elkhorn, NE
Portland, OR
Cincinnati, OH
Seattle, WA
Parker, CO
New Haven, CT
Plymouth, MN
Eugene, OR
Hampden, ME
Milwaukee, WI
Dubuque, IA
Clear Lake, IA
New York, NY
Casper, WY
Seattle, WA
Chisago City, MN
Berkeley, CA
Backus, MN
Sewickley, PA
Northfield, MN
Northfield, MN
Bellevue, WA
Kirkland, WA
Seattle, WA

Class of 2002

Christian Andreassi
Heather Borkowski
Kasey Camp
Kizzy Charles-Guzman

Temple Terrace, FL
York, ME
Raton, NM
Brooklyn NY



The weather was cold but the geology was great on the fall field trip to Northern Minnesota. Here the group poses in front of the mother of all fold hinges near Marquette, Michigan. (photo by Karen Gran '96)

Blue on Grease

[By Timothy Vick]

It was not until the glory days in the dusk of the 1970s that we got around to trying the obvious, although in self defense we must add that it was not until then that we had the talent available to do it.

In the fall of 1979 Fred Seymour '80 was a senior, on the home stretch of his geology major here at Carleton. He also had achieved the rank of cook at Dino's Restaurant on Water Street just around the corner from the Second Street bridge over the Cannon River. Many of you will remember Dino's as the place that served gigantic hamburgers, milkshakes and onion rings for something like two decades, although now it has been demolished to make way for a fancy pedestrian bridge over the river. Dino's was where the police hung out when things were dull; there always seemed to be at least one squad car parked in front of it.

It was a matter of course, then, that we would someday think of having a Dino's dinner on a field trip, and the lucky unsuspecting diners turned out to be those who went on the 1979 departmental fall trip to Baraboo, Wisconsin.

Kim Jones '80 was in charge of the supper cooks for the trip, but even culinary panache of her caliber (she made wonderful baked beans, Texas style, and then belittled her accomplishment) was shoved aside to make way for the assault of fried brutality that was Dino's Dinner.

There was no secret to Dino's hamburgers and milkshakes, bulk was everything. But the onion rings, they were different. They were not only bulky (roughly the size of a Quality Bakery doughnut, which Kim also excelled at making), but they were made according to an ancient secret recipe known only to the cooks at Dino's. And now, to us.

The secret: the onion rings must be deep fried only after having been dipped in pancake batter which had sat in the back of the refrigerator for at least a day. Aha! This we could do. So it came to be that we assembled

all the ingredients for the dinner and made up a big pot of pancake batter ahead of time.

The ingredients for the dinner were considerable even by Dino's standards. For 34 students, four faculty and one technical director we packed 40 large sesame seed buns; 13 pounds of bulk hamburger; 30 giant onions; 10 heads of lettuce; 80 slices of cheese; 15 tomatoes; a half gallon of pickles; 15 oz. of Miracle Whip; 2 bottles of ketchup (was that enough?); 10 oz. of mustard; 6 lbs. of pancake mix; 20 lbs. of frozen French fries; ice cream, malt and flavored syrups that were bought enroute; milk and a blender, all bound together with the help of (hold your gut) 4 gallons of frying oil.

To handle the aftermath of this corporate gluttony Jean Buchanan '80 was in charge of KP and Glenn (Greilich) Lee '80 master-minded the trash collection.

Well, it was a powerful success. At least, I remembered being more than adequately sated by the meal. There was but one minor fly in the ointment and it had to do with the meal's centerpiece, the fried onion rings.

We were a little too economical for our own good. It happened that the morning we made up the pancake batter we had had Ed Buchwald's blueberry pancakes for breakfast. Noticing there was some pancake batter left from breakfast and not wanting to either waste the extra batter or make an extra dirty pot, Fred and I lost little time in deciding to just make the new batter for the onion rings in the same pot as the breakfast batter had been made in. It seemed fine until dinnertime when we had turned out a large number of onion rings from the fryer and launched into eating them.

The leftover blueberry pancake batter colored all of the onion rings blue. If there's anything that will turn your stomach more revoltingly than a huge fat greasy onion ring, it's a huge fat greasy blueberry onion ring!

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Italy Program

Last fall, Dave Bice and Sandro Montanari led the fourth Carleton Geology Seminar in Italy. The group of 24 students was based at the Osservatorio Geologico di Coldigioco, northwest of Rome. The group spent a week on a field trip to the Alps and another in Tuscany in addition to numerous other shorter field trips near Coldigioco. The program has become one of the most successful we have ever offered, so much so that it is consistently oversubscribed and some students who apply to go have to be turned down.

Clockwise from left, a trail marker in the mountains near Passo Vales; Hilary Gittings '02, Luc Mehl and Pat Roehrdanz (both '00) look carefully at rocks in the alps; (opposite page) Beth Valaas, Sarah Johnson and Ned Phillips (all '01) worked as a team to figure out the geology of Paso San Nicolo in the Dolomite Mountains; Dave gave an orientation talk in preparation for a mapping exercise at San Vittore; and the group photo at the top of Passo Vales.

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From Parks Planning to Porn: Applications of Geographic Information Systems to Local Questions

[By Joanna Reuter '00]

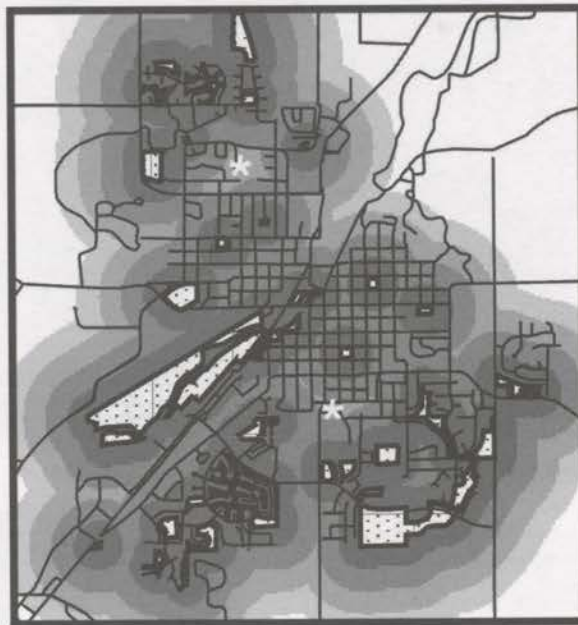
Here are just a few examples of issues that can be addressed with the GIS resources available on campus: determining where new parks are needed in Northfield; measuring a jogging route through the Arb; monitoring watersheds of the Cannon River; identifying areas in Northfield that could be targeted for large new retail stores; planning a project at a biological research station in Costa Rica; finding out where porn shops are allowed in Northfield.

But what is GIS, anyway? A Geographic Information System (GIS) is essentially a collection of digital maps that can be stacked, viewed, and—most importantly—used for spatial analysis. Essentially any kind of map can be put into and used in a GIS. Our GIS of Northfield includes maps of roads, parks, land use, soils, bedrock geology, bedrock topography, watershed divides, bodies of water, schools, storm sewers, and even campus tunnels. We also have digital elevation models, digital orthophoto quadrangles (black and white aerial photos with one meter resolution), digital raster graphic (scanned in USGS topographic maps), and Landsat images of this region. Many of the maps contain supplemental information in table form. For example, a map of the trails in the Arb has an associated table that contains information for trail segments, including length, whether or not bikes are allowed, and whether the trail is maintained or not.

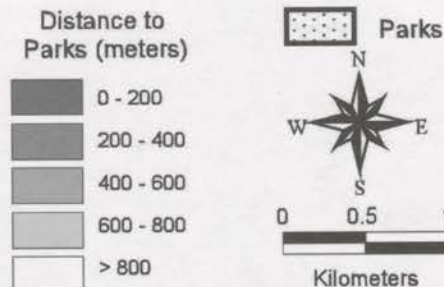
The spatial and tabular data, plus a little computing power, work together to produce the real strength of GIS, which lies in its ability to do spatial analysis. With the appropriate maps, a GIS can be used to calculate the area in use as farmland, to find the length of streams, to highlight streets with a certain name, to generate a map which represents the distance to the nearest park, to determine slope from a digital elevation model, or to delineate watersheds. Any one of these tasks would be slow and tedious with standard paper maps, but can be executed with ease using a GIS. By asking the GIS a combination of questions and performing queries, a wide variety of real world questions can be answered.

Several such questions regarding local issues were studied through GIS projects by students in last term's Remote Sensing and GIS class, taught by Mary Savina of the Geology Department. Seniors Kim

Hanson and Ann Isaksen assessed the issue of park siting in Northfield. In addition to considering the adequacy of the current park distribution, they contemplated the question of where new parks should be located.



City of Northfield



The GIS map above shows the city parks in Northfield. The shaded bands represent the distance to the nearest park. (The Arb is not included because it is not a city park.) Besides the outskirts of town, only two small areas, designated by asterisks, are at distances that exceeding the 400 m suggested in national recommendations for parks.

The map accompanying this article shows one of the first steps in their process: determining how far any given location in Northfield is from the nearest park. According to national recommendations for parks, no residence should be greater than a quarter mile (about 400 m) from the nearest park. As

can be seen in the figure, there are two isolated areas within Northfield that do not meet this recommendation, and both of these fall primarily in residential areas which are not realistic locations for new parks. However, the areas on the outskirts of town, where new developments will go, are the prime areas in need of attention for future parks planning.

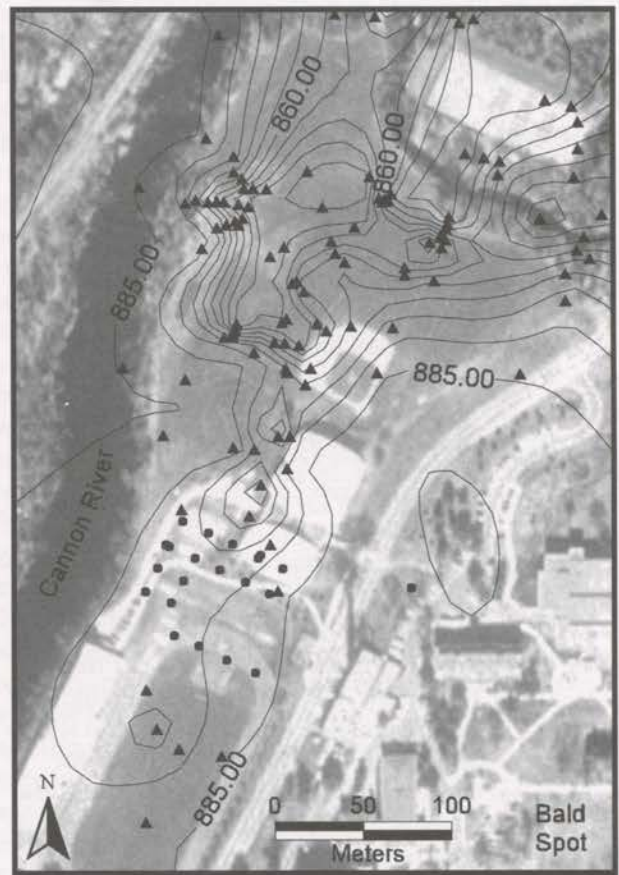
The Public Park section of the Northfield Subdivision Ordinance ensures that a certain amount of parkland will be set aside for each new development; however, there are no specifications about the shape of the parks. Ann and Kim's analysis involved quantifying the edge to area ratio of the parks, which they associated to some degree with the desirability of the parks, for the following reason: "many of the newest parks are more like buffer zones than parks—long, skinny tracts of land that appear to have been built more to comply with the ordinance and provide a semblance of privacy to new residences than to serve as functional parks." To avoid having parks that are little more than extended back yards, they suggested taking the edge to area ratio into account for future park planning. Fortunately, with GIS, this is easy to do.

Another example of a real world issues addressed by GIS students was an analysis of the Northfield Adult Use Ordinance, which restricts adult use establishments (such as porn shops) to the industrial district and requires a buffer zone of 400 feet around schools, day care centers, religious institutions, and so forth. Such specifications provide just the type of problem that a GIS is good at answering, and so this became a project in the class. The ordinance was enacted because of high crime rate in other cities associated with the siting of such adult use establishments. The ordinance was not intended to completely exclude adult use establishments, but whether or not this was the case was not immediately clear. The results of the GIS analysis showed that there were some areas in which adult use establishments would be allowed. Ambiguities in the wording of the ordinance also surfaced during the work. For example, it is unclear whether Carleton counts as a school.

As far as GIS goes, the analysis is generally the easy part. The data acquisition and input often prove to be difficult and time consuming, as the map layers often must be transformed into the standard datum and projection with appropriate documentation (metadata). The data sources are varied; maps that are already in digital form come from sources such as the U.S. Geological Survey and the Minnesota DNR; paper maps—from the city of Northfield, for example—and can be entered into

the computer through the process of digitizing; finally, students can create their own maps with the use of Global Positioning System (GPS) units.

The GIS data that are now available on campus have been compiled with much success through the hard work of students, faculty, and staff faculty during the last few years. As a result, we now have GIS data sets (that run on ArcView software in the Geology labs) for several local watersheds, Northfield, the Arb, McKnight prairie, the Carleton campus, and La Selva Biological Research Station, Costa Rica. The development of these GIS data sets is an on-going project, and as the work continues, the GIS will be used to answer numerous more questions relevant to the city of Northfield and the Carleton community. If you would like to learn more about some of the GIS resources on campus, check out <http://gis.carleton.edu>.



Here's another, more geologic, application of GIS. This is a map of the athletic fields around the West Gym on the Carleton campus. The round dots represent soil borings done by contractors to evaluate possible building sites in the 1960s, and the triangles are seismic refraction soundings by Timothy Vick done in 1979 to delineate the buried river channel.

Sonja's Excellent Adventure At The South Pole

Ever wonder what it would be like to live at the South Pole? Would the Sun stay at the same elevation in the sky and just run around in a circle, or would it rise and fall? Would the Moon go through the phases we are familiar with, or would it do something else? Where do the people working at the South Pole get drinking water? And what happens to their sewage? How cold is it down there, anyway? And, would it be fun to spend time down there?

The answers to these and many other questions appear in "Sonja's Excellent Adventure at the South Pole," a story compiled from e-mails Sonja sent from her vantage point as a General Assistant employed by the company which provides support workers for the science station at the South Pole. The full piece is posted in the Sagas section of the Geology Department web site at www.Carleton.edu. It is too long to appear in the Carleton Geology Newsletter, but the World Wide Web version, with color pictures and less stringent limitations on length, is well worth checking out.

Here are a couple of excerpts from her story:

The Sun

What does the sun do in the sky down there? Does it go up and down in the sky or does it stay at the same angle? What happens at the equinox?

During the summer the sun goes around and around overhead (somewhat) in a counterclockwise direction. It's not directly overhead - the highest it gets in the sky is at the summer solstice when it gets to 23.5 degrees above the horizon. To me it seems higher than that though. In one of several articles we saw here about New Year's, it said something about a dim sun hovering on the horizon. Could hardly have been farther from the truth. Midnight was bright and sunny.

As the summer is fading into fall, the sun is circling closer to the horizon, though it's not that noticeable at this point. It's still always daylight. It will circle closer and closer to the horizon until it sets at the autumnal equinox. It takes a day or two for the sun to set completely (and to rise again at the end of winter) but there is a long period of dusk, lasting 4-6 weeks. Apparently the winter here is not pitch dark due to the angle of the earth relative to the sun. So nighttime at the equator is darker than any time here during winter.

Summer solstice came and went yesterday (December 22) at 8:44pm local time. Summer solstice here means that the sun reached its highest point in the sky at 23.5 degrees up from the horizon (recognize

this number as the degrees of tilt of the earth? It's no coincidence).

Toilets

Yes, there are toilets here. Surprisingly, they are flush toilets(!). I believe there are approximately 10 around. For the anticipated 220 people for summer here, that ain't so much. They do have the favorite poem posted on the door to encourage water conservation - "If it's yellow, let it mellow. If it's brown, flush it down."

Jules, a twenty-year veteran of Antarctica, is a heavy equipment operator who hails from Idaho. She had lots of interesting stories to tell about being among the first women on the continent, as well as being the first woman to live at Williams Field, a field camp of sorts out on the sea ice. The Navy guys didn't want her out there initially because they didn't want to share their bathroom, of all things. The National Science Foundation was no help either - they told her to work it out or go back to McMurdo. Fortunately, one of the higher-ups offered to share his private bathroom. She suspected it was because he was black and had probably faced his own discrimination at times.



Sonja was towed on skis in the Race Around The World on Christmas Eve morning at the South Pole.

News From Alums

1937. **Allan Mathews** is secretary of the Association to Unite the Democracies in Washington, DC, and he's also working on a national initiative and referendum system similar to those in about half of the states. Two web sites related to his work are linked from our Geo Alum page on the Geo Dept. home site.

1939. **Shirley Shale Palmer** writes that she has been in a wheelchair since she had a stroke, but she's living in a good retirement apartment with assisted living services.

1941. A letter from **Lloyd Pray** brought news of the death of **Ed Buffington**. (See the story in the Departmental News section of this Newsletter.)

1942. **Dode Wonson** sends word she's "still busy with volunteering, board meetings and fun with friends!" We received word recently that **Louis Blanich** had passed away. Louis, a native of the Iron Range, was instrumental in inspiring **Eiler Henrikson '43** to attend Carleton.

1944. Congratulations to **Robert Berg** who was awarded the Distinguished Educator award of the American Association of Petroleum Geologists at their annual meeting in New Orleans in April!

1945. **Dick McCarthy** writes that he has been afflicted with macular degeneration, which has cost him most of his sight. He now has to use a reading machine, but he says, "I did manage a good photo of a grizzly bear and close-up of a moose at Yellowstone last summer using peripheral vision in the camera view finder." That's neat! He adds that he can still do pottery by touch, but not lapidary work.

1946. **Charles Higgins** wrote of plans to present a new concept of the origin of the tower karst of Southeast Asia at the GSA Annual meeting in Reno this fall. He encourages you to "Do look up my poster!" [Charles, after GSA if you aren't using your poster any more, we would like to ask to borrow it for a couple of months to display in Mudd. Any chance of that? Tim Vick]

1947. **Georganna Dean Dickson** is keeping busy with activities such as library board and church, in addition to caring for and feeding their 250-year-old house in the "quiet corner" of New England.

1951. **Flip Brenner** writes she is "still working in geology and having fun!" She continued, "As a volunteer at the Smithsonian in the paleobiology dept., I am painting casts of rare fossils that are needed at museums for research. I am now working with the casts of a *Brontotheye*, similar to a rhi-

noceros, of Eocene age. The fossil was collected three years ago by Smithsonian geologists in the southeast part of Kazakhstan, near China. Kazakhstan wants the original fossil bones back, therefore we are making casts that we can keep. The painted casts will be on exhibit for the public and will be shown as it was collected on the ground surface. The fossil has hundreds of colors and beautiful teeth to work with."

1954. **Pat Bickford** spent a delightful [and I might say beneficial for all concerned- Tim] three days at Carleton in February as a Bernstein Geologist In Residence. He writes, "Shelby and I will renew our collaboration in Colorado this summer. I continue research on three funded projects, one in the Paleoproterozoic of Colorado, one on thermochronology of the Trans-Hudson Orogen in Canada, and one on the Marquette Range Supergroup in northern Michigan. I am preparing two new NSF proposals. Life in retirement is good -- and busy!!"

1955. **Joe Mancuso** writes he is "enjoying my retirement from the Geology Department at Bowling Green. So far they kindly let me have an office in the department with a desk and computer from which I can keep current in geological affairs. I am looking forward to attending the Geology and Ore Deposits 2000 symposium and field trips to be held in Reno in May. Papers and visits to a number of gold mines in Nevada. Last August we moved to a new (old) house in Bowling Green, so I have kept busy with yard work and occasional golf outings." Joe added he was looking forward to attending his 45th reunion in June.

1956. **Bob Scheevel** has a son in the oil industry, a geologist with Chevron, now working in Angola at Chevron's Malongo operation. "He has some interesting tales to tell," Bob says. "Our other two boys went 'wrong' and are employed in other disciplines. My wife Jan is a saint and continues to put up with me after 45 years!" **Dick Buchheit** writes, "After 40 years in the mining and mineral exploration business, I plan to retire at the end of this year. By Christmas we should be settled into our other home at 461 South Shore Dr, outside of Grand Marais, MN. We also expect to spend significant time in the Colorado portion of the Four Corners area, the San Juans and Utah's Canyonlands (if Clinton and Gore and Babbitt don't close it all off!)"

1957. **Dick Westphal** writes that he and Helen are spending more time in their Arizona home, espe-

cially during the winter. He's been retired for 6 years now.

1958. Bill Hollweg writes of a trip last February to New Zealand and Australia. "Australia (Sydney and Cairns areas) was great, but New Zealand is in another and superior league." He plans to visit Iceland this September. **Art Radtke** retired a year ago, according to card that apparently was delayed in delivery from last year. He said he planned to pursue various hobbies such as fishing, traveling in Southeast Asia, and model railroading in his retirement.

1959. Norris Jones retires at the end of this school year, and he announces his marriage to Carol. Congratulations on both counts, Norrie!

1960. Mike McLanahan has two announcements for this year's News - he was appointed to the National Coal Council by Secretary of Energy Bill Richardson, and he now has a new granddaughter along with his two grandsons. Congratulations on both great events!

1961. Jeff Hanor writes that he spent several weeks doing fieldwork in the Murray Basin of Australia with Mark Person of the University of Minnesota. They have an NSF-funded project looking at the regional hydrogeology of the basins and problems of salinization. **Don Davidson** writes, "Retirement proves to be exhilarating. We have worked at disabled ski assistance and are involved in the transition to Arizona (2001). Also have served on several professional committees when not doing sprint triathlons or winter game competitions."

1963. Wendell Duffield sent in an interesting story entitled "Pickles," about life as a field geologist, which he wrote after seeing a picture of his ex-roomie David Larson in a copy of the Carleton VOICE. You can read the story by turning your computer web browser to the Geo Department's alumni links web page (go first to www.carleton.edu and find departments, then geology).

1966. Bruce Langhus has a new environmental and regulatory consulting company with four engineers and a geologist, Arthur Langhus Layne-LLC. He says his neatest project has been writing new petroleum waste regulations for the Mexican EPA. "This is my fourth career," he says, "about average of my peers. Life proceeds." **Beth Schwarzman** has been appointed to the new Coastal Resources Committee of (I think, if I read the card correctly) Falmouth, MA. She says, "We're going to be considering management of the coastline with a particular eye on groins, revetments and other forms of "hardening" that are having deleterious effects on the beaches. We'll see how it goes to apply geology around here!" **Peter Rowley** writes, "My wife Dawna and I

have settled in to our small (6-acre) horse ranch in southwest Utah, in the heart of an area where I have spent much of my geologic career. I am increasingly baffled with where the USGS is going and am contemplating retirement from that organization."

1967. Mark McBride has been serving as secretary of the Geological Society of Washington, a very active group with about 60 attending its twice-monthly meetings during the non-field season. Mark will gladly share information on the meetings for anyone who wants to attend while they are in Washington.

1969. Thanks to **Candace Kohl** for your address update.

1972. Kelton Barr writes, "I'm in the third year of my experiment in being on my own. I'm doing hydrogeologic consulting, mostly to other consulting firms and state agencies, doing groundwater modeling, karst hydrogeology, bioremediation, natural attenuation, and generally high-end consulting. So far, it's paying the bills, including two out-of-state college tuitions (it's an investment, it's an investment). Still also teaching short courses through the University of Wisconsin and enjoying life in the sane lane." Kelton was quoted recently in a front-page story in the Minneapolis Star Tribune about the effects on Lake Nokomis in Minneapolis which could be caused by ground water pumping for a construction project at the Twin Cities airport.

1973. Rich Fiore is still recruiting and placing environmental, health and safety professionals for major industry all around the U.S. And, "still rock'n'rolling with a classic rock band here in Houston."

1976. From **Leah Haworth Evison**: "I'm still enjoying working at EPA, my latest project is a guidance on cleanup of contaminated sediment. Our daughter is now a middle schooler - yikes! I recently joined a book group with **Julie Greenberg**, who teaches math in the area. **Barb Rossing**, are you still on the planet? How about writing?" Actually, **Dan Spencer** did sent a nice Advent letter last winter that included a photo of him and Barb Rossing doing a pirouette against a scenic mountain backdrop, so Barb is still on the planet. At least the scene looked terrestrial, but since both Barb and Dan are in the preaching business maybe we shouldn't jump to hasty conclusions - it might have been Heaven. The label said it was near Holden Village. **Barb Wonson Liukkonen** spent a year on sabbatical with a non-profit organization as Program Director and she's now back at the University of Minnesota as Outreach Coordinator for the Wa-

ter Resources Center. Barb reflects, "Married nearly 21 years to a patient man. no kids but two dogs :-)." **1977. Eric Simonson** announces the birth of his daughter, Audrey - Congratulations to Eric and Erin! Eric writes, "I'm still organizing expeditions, lecturing, and getting set to go back to Everest again next year to look for Mallory's camera!" Eric was on campus in May to tell his exciting story of the discovery of Mallory's body near the peak of Mt. Everest, and what a story it was! **Holly Huyck**, husband Dan O'Connell, and son Kevan (then three and a half) traveled to Europe last spring - eight major art museums in four countries (Holland, Belgium, France, and England) in 14 days. Now, Kevan compares everything, including the depth of the Grand Canyon, to the Eiffel Tower. He wants to move to Paris ASAP. Holly continues mine cleanup consulting, environmental permitting for highway construction and writing poetry, and will add coordinating the county Water Quality Monitoring Council in May. She also serves as Treasurer for the Association for Women Geoscientists, and adds; "Life is good!" **Bruce K. Nelson** writes that his department at the UW is maintaining good connections with Carleton. "Two Carleton grads are enrolled in our graduate program now (Alison Anders and Karen Gran) and two are arriving next year (Heidi Guetschow and Sara Gran). Personally, I'm looking forward to a sabbatical year in Lyon, France starting October. We'll do all the things one is supposed to on sabbatical; read, write, learn new techniques, meet new people, eat well, drink well.." **Phil Muessig** was looking forward to a windsurfing/backpacking vacation when he wrote. He's still a pollution prevention specialist at the Minnesota Office of Environmental Assistance. The seafaring **Margie Diamond Simpson** wrote in May, "The results of last summer's shake down cruise to British Columbia and back [per the plan put out in the 1998 Newsletter] were: 46 feet is far enough away from each other and we both love the inside passage. This winter I sold my business, Chuck quite his job, we sold the house and moved on board. We are in the final weeks of preparation for our open-ended adventure up north." Probably by now they are on their way. Anyway, bon voyage from the Geoids! And, watch this space for future news of their adventures.

1978. Barb Okamoto Bach and her family are looking forward to a year or two in Tokyo, where Mark's job is taking them. Fun! Barb writes, "Nate HyunJin, age 7, is getting Black Belt certification in TaeKwondo in June. I am desperately looking for someone to take care of Patch and Petunia (my 6-foot South American rainbow boas) for a year or

two..." Barb, we hope you all have a great experience in Japan! **Jim Harrington** and Christina " are busy raising a 2 1/2 year old and a 6 month old, which is just the greatest. At work I'm focussed on issues of business and technology integration, systems analysis, and enterprise modeling. Internet companies large and small are moving offices to the Dulles corridor near our home, so maybe I will make a jump to the 'new economy' this year." The summer of 1999 found **Craig Banister** in Norway for two weeks, "touring the country and participating in a genealogy get-together with about 300 people from the Midwest whose roots were all in the Valdres Valley. A great trip. I saw the original farmstead where my family came from. Stopped off in Cologne, Germany, to see a Carleton friend too. At work, I am designing web sites and have a strong interest in that area." We fully share **Zach Wilson's** amazement with the communications power of new technology: "Thanks to the wonders of the Internet and your web page, I've been in touch with people I hadn't seen or heard from in years! It's nice to have contact with these old (or should I say 'middle aged?') friends!" And, Zach, we're glad to know you've found it useful. Congratulations to **Steve Ingebritsen**, who was selected by the Geological Society of America as the Birdsall-Driess Distinguished Lecturer for 2001! Steve adds on his card that his textbook, "Groundwater in Geological Processes," has been reprinted in paperback. Steve, that's great. We don't have that many paperback authors among our alums - thanks for helping boost the numbers! **Laura Nadelhoffer** and her family stopped by campus in June on their way to the Black Hills and beyond. They were having a fun trip, but Laura said that when they were packing up she realized she was the only one of the family who had ever been camping before! But Laura's life has had enough twists and turns through the worlds of geology and global finance that there's no doubt she'll handle it in great style. On her card, Laura said, "Lately I'm immersed in the small business world as we build out web site (bizzed.com, a unit of Citicorp) offering products and services to this market. This is way more fun than boring old banking, that's for sure!"

1979. Jerry McNeish "Ran a 20:07 five-K, took 6th in the 100M and 4th in the Las Vegas Corporate Challenge, and our Xeriscaped yard, designed by my wife, was featured on the local TV news." Jerry also said he spent an evening catching up in Las Vegas with **Marie Del Toro**. On her card, Marie mentioned she appreciated being able to catch up with Jerry, and said, "This last year has been filled with more travel than usual and has kept my wan-

derlust down a bit. I went to the 20th reunion in June, drove Holly, 5, and Wilder, 3, to Ketchikan, AK, in August, and saw Jerry in Vegas on business in February. Hope the next year is just as eventful!" **Chris Brick** says "Steve and I are building a new house about a mile upstream of our current location, and plan to move in by the end of July. We'll have extra room for visiting Carls :-)" **Mark Helpenstell** is "Still out here in the middle of Puget Sound, and so far still working for Boeing (has it really been 14 years now?)!!! Kim and I opened a small athletic club/day spa here on the island last May. We made it through the first year, and are still alive - like any new business it has it's moments, but it seems to be headed the right direction, so who knows, maybe in a year or two I can "retire".... HAH! In my other life I have coached the South Whidbey High School Boys Soccer Team for the last five years - this year we made it to the State Finals, where we placed second - lost on a corner kick in overtime minutes! A real letdown, but nonetheless, a hell of a year! I've loved working with the kids, and am in the process of reactivating all my old teaching credentials, with an eye towards a career change in the not too distant future." Good luck with the career change, Mark. We'll play a tune for you at Dacie's brunch next Sunday - Tim. Thanks to **Dave Tolley** for your address update - hi Dave!

1980. **Glenn Lee** is still manning the ramparts of public health in Ann Arbor and playing music for local contra dances. The last time I talked to him, Glenn was playing in several bands, which I think is good for a person's internal equilibrium. **Kim Jones** reports that her daughter Minda is four already and her son Noah is a big 21 months old, "whose mellowness is gradually giving way to a decidedly stubborn streak." Kim and David feel constantly pressed for time, but the kids make everything seem worthwhile. Welcome to the world of parenting, Kim! From **Bill Hughes**: "I'm still with WPI working on environmental remediation at Mather AFB, although anticipate expanding into the realm of all closed Air Force bases in California. Kat is looking at colleges; Forrest and Will are getting ready for high school, and Claire for middle school. Our refrigerator door serves little purpose. Eileen is leading a building campaign for the growing Methodist church in Davis where she has been Pastor nearly four years." A note here from **Mindy Bell** says, "Darrell, Lindsey (8) and I are settling into life among the Ponderosa pines of Flagstaff, Arizona. Darrell is always looking for good geology students interested in pursuing a masters degree in Quaternary Geology (hint, hint) and I'm teaching science education

classes at Northern Arizona University and hoping to move 'up' to high school teaching. There is lots of spectacular geology around here including that giant crack, the Grand Canyon, plus the San Francisco Peaks volcanic field. (See Carleton grad **Wendell Duffield's** book, "The Volcanos of Northern Arizona" for details.) We can take you on a canyon hike, to the top of a cinder cone or into a lava tube if you come visit!" **Mark Timmerman** had plans to run a marathon alongside a diabetic patient in June - hope you both did well Mark! He reports that Peggy is busy burning and working to establish a prairie on their 120-acre farm. Kate will be active in the Young Shakespeare Players this summer and Grace will be working on her tennis game. "All busy, active and happy!" **Steve Miller** and family live in Perth, Western Australia, where Steve is working for Landmark Graphics testing software used in the petroleum exploration and production industry. "We have not gone native, and will repatriate eventually, so if you are going to visit, better be soon. I have a neighbor, a consulting geologist, who does not work on anything younger than the Archean! Steve really intends to get up to see the living stromatolites in Shark's Bay, but has stayed in the city raising a toddler, Stuart. Stuart has developed an Aussie accent with an American vocabulary, e.g. "Stuart, do you want tomato sauce with your chips." "Noiy, daddy, I want ketchup with my French fries..." **Jean Buchanan** was honored recently with the Creative Horticulture Achievement Award by the Wisconsin Garden Club Federation at their annual meeting in Manitowoc in May. The article published in the Cumberland Advocate about the award says, "With the help of her trusty draft horses, she moved rocks from the fields and created raised beds, walls, steps and walks. She and her husband, **Scott Tice**, constructed a play castle, complete with moat. This area is now encompassed by arbors, perennials beds, roses, shrubbery and lawn, all connected by some form of stone work. The vegetable garden, fruit trees and berry patch continue to flourish." In her note Jean said Scott is now an economic analyst for Economic Research, Inc., of Cumberland, Wis. A nice New Year's letter from **Vicki Hansen** and **John Goodge** says they were planning a sabbatical junket to the Australian National University in Canberra from this July until December. Hope it worked out and you're having lots of good times down there, guys! **Alison Rautman** recently published a book titled "Reading the Body: Representations and Remains in the Archaeological Record." Alison is an adjunct faculty member in the Department of Anthropology at Michigan State University at East Lansing. Her

book is a collection of essays about gender roles and other gender issues in the archaeological record. Congratulations Alison!

1981. Jeff Mow says he's "still enjoying life in Alaska's interior and still working for the National Park Service." In the small world dept., Jeff discovered recently that his wife is not too distantly related to **Amy Abel '83**. Thanks to **Eric Larson** for your address update! Eric is a trauma nurse at Parkland Hospital in Dallas, TX. **Rebecca Craven** was looking to move to Bellingham, WA in May, but she's planning to go to Port Elizabeth, South Africa, for 2001. She says, "Although it's my turn to be the trailing spouse (see Scott's note, class of '83), I will continue to work for the Nez Perce Tribe out of our house. My telecommute will just be a little longer." She adds that the kids are growing up and doing great. **Gail Peretsman Clement** has left the library job for a contract job with the USGS - Restoration Ecology Branch in southern Florida. "It's a pleasure to be working with the scientists on the front lines of Everglades research and restoration. I am also teaching digital library development for the graduate school in library and information science at the University of South Florida. Busy, busy, but much joy."

1982. Tim Schoonmaker writes, "This last year has been another eventful one for us. As an Air Force Reservist I was activated last spring and sent to Kosovo. I was there for most of the summer, and my team kept busy, including the rescue of the Stealth Fighter pilot who was shot down outside of Belgrade. Since January, I have been in Washington D.C. taking Spanish lessons, which end in July. Then the family (Sherry, Sarah 3 1/2, and Jake 1 1/2) and I head to Santa Cruz, Bolivia for 3-6 years of duty. I saw Pete W. and family who all look great!" **Peter Wiegand** has bought a condo in Steamboat Springs, CO, so is now busy with home projects and the fabulous recreation opportunities that the area offers. Pete also said he visited Whistler, BC again in January. **Lisanne Percy** and her partner, Jason Brown, are purchasing a 1917 farmhouse on 26 acres near Dallas, Oregon (west of Salem). She says, "It's a big step for us, having lived in a one-bedroom apartment these last 2 years. Jason's position at Hewlett-Packard became 'permanent' as of November 1999, and we have been house shopping since then. My horse is going to think she hit the jackpot, because we will have over 20 acres of lush hay fields!" **Peter Whiting** is keeping busy with his teaching and research. His first sabbatical is coming this fall ("Yesssss!!!!"). He says, "The family is fine. We can't believe Zack starts kindergarten in the fall. Emma is also grow-

ing up - too fast and not fast enough..." **Lynn Davies** writes she "transferred with my job from Golden, CO to Ft. Collins last August - a positive change so far! Bought a new house in February, and am still settling in. Meeting new folks, back-country and tele skiing a little and hiking some, but not traveling enough. Met up with Peter Wiegand through a mutual non-Carleton friend - the world is truly small!" **Cathy O'Dell's** big excitement for the summer is a visit to Alaska to see her sister **Molly O'Dell Coulter '84** and **Gary Coulter '83**. She writes, "My kids, Freddy, 9, and Helen, 6, just got their first pair of real hiking boots in honor of the trip!" Have a good trip, Molly!

1983. Scott Linneman has moved from his tenured position in Idaho to join the Geology Department at Western Washington University in Bellingham. He writes, "I'll be half geology and half science education. I'm starting my Bellingham experience by doing the running segment of the Ski-to-Sea race with **Sarah Benn '83**. Becky and I and kids are moving to South Africa for 2001 for my Fulbright Fellowship at the University of Port Elizabeth." Good luck in both the race and in your new job, Scott! **Bruce Pfaff** and Sarah "are doing fine and remain busy with Brian (5) and Justin (2) as they progress through the toddler years and beyond. On the work front, I recently joined an Internet startup in San Francisco (as nearly everyone around here seems to be doing). I am responsible for marketing & business development at Biospace.com, an information and service provider to the biopharmaceutical industry. It should be an exciting ride!" **Marcia Bjornerud** has been awarded a Fulbright grant that will allow her to spend a sabbatical year in Norway at the University in Oslo, studying pseudotachylytes in eclogite-facies rocks in the Bergen Arcs region. Her three sons will join her in the adventure. Congratulations on the grant, Marcia, and good luck with the journey! Congratulations also to **Dave Kirschner** who has been living in St. Louis, MO, the past four years and teaching at Saint Louis University. He says, "I just went through the tenure process, and am now an associate professor. I feel very fortunate passing through this stage of an academic's life especially because I love my work, I enjoy the faculty and students in the University, and I enjoy living in St. Louis." **Laura Ferguson Jacobson** is moving with her family to Traverse City. "My husband, Paul, completes his eleven years of training, and we head to Northwest Michigan. We hope to stay there forever. I am sure my sons, at 9, 7, and 4 years of age, will love it!" **Danny Packer** and **Ruth McDonald** sent a nice annual letter from Albuquerque; they and the kids have all made

it through another year and are doing well. Dan teaches history and Ruth is working part-time in the University of New Mexico Computer Science Department. Kinchen, Seth and Ruby are doing great too, each in their own way. **Kathleen Duffy Carmona** has finished her master's degree and managed to whip 900 high school freshmen into shape last year as intern assistant principal of a freshman high school in Midland, TX. She says the high school kids she can handle, it's her own 4-year-old who is giving her the gray hair.

1984. Elliot Bruhl says he and Sara are living in Sitka. He says, "I continue to work for the Indian Health Service - I'm an E.R. physician at their small hospital here in Sitka. Sara is doing great, and we are both enjoying the pleasure of watching Gus and Emma grow up in rural Alaska - ocean, whales, mountains, glaciers, fish, bears and rain." Elliot invites passersby to stop on in with the proviso that they bring rubber boots... **Carolyn White** was trying to stay cool in Houston when she wrote, probably dreaming about those nice cool evenings in the Upper Peninsula of Michigan. She says she's "travelling a lot to west Texas for work on a habitat restoration project along the Colorado River. "Hav-

ing a great time with Jasper, my son who's now 3.75 years old!" By the time this Newsletter is printed in late July, Jasper would be 3.92 years old. From **Jeff Pipes**: "The vineyard and kids are growing well (from all the organic fertilizer!). Last year's harvest was small but very good and the wines are the best. Our winery will be open to the public this holiday season - finally. We have plenty of room and invite any Carls to stop by and at least taste the wine - we can ship it too! Florence says hi to everyone." From **Barb Waugh and Jay Jack-**

son: "In March, 1999 when we returned to Houston from a 1 1/2 year assignment in Australia, bought a house and promptly began construction on an addition. The rooms were complete just as our family addition, Sean Thomas Jackson, arrived on August 20th. His sister Eleanor has yet to really say she likes him but she does make him laugh once in awhile and will even hand him a toy while she takes the one she wanted from his other hand. Jay got a promotion in the newly enlarged Exxon Mobil

Corporation to Research Supervisor last January. He works with a team of about 15 people conducting research and providing in-house consulting services in structural geology. I continue to be a stay-at-home mom and enjoy it -- as long as I get enough sleep! Both children have very sunny personalities and are full of energy; they definitely keep us busy." Barb and Jay, it was fun seeing you and the kids at reunion this June, thanks for coming up for it - Tim. **Mark Gordon** and Cecilia have moved to the northwest part of the Houston area. "My commute has gone from 5-10 minutes to 35-50 minutes. At least now we are homeowners and we like the woods up here. I have had a chance to give a couple of talks on my work, but now I go to SEG meetings instead of GSA, AGU and AAPG. Cecilia is still working on her Ph.D. in Paris which means that I have to go to Europe a couple of times per year."

1985. Kristin Grady Mitchell and her husband Dale have bought a house in the Green Bay area since Dale's work with a web developer took them there. Kristin reports that Ben has been loving pre-school this year, and Katie turned one in March and is now walking - a big step, so to speak! **Bill Dewey** writes that his mother, who provided the impetus for him



to attend Carleton and become a geology major, died last year, but fortunately she lived long enough to meet Bill's son Alexander Platt Dewey, her 8th grandchild. Bill is now a partner at Brody, Walsh and Brody and has a spectacular view from his office over the San Francisco Bay area. Cristine '92 is taking courses and preparing for med school; Bill says, "If this happens I may be the stay-at-home parent!!!" The picture above, taken last November in Volcanoes National Park, shows (from left), David Frankel '85, his wife Tanya Rubenstein and

their son Jacob, Cristine and Bill Dewey and their son Alex. **Brad Werrell** is working with **Brad Miller** on a CD ROM audio-visual collection of osteopathic manipulative medicine, and they are planning another similar collection of orthopedic physical assessment tests. Brad Miller is doing the programming. Brad Werrell is looking forward to finishing his program in osteopathic medicine next year. **Glen Carleton** writes that he and Lynn "have been working some on the house and are hoping to spend more time in and on the river this summer. We've been getting involved in small-town politics because a very large corporation is building their world headquarters (11,000 employees, 4 million square feet) about a mile from our house and the rest of the town is ripe for development. We're hoping to help various governing bodies restrict growth based on the hydrologic limiting factors (poor septic capability, low ground-water recharge = little capacity for additional development)." **Jean Miller Lee** has started a new business, had her third child and moved all in six months. Whew! **Stu, Susan, Muriel and Micah Grubb** report that "All 16 of our chickens are doing just fine. Among the people of the family, Susan and Stu celebrated their tenth anniversary with a trip to Maine, Muriel chugged through second grade (especially math and reading), and Micah is probably going to start either kindergarten or a special school for autistic children this fall."

1986. **Christine Massey** visited campus recently to introduce us to her new daughter, Marika Eden Massey-Bierman. Christine passed through the geo labs with Marika in her arms just as we were unloading from the spring departmental field trip and we were going through our dishwashing routine, so Marika got an early preview of the business end of geologic field travel. Marika was born in December. **John Leland** writes, "I am enjoying teaching intro geology, oceanography and field studies to community college students in Glendale, CA. We are building a new science center in which geology will play a prominent role - it's very exciting!" Thanks to **Andrew Graham** for your address update... **Beth Hayes Martin** reports that she "literally bumped into fellow Geology alum **Carl Renshaw '88** while crossing the finish line at the Covered Bridges Half Marathon in Vermont this past weekend. We both crossed at exactly the same time (1:39:15 - not the best year for either of us), and I heard them announce his name as I crossed. He's been teaching hydrogeology at Dartmouth College the past few years. I'm still working as an environmental consultant at ENSR Consulting and Engineering in the Boston, MA area. I am still married, no kids...but

one terrific Bernese Mountain Dog who loves to hike, ski, and go surfing." **John Bernstein** is an equity research analyst with Sit Investment Associates in Minneapolis. He writes, "We moved into a new house last fall, near the lakes in Minneapolis. Our daughter Sydney is two and we are expecting a baby in October." **Craig McCaa** writes, "In March I was in Austin, TX visiting **Mike Macicak '87**, **Carmen Retzlaff '88**, and their son Jesse. We had a great time at the South By Southwest Music Festival, which this year featured an international collection of 1004 bands! Despite heroic efforts, we didn't quite manage to hear them all in four days!" Craig, that sort of sounds like drowning in a wealth of music - but it sounds like a great time. A note from **Tom McCabe** in January related the sad and complicated story of his recent bouts with knee and gall bladder surgery, in addition to the fact that he and Bonnie have gone separate ways. The good news is that Tom is very happy with the system management job he's had for the past year with the National Park Service (Glacier Bay N.P.) and he is in a locality he loves. Best wishes for a full recovery from the medical episodes, Tom, hopefully things are better by now. **Emily Adams Pugh** visited China this spring. An entry in her journal says, "Beijing, China.

I soak in the sights, the smells, the flavors. What I have seen is not so different from what I saw in Kenya, India, Nepal, Europe...

And so far I have seen no temples or artwork, no mountains or rivers.

But I am different.

I see and touch and feel like someone waking from a black and white dream.

Guo'en says Beijing looks beautiful to him now, returning from a five-year absence.

I know just what he means.

and I think that I have been absent all my life.

To me,

Right now,

Beijing is the most beautiful place on Earth."

1987. Here's a note from **Chris Carlson**: "The past 12 months shaped up to be a fine period for me and next few months look like they could see the passage of several milestones. My dissertation is finally coming into line (while the deadline clock is ticking). I will defend this fall, enabling me to break the concrete blocks off my feet and free the 500 pound gorilla from my back after more than 5 years of working full time (paying, professional) and trying to complete my research and write up the thesis in whatever spare time exists. In addition, I re-met a member of my Carleton graduating class last year and have gotten to know her quite well in

the last few months. If all goes as planned, by the time the newsletter comes out I should be engaged to this wonderful friend and together we should be homeowners. In addition, the review of a proposed mining project in the northern part of Wisconsin that I have been working on for the past 5 years is showing signs of actually reaching a decision point. The Wisconsin DNR should be releasing the draft Environmental Impact Statement on the proposed mine in northern Wisconsin around the end of the year, initiating the countdown to final permit decisions on the project." **Jen Carey** is the Roadside Geology Series Editor at Mountain Press Publishing Company. She says, "We are on track to publish roadside geology books for Minnesota, Wisconsin, North Dakota, and Nebraska in the next two or three years."

1988. The news from **Susan Beeler Queary** is that she, her husband Paul and daughter Madeleine moved to Juneau, Alaska two years ago. "Southeast Alaska is an incredibly beautiful place, albeit a tad on the wet side. Mountains, beaches, rivers and glaciers abound. I was sorry to miss Ed Buchwald's alumni group, but I was busy giving birth to my son Nash at the time. I think he may be a budding geologist, he tries to eat every rock he can put his hands on." A sure sign of future geologic fame, no doubt. **Binks Colby-George** wrote to tell of the great family trip he, Judy and Noah had to the Southwest this spring. "We went to visit my grandparents who live in Palm Desert CA for a few days and took a loop through AZ as well. Noah traveled well, with very few complaints and no meltdowns. We even had a chance to take in some geology along the way, especially Sunset Crater volcanic field (east of Flagstaff) and Montezuma's Well, a collapsed limestone cavern."

1989. From **Joe Walser**: "Since I last wrote, I finished seminary, got married, finished my Ph.D., worked in Manhattan one year, New Orleans the next, and the past two years in Boston. I guess I should write more often. I am having fun corrupting youth and working on a book. Radha is working for CNBC in New York City and loving it too, so I drive a lot. So if anyone finds themselves between New York and Boston, tell me and I'll stop in sometime." **Dr. Carol Ormand** has been appointed to the geology faculty of St. Norbert College in De Pere, WI, not too far from Green Bay. Carol, congratulations on your successful thesis defense and landing a good job! I'm glad you are staying in the region. **Jeff Bartlett** is "still at NC State University, working intrepidly on my project in Cretaceous dinosaur community paleoecology. Soon to start doing fancy sleight-of-hand with isotopes and trophic structure

in fossil communities." Jeff has also been involved with the Center for the Exploration of the Dinosaurian World, a collaborative effort between NCSU and the North Carolina Museum of Natural Sciences. They made quite a splash in the media with their dinosaurian heart as the opening display for the Center. Middlebury College blew its chance to hang on to **Kim Hannula** permanently, because now she's headed to Colorado to take a structural geology teaching position at Ft. Lewis College in Durango. "I'm excited to be moving to Durango, where the rocks are fabulous and well-exposed and there are 300 solar days per year (as opposed to 300 cloudy days per year in Vermont, it seems)." Her husband Jay will be a network engineer for an Internet service provider in Durango. **Sarah Gramlich Howard** delivered a strapping 9 lb., 8-oz. boy nicknamed Fritz last November. It was a bit of a struggle (he was huge!) but things worked out fine and everyone is happy and healthy. Congratulations Sarah, and welcome Fritz! An e-mail from **Hilary Liller Ward** in March read, "It has been an exciting week! Just as I am getting through the recovery of my surgery the phone rings with a job offer for James with the BLM in Moab, Utah.... So, the long and short of it is that in about a month we are moving to Moab. Our house went on the market for an obscene amount of money (compared to what we paid for it) and the next day we had an offer that was not too bad. We are still seeing how high we can go but we are optimistic that it will be sold very soon, and we have started looking on the web for houses in Moab... James' new job is a resource protection/law enforcement job.

There are two people to patrol 2 million acres.... no small task. It is a chance that we have both been waiting for and Moab will have lots of opportunities for me to work after the kids are a little older. There is also a good support community that we are lacking here in Idaho. **Holly Ewing** was quoted in the Minneapolis Star Tribune for her "Personal buckthorn eradication campaign. When I moved into Longfellow, I started walking by the river and saw the buckthorn." The river hasn't been the same since. Buckthorn has long been recognized as the scourge of the Arb. According to the article in the paper, buckthorn's small black fruit causes a severe laxative effect in birds, which speeds distribution of the seeds. The plant invades mainly woodlands and savannas, and once established it crowds out native shrubs and herbs. It has infested floodplain forests and upland areas alike around Northfield and the Twin Cities.

1990. **Andrew Garrett** is "still a Resident in Pediatrics at the Children's Hospital of Philadelphia- but with time all things improve. I'll start my

senior/supervisory year in July, which is orders of magnitude better than being the dreaded intern... My future is uncertain as always, but I am planning on designing a Fellowship in Pediatric Prehospital Care which I will start in 2001 at a yet-to-be-determined location. I am, of course, looking to combine being a doctor with being an outdoor person... I hope to help improve how EMTs, nurses, doctors, and communities in general address the health care of children before they show up at the hospital. It should be an interesting combination of an MPH degree and experience in medical command, disaster and bioterrorism science, long-distance telemedicine, and rural medicine all rolled into one. I was back at Carleton over a weekend this spring, and talked to the pre-med society about careers in medicine. We had a great turnout of about 30 students from all four years. I even got a sneak preview of the new athletic center, suhweet!" **Rebecca Arenson** is planning on presenting a research talk at the Society of Wetland Scientists meeting in Quebec in August; she's in the graduate program in Marine Science at the College of William and Mary. This spring was a little up and down for her - she broke her wrist playing soccer, but the good news was a trip to Sweden with her sister Naomi for a week. Rebecca, hope your wrist is better by now!

1991. Eric Baer and his wife Emanuela announce the birth of their daughter Elizabeth Anna Baer in Seattle on March 29. Congratulations, and welcome to the new little lady! Eric adds, "I also got tenure this year at Highline Community College and I continue to love teaching geology to community college students." **Catherine Inman** was on campus this spring showing slides and talking to people about the program called the Friends of Dolpa, a community service organization in Nepal. She was the guest of Professor of Anthropology Jim Fisher. **Jenny Nigrini** writes she is "still in Boise, and enjoying life in Idaho. I really can't believe that I have been here longer than anywhere else since I was 18 and left home for Carleton. Guess, I'm becoming somewhat settled. Life has been fairly mundane lately, so I've planned a trip to Costa Rica with my partner for the end of May. We've learned the Spanish words for beer and bathroom, and figure we can wing the rest." Hope you had a great trip, Jenny. **Becky Lang** and **Alistair** are expecting their first child in July. She says, "We're loving life in Missoula! Lots of outdoor fun. Just got back from a trip to the Scottish Highlands and looking forward to some spring fly-fishing. If any Carls need a place to crash in Missoula, give us a ring!" **Eric Cowgill** is seeing the light in the end of his Ph.D. tunnel. He says, "I'll be spending next year

here in the noble gas lab doing $^{40}\text{Ar}/^{39}\text{Ar}$ and U-Th-He analyses. Fieldwork? What fieldwork?" **Kari Cooper** was one of six recipients of Outstanding Student Paper Awards in the Volcanology, Geochemistry and Petrology Section of AGU last fall. Three of the six recipients were from Keck schools, and four of the six were women. Kari's paper was entitled, "Magma Residence at Kilauea Volcano, Hawaii: ^{226}Ra - ^{230}Th Dating of the 1955 East Rift Eruption." The report in the magazine EOS says Kari "narrowly escaped majoring in philosophy at Carleton..."

1992. Sean Kempke is getting restless: "Teaching has been good to me, but my quest for more titles continues. While Reverend and Professor were good, I'm now seeking a MD from UM-D's medical school. I'll be entering a year from now. Feel free to come visit Duluth." **Andy Brydges** writes that he left his job as a geologist at Rizzo Associates (Natick, MA) in 1997 in search of something new. "After a long year that included some travel and a lot of searching, I decided to pursue a Masters in Teaching at Boston University with the idea of teaching science at the high school level. But, after a year of school and student teaching and so forth, I could see that teaching wasn't going to become a lifetime career, and so rather than start another 5-year career, I went searching again. Now I've landed at Environmental Futures, Inc. in downtown Boston. Arising out of the non-profit Citizen's Energy Corporation formed by Joe Kennedy in 1979, EFI looks to be a great combination of management consulting and environmental interests. I've listed my contact information below. Hopefully as EFI expands I will be able to attract Carleton alums, but in the meantime we do have an intern program for Boston-area students at home during breaks or summers. I'd be happy to talk with anyone interested about opportunities." **Clifford Blizard** writes, "I am a full-time middle school teacher, with 11 seventh and eighth graders in a building we've christened The Blue House. I'm teaching everything they'll allow me to - 19th century American History, Earth Science, environmental science, math, philosophy... I even directed "'Huron and Sea of Stones," which the students performed this past January." (Clifford, I hope I spelled the name of the play correctly - you can shoot me if I didn't - Tim) Clifford was planning a trip to Wales this summer to walk the original ground of Cambrian and Ordovician geologic strata. **Jill Baum** says she and Katy Werner "spent a morning out doing transects in one of the Arboretum marshes. [I think this would be at UW-Madison rather than Carleton's Arb - Tim] She's just beginning research and I'm finishing up writing. We're

both doing wetland restoration theses in the Land Resources program at the Institute for Environmental Studies, UW-Madison. I really ought to finally graduate by December... first I'm heading to Denali National Park to lead back-to-back Student Conservation Association trail crews, though! I've wanted to visit Alaska my whole life and will now get to spend almost 3 weeks in the land of tundra and caribou." **Jon Nauert** and **Jessamyn Tuttle** bought a house last summer, and when Jon wrote last August he was scheduled to teach high school earth science and biology. Previously he taught those plus physics and math. If you happen to know of an employer looking for a smart, articulate and well-qualified environmental geologist, **Patty Weston** was in the job market when she wrote. She reports that she moved to a place north of Seattle recently, "hanging out with a couple of sheep and a couple of ducks; occasionally meeting up with Jon and Jessamyn and Eric Baer." **Nick Dewey** says he's enjoying being in graduate school, working on a masters in geology with a hydrology and geomorphology emphasis. Nick is studying gully erosion in the Coast Ranges of Northern California. He says, "Humboldt County is beautiful - look me up if you are passing through!"

1993. Ben Surpluss has found "As my first year of teaching high school comes to an end, I realize how much I enjoy what I'm doing. Teaching high school, even with a Ph.D., is incredibly rewarding - something to consider if you're fed up with your present employ!" Ben created a great web site for his teaching, which is linked from the Geology Dept. site.

Kevin Blake writes he's "finished my year of teaching at Earlham College and am very happy to be moving to Ann Arbor with my partner, **Britta Gustavson**. I have accepted a tenure track position at Eastern Michigan University to teach glacial geology, geomorphology, soils and hydrology." By this time, **Todd Osmundson** should be married to Angela Imhoff and moved to Bozeman, MT. Todd is working on a master's in mycology, studying fungal ecology in the alpine zone on the Beartooth Plateau near Yellowstone National Park. Todd added that he's spent the past year taking courses at the University of Montana and teaching classical guitar to 5 to 12-

year-olds. **Joyce Wilson** writes, "I've been walking to work a lot in the past year, now that Ken and I live two miles from the library where I help tend the computers. These days I usually walk four days a week, and drive on Mondays so I can get home in time to go to a yoga class (without getting up extra early!). I'm just finishing up a class I've been taking this semester at St. Louis Community College on computer programming in C++. Not sure where that will lead, but it'll probably come in handy somehow!" **Maria Panfil** has been in Missouri working on her science writing and a project that is developing new ways of measuring the thickness of sand deposited on flood plain land during a flood. Last fall she wrote, "Work has been busy slugging through the summer's field data. Added to that I've been trying to learn about fish and science writing. I am writing a proposal to add fish sampling to our geomorphology sites -- as I try to learn the lingo I keep saying I feel like a fish out of water! A week ago I spent the day out sampling with some fisheries grad students -- the two main sampling strategies are nets and electrical shocks (which stun them and make them float to the surface). Either way, you end up touching a lot of the slimy little bug-



gers!" The science writing has to do with a science journalism class at the University, and one of Maria's recent assignments was to fly in the plane in the picture to observe the use of a new laser mapping technique. The mapping technique was neat but Maria said she barfed seven times because of the "slip and slide" turns required for the laser sensing instrument to stay level. "I almost kissed the tarmac when we landed." Maria is officially no longer

a student at Washington. **Liz Salomon**, last we heard, was making plans to ride in the Boston-New York AIDS Ride 2000 in September. Good luck Liz, we hope your ride goes well and you collect lots of money to benefit AIDS research! **Lance Dockter** is working for an environmental engineering firm called QORE, Inc., in Tampa, FL, but the greatest news is the arrival of his daughter, Hanna Rae, in February! **David Lund** has spent the last couple years working for NOAA, first in Washington, DC, and now remotely at Harvard's Kennedy School of Government. The job is loosely related to geology - societal vulnerability to climate variability and change, focused on interactions between scientists and policy makers. "I've enjoyed working with social scientists, but the number of variables and complexity has reminded me of why I went into physical science in the first place - it's much easier. Boston is a fun city - enough Italian restaurants to satisfy even the most serious pasta addict. I'll be going back to school this fall at Woods Hole in a final push for a Ph.D. in oceanography. Still playing ultimate frisbee, but moving a bit slower, and trying to learn how to sail (only one capsizing thus far...)."

1994. Brett Dooley has been teaching third grade in Martinsville, VA, but she's contemplating moving to a middle school position. She writes, "Tim is now four and making great progress with his speech. **Butch** enjoys working for the Virginia Museum of Natural History. It is far more satisfying for him that teaching was. Now, if only the pay were as good! We'll be going this summer to continue excavations of whale material - still producing since our '91 trip." (Brett's story of the trip from Hell to get out to Virginia in 1991 is now on the Geo Dept web site as one of our collective "sagas.") **Geoff Collins** defended his thesis at Brown (it was about tectonics on Ganymede and Europa) and expected his Ph.D. in May. "Then I'll be starting next fall as an assistant professor of geology at Wheaton College in Norton, MA, a small liberal-arts college that recently went co-ed and doesn't have a geology department yet. So I'll be spending part of the time teaching astronomy (since I'm a planetary scientist I guess that qualifies me) and part of the time starting a geology program from scratch! It looks like it's going to be a really fun challenge. On the personal side, Beth and I are expecting a daughter in October, and we've just bought a house in Mansfield, Mass." **Julia Daly**, at the end of her third year in Maine, says, "I'll be back to Newfoundland twice this summer, and helping with some fieldwork in Switzerland in between. I can't wait! I'm trying to finish up lab work in the next several months, so I'm ready for

next fall. I have an unusual TA - I'll be in a K-12 classroom instead of a lab. Should be a blast! Otherwise, still living with fiddle-playing Doug, running lots, and I just bought my own (used) sea Kayak. It will be hard to go to the lab this summer." **Liz King** is the proud mom of a son, Colby, born last November 18. She writes she hopes to finish her Ph.D. at Wisconsin in another year. Here's a card from **Cindy Shroba**: "Just bought a house! Built in 1931 - bungalow style. Nice cottage garden, lovely neighbors. Can't wait for visitors (HINT Bereket!)" Ok, now we'll find out if Bereket reads the alumni news, too... **Aron Clymer** is a software engineer out in California. He reports: "New house, nearly two years of marriage, three pets (one dog, two cats), sailing, biking, worrying about the stock market for no good reason, maintaining the guest room for those geo drifters still out there. Miss you all!" A note from **Liz Butler** that came last fall said she was "heading to NYC for the holidays to cohabit with **Naomi Lubick**. Find me at onelizardlip@hotmail.com and visit!" **1995. Geoff Ruth** writes, "I've been working with a great curriculum project that's trying to create hands-on, relevant chemistry lesson plans. I write lesson plans and also write sections of a textbook that we are creating." Geoff's other activities have included planning the May Day activities in the Bay Area, the World Bank/IMF protest this spring in Washington, and getting hooked up with the excellent Oakland anarchist and activist community. **Dan Fehler** recently started a new job as Computer Systems Analyst at Griffiths Corp. in Minneapolis. He also enjoyed a tour of several Southeast Minnesota state parks in the driftless area this spring. **Tripp Bishop** writes, "Just moved to Colorado (again) in February. Got married to Gillie English in October. Things are going really well but I can't remember much geology!" Join the club, Tripp, it happens to all of us as we get older... After five years in Madison, **Rowan Littell** is moving to Richmond, Indiana. "My wife, Jennifer Ziebarth ('94) has gotten a tenure track job in Earlham College's math department, and I'm trying to finagle my way into a job at the college's computing center. Sadly, **Kevin Blake '93** is leaving Earlham this summer, so we won't be seeing much of each other. So while Jenzie is busy finishing her dissertation, I'm busy trying to wrap things up at my job and leave their computer network in good shape for whomever might replace me. In other news, I've taken up photography again (black and white). I joined a Madison photo club and had one of my pictures hung in a local show. I've even gone so far as to build my very own view camera for 2x3-inch

film. I have this dream of taking artistic pictures of geologically important features..." **Kate Jesdale** writes from Boston that she is teaching 7th grade, and, "in general, my students are sneaky urchins. So, I am learning to be an even sneakier urchin. My favorite day was 'International Periodic Table Appreciation Day' (which I made up). We are just getting into doing some geology, and I can't wait for 'Stop Plate Tectonics! Day.'" **Cindy Alm** continues to teach sixth grade, and is in charge of her school's "Hands Across The Border" program - an exchange with students from Carbo, Mexico. (Cindy, I hope I spelled that town's name right - Tim) She also dances with a local modern dance company called New ARTiculations. **Ofori Pearson** has finished his third year in a structure Ph.D. program. His research takes him to far-western Nepal in the fall for about three months.

1996. Word from **Karissa Baker** is that she's teaching 9th grade earth science at St. Paul Academy and Summit School (that's only one school but it has two names). She's also working on teaching certification and a master's in education at the University of St Thomas. **Andrea Stein** has been appointed to a district curriculum planning committee for science, and she writes that she's "looking forward to having an impact on the science teaching in my district." Last summer she bought a townhouse. **Kevin Theissen** had just returned from a research cruise in Prydz Bay, eastern Antarctica, "where we are studying climate change impacts on the ice sheets, as well as past conditions in Antarctica." From **Justin Clarke**: "By the time this is in print, I hope to have a new degree (Master of Urban and Environmental Planning) from the U. of VA in hand. Alas, I am still looking for work, but I'll be living in Arlington trying to get people excited about open space, mass transit, and the like. GIS will be my focus for the next few years anyway." **Karen Bobbitt Gran** spent part of last fall doing an excellent impersonation of Tim in the Geo Dept. while he was travelling in Italy with Dave Bice's program. She also taught geology at the University of St. Thomas in the Cities. She writes, "I just moved out to Seattle and started work on a Ph.D. at the University of Washington. I'm finding more Carleton geology grads out here every day - it's great!" We received mixed news from **Gina Michl**: "After a wonderful geoarchaeology summer in Cyprus and Greece with my new advisors, I enjoyed my first semester as a geology MS student at Vanderbilt. But over winter break I was diagnosed with cancer (lymphoma) and took spring semester off for chemotherapy at home in Colorado. I'm not sure when I'll be able to return to normal life, but am hoping for the best." All of us

in the Geology Department certainly send out hopes and prayers for you, Gina! **Sara Gran** writes that she finished her MS in geology at the University of Vermont in October, and moved to Albuquerque, NM where she lives with **Dave Mitchell** and **Mike Gaud '95**. "Dave and I are getting married this July at Carleton, and then we're both quitting our jobs as 'real geologists' so I can continue on in grad school in Seattle (where I'll have the same advisor as my sis-in-law, **Karen Gran**). If anyone wants to give Dave a job, give us a call!" **Stephanie Phippen** sent a card in December saying she was finishing up her first year of grad school at Colorado State University. She planned to be in New Mexico this summer looking for a correlation between land use changes and incision or erosion in the Rio Puerro arroyo system. She added, "Fellow Carleton geo folks **Dave Mitchell** and **Mike Gaud** kindly offered me a spot to crash in their Albuquerque home last month. It was fun seeing **Karen Bobbitt Gran** when she passed through Ft. Collins too. All in all, **Dan Feiveson** and I are enjoying the mountains and sunny weather!" (I hope you all understand all these comings and goings in Albuquerque better than I do - Ed.) **Josh Galster** writes that he recently married Gretchen Fowles and they are moving to Idaho this summer. Congratulations, Josh!

1997. **Kim Knight** stopped by Mudd this spring, and it was nice to see her again. She had just returned from ten months in Denmark, doing research with the Danish Lithosphere Center (you can check out her web page there through the Geo Dept.'s web site. She says, "my work fell mostly along the lines of isotope geochemistry, with a five week trip to Yemen thrown in at the end! I returned to Berkeley and have started classes and work here. The next few years should be an interesting mix of work here at UCB, and back in Denmark. The bulk of the work will focus on flood basalts in Yemen, as well as in India, using a combination of radiogenic isotope techniques and some good old basic volcanological study to examine flood basalt processes." **Ann Zawistoski** is still a Knowledge Engineer for a software company in Minneapolis, and she reports that some research she helped with in college has been published with her as a co-author. The title is "Calculating Lunar Retreat Rates Using Tidal Rhythmites." She and Chris Gwinn plan to marry in October. A nice note from **Lisa Van Arsdale** came last fall - thanks for your thoughts Lisa - you're pretty spiffy yourself! **Molly Madden** had been a Peace Corps volunteer in Niger for almost two years when she wrote her card last summer. She's been a natural resources volunteer sharing conservation techniques for farming and tree planting, and lead-

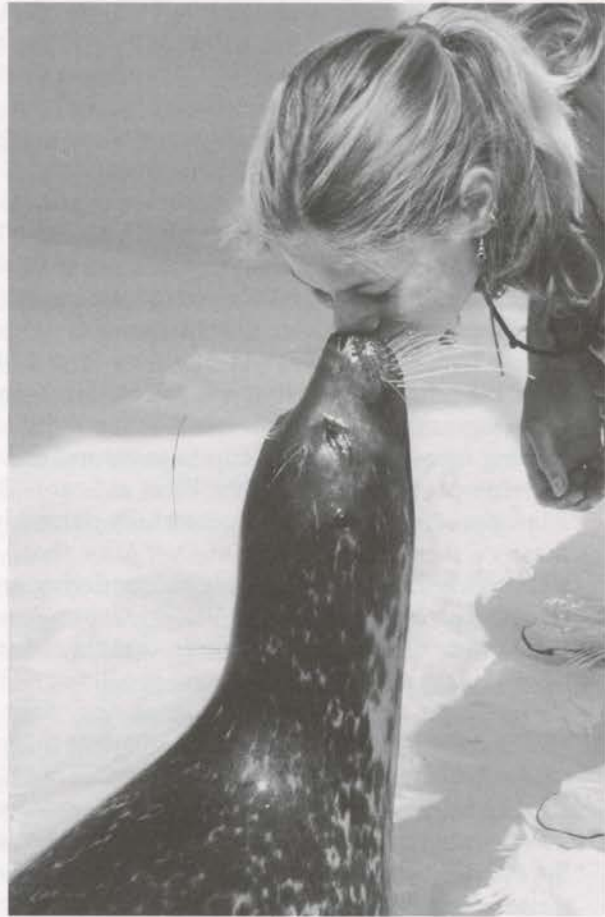
ing women's groups to teach Nigerian women job skills and banking skills. She planned to return to the U.S. in December.

1998. From **Frances Watson**: "My last term at Carleton, I discovered that I loved art and that I had majored in Geology because of the people, the chance to work in groups, and the time spent outside. So, I'm taking art classes, landscaping, doing a little outdoor ed./teambuilding work, and gardening a lot in Charlottesville, VA. Eventually, I have faith it will all mold into an appropriate career, but right now I'm having fun just living." Frances, from my perspective with a BA in English, things work out if you follow your passion and everything you ever learn will be useful for something - Tim. **Trina Vithayathil** writes from Golden, CO, "I'm moving to Boston this fall to start a masters program in public policy, but before that I am looking forward to a short trip to India and seeing as many places out here in the West as I can!" **Brian Klawiter** was expecting to successfully defend his master's thesis in May at UM-D. "After that," he writes, "I will continue my role as wandering archaeologist in the Boundary Waters Canoe Area Wilderness. Assuming, of course, that the forest doesn't all burn down as some are predicting!" Hope for moderate temperatures and some rain, right Brian? **Kelvin Chan** brightened our scene this past season by singing with the Minnesota Opera. He is singing this summer with some St. Olaf grads and next winter his plans are to sing in Portland with the Portland Opera for three months. **Megan Anderson** "has chosen to join the droves of Carleton students at University of Arizona where I will be doing seismology for my thesis with George Zandt as my advisor." Good work, Meg! **Todd Fleming** is wrapping up his stint as a Carleton admissions counselor to become a Program Manager for the Western States Seismic Policy Council in San Francisco. "I'll be planning events and publishing the newsletter working with state geologists and emergency planners, and I suspect it will be more policy than seismic for me. Still, I'm excited to get back to something a little more 'down to earth.' The location is great as well, my fiancée Katie Chun '98 and I will be able to live in Alameda, where she goes to grad school. Plus, the Carleton geo alum coverage of the Bay Area will be expanded yet again!" **Pete Moore** is working on a master's project with Neal Iverson at Iowa State. He writes he's "studying the mechanics of slow sediment creep in the context of subglacial sediment deformation and slow landslides. Spring '01 fieldwork in northern Norway. Living like an affluent hippie with three housemates and one large sled dog." **Pete Erickson** is a

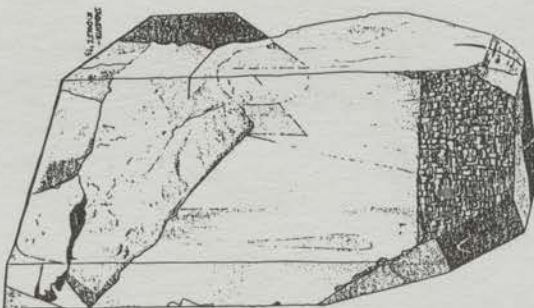
youth coordinator for the Seattle Youth Garden Works. He says, "Since graduating I've been exploring earthly pleasures other than geology: I worked on a vegetable farm for a while and now I'm a City of Seattle Certified Master Composter. I also joined the Puget Sound Mycological Society so come visit this fall and I'll show you my secret chanterelle patch!" Pete added he's thinking about grad school in soils, maybe next year. **Eli Levitt** is working for the legislative office of the Sierra Club in Washington D.C. He says, "For any of you geo grads who are in town, please give me a call: 202-895-9092. I'm happy to be a host for those of you who have conferences." **Lindsay Lightner** writes she's "nearing the end of my two-year commitment as a Teach for America corps member in upper Manhattan. I teach general science and math to sixth graders, and the experience has been both very challenging and very rewarding. Geo has definitely influenced my teaching style -- my classes are always on field trips, which are both similar to geo labs (lots of materials to organize, hit-or-miss food) and completely different (transportation involves the subway rather than a van and trailer, tag is preferred to Frisbee on lunch breaks!) I love my kids and will miss them immensely, but I am very excited to be going to grad school next year! I will be in the Writing Seminars at Johns Hopkins, where I will concentrate in poetry. I am GREATLY excited to have the chance to write full-time (and teach a class in which fractions do not play a major role.)"

1999. From **Andrew Mattox**: "I spent two and a half months in the lesser Himalaya on a geological expedition studying the structure of the Main Central Thrust (walked 47 out of 50 days, 8 hours a day, 20 kilos on average of load, leeches, rice, potatoes... 3 of us: geologist, lacky (me), interpreter/guide (from Kathmandu), and a local porter). Then trekked alone to 17,000 feet in a snow flurry in the Greater Himalaya (as in below a 23,000 foot peak) to spread a dead buddy's ashes. Didn't have any warm clothing but a sweater and a hat. Wore sandals. Had bizarre borderline-hallucinogenic metaspirtual experience on a house-sized boulder in a snowbound field of car-sized talus. Had giardia at the time. And altitude sickness. Decided it was all good. Reconsidering life-after-death. Then I came home and got a job in construction (of course!) Now I'm working on some publication-quality manuscripts and plotting to sail the high seas on a schooner." **Dave Schneider** writes that he enrolled in graduate school at the University of Pennsylvania's geology department in the fall following my graduation from Carleton. "I'm excited to be doing field work this year in Green-

land and Antarctica. It's looking like **Leigh Stearns** will be on the same field project in Antarctica! My thesis will be on recent (past ~200 years) climate variability in West Antarctica based on ice core proxy data, instrumental records, and satellite-derived temperature data. The only semi-bad news is that it won't work out for me to get a Ph.D. with Penn's program. My current hope is to continue my education after next year at either the University of Colorado in Boulder or the University of Washington in Seattle." Thanks to **Tiffany Mathias** for your address update. **Erich Heydweiller** has finished his first year of master's work at the University of Colorado in Boulder, and planning to do field work this summer. He says, "Life in Boulder is good, it's hard to argue with living at the base of the Rockies. Unfortunately I think I'm getting spoiled for the rest of my life." **Lili Stearns** was in Antarctica this past winter (summer there), working with another master's student from OSU mapping the Allan Hills. They also collected meteorites from the frozen ice and gave them to other scientists to analyze. Of her two jaunts to the Allen Hills, Lili said, "They aren't kidding when they say that the Allen Hills are a windy place. When we got there the wind was blowing 35 knots and it took us 7 hours to put up and secure our tents. The fieldwork, as a whole, went well (i.e. it got done). We had perpetual snowmobile problems, threw two tracks and had some engine problems which is never fun especially when it is -25 degrees." **Heidi Guetschow** writes, "I have found happiness in the first post-Carleton year working as a harbor seal trainer at the National Marine Fisheries Service Science Aquarium in Woods Hole, MA." (see picture of Heidi being kissed by one of her new friends) She plans to begin grad school in Seattle this fall after summer field work in the Philippines, Bali, Java, Tokyo and Taipei.



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