

UMD Geological Sciences Newsletter for Alumni & Friends

Editors: Charlie Matsch, Claudia Rock, Colleen Wergin

I have just come back from GSA where I met a few of you who graduated in the early 80's. You asked me how the department was doing. I can only say that we are doing REALLY well. We saw JC retire in 1999, Charlie in 2001, and this year, Dick (as if any of them can retire—they are all in all the time). We were worried that we wouldn't get Dick's position back; however, we did. I also went to the dean and asked for a "Freshman Seminar line", and he took that forward to the vice-chancellor. We were given permission to hire two new professors. The department decided that we needed to hire a sedimentologist and a structural geologist. Howard ably took over the chair of the search committee, and we started advertising and looking about GSA time last year.

In the spring we brought in eight people for interviews. What a month that was. We measured the day by whose house we were eating at, and who was picking up whom. Colleen Wergin kept us all on task by making sure that each of us did our jobs. We were extremely fortunate to have eight excellent candidates. Out of that pool, we managed to hire three! Talk about the luck of the draw. We hired Tim Demko as Dick's replacement. He comes to us from ExxonMobil, where he spent six years in the oil patch. His areas of specialization vary from sequence stratigraphy to paleontology to climate change. He is a great addition to the department. We also hired two faculty in the freshman seminar line. They are Vicki Hansen and John Goodge, both of whom came from Southern Methodist University in Texas. Vicki is a structural geologist who is interested in tectonics both on Earth and on Venus! John is also a structural geologist-petrologist who is working in Antarctica in the Transantarctic Mountains. Now, why could we hire two? Vicki and John came as a married couple, and we were able to persuade the administration to make an exceptional hire. So exceptional, in fact, that we managed (with the dean and the chancellor's help) to offer a McKnight Professorship to Vicki. That is quite a coup. These additions to our faculty ensure that our

department will remain vibrant and committed to our mission of teaching and research.

As you can imagine, with three new faculty we had to do rearranging of offices. Dick had to leave his office(s) and move into a small office (used to be the microscopy lab for those of you who remember). That was quite a feat! Dick can barely squeeze into the space. There isn't an inch of space left in the department. Hopefully, by the year 2006, we will get some more space up on the third floor of Heller Hall, but right now we are cozy.

Let me explain about "Freshman Seminars". The University established freshman seminars so that experienced faculty would teach first year undergraduates. This was first established on the Twin Cities Campus, but our campus has benefited from a few of these lines. We have to teach five seminars a year. Right now Jim Grant and Tom Johnson are teaching one each, and next semester John Goodge, John Swenson, Vicki Hansen and I are all scheduled to teach one. I know, that is six, but you know we never do things by half measure in this department.

This past summer was the last for me as field camp director. I have turned over the reins to Andrew Wulff (late of the University of Iowa, now at the University of Western Kentucky) who has been out at camp for two of the last three years. However, I must admit that it was a great last summer. Ron even came out to teach. He turned out to be the soft sell and the students would always go to him to have their maps graded! When we got back from camp, we had to get ready for our move to a new house up the shore. We now live close to John Green. We have ten acres in the country and a much smaller house—hopefully easier to maintain. But packing and moving in two weeks was rather stressful, to say the least.

All the best in the coming year. Keep in touch. We love to get your notes and e-mails!

ERIK BROWN Another year has gone by and it's time to summarize some of the highlights.

Sabbatical year in Aix-en-Provence, France. My family and I spent the 2001-02 academic year in southern France. We all miss the warm weather and the outdoor pools at Set Club. I also miss good olives and little local wines. Barbara's and my big event for the year was the arrival of Matthew Etienne Brown on April 6. For the record: he is a "natural-born citizen" of the United States and is thus eligible for the Presidency, should he choose to run; he does not have French nationality, but is permitted to request it at age 16; at the present time he travels on a US passport. The other kids (Andrew-6 and Lianna-4) attended our neighborhood pre-school and learned French and Provencal, and had classes in horseback riding and fencing (budding pentathlon competitors?). I received a Fulbright Grant for work at a university research lab for paleoclimate studies using African and Central Asian lake records, as well as studies of geomorphology using cosmogenic nuclides. It went well enough that the French Academy of Sciences has invited me to present some of the results obtained during my sabbatical at a symposium in Paris in early December.

Continuing work on Lake Superior. Within a few days of getting back to Duluth in August, I was out on the lake for more fieldwork on the University's research vessel Blue Heron. The project focuses on dispersion of sediments delivered to the western end of the lake by the Nemadji River.

Cabin. We got up to the cabin with the kids only a few times since we got back from France, but we are hoping to get up there for cross-country skiing and snowshoeing a few times during the winter. The kids love it and never want to come back into town. Can't say I disagree with them!

Winter fun. We just bought family passes for Spirit Mountain and are waiting patiently for good snow.

CHRISTINA GALLUP I write this from Barbados, where I've come for a meeting on Quaternary Sea Level Change and for some fossil coral collecting. Even though I've written two papers on Barbados corals, there is still more to do! Currently, I'm collecting samples that I hope will help me better understand what happens to uranium and thorium isotopes in fossil corals during the weathering process. Constraining the effects of weathering on U-Th ages in corals will make it possible to better identify accurate ages and thus to build a better sea level record.

Kristin Riker-Coleman, working on her Ph.D., Leah Gruhn, working on her Master's, and Sue Hattenberger, an undergraduate, continue to work on the fossil corals we collected last fall in Papua, New Guinea, by remote submersible. Kristin has found evidence of a rapid sea level rise ~61,000 years ago that

agrees well with other data, including data from Taiwan corals presented at this meeting. Leah has found subannual records of sea surface temperature in several corals that grew over 100,000 years ago. Sue has combined ¹⁴C and U-Th dating measurements on deep-sea corals. Both Leah and Sue will present their results at Fall AGU this year, after which Kristin will join us to attend a workshop on submerged coral studies.

JIM GRANT Coming back from Australia a year ago, I was all ready for summer, but instead bought new cross-country skis and hardly used them. Too little useful snow and too much lethargy. However, the whole family went across to the UK in January to my sister-in-law Niki's graduation with her Ph.D. in Education of Gifted Children! She is three months older than I am, and we were very proud of her. Summer saw us off to D.C. for a family wedding, and it was the first time I'd been there other than for AGU, and I was really taken by the area. From Langley to Mt. Vernon and one Smithsonian to another and all along the Mall, it was refreshing to see people enjoying our capital. It certainly made the recent sniper attacks so much more personal: These were places we recognized, with friends and relatives in harm's way.

At the beginning of the summer, Executive Director Christabel announced, "You WILL be a volunteer for the Bong WWII Heritage Center." So the summer was 0.5 FTE Bong Center, 0.5 FTE getting out my paper on experimental melting, and the rest of the time getting compost fired up to 160° F and putting in and taking out the dock and ski boat. At the Center, I'm in charge of the Commemorative Tile wall, where folk can honor those who participated in WWII. See www.bongheritagecenter.org. The grass roots support for this, and the expressions of thanks for the opportunity to honor Grandpa or Mom make it all worthwhile. The Center opened on September 24th, during the only decent 24 hours of weather for a month either way, and Christabel could relax in a job really well done. At least that's the theory.

Ian is still doing well in his imported furniture and objects d'art business, and we have a splendid trunk at the foot of our bed as proof. Fiona now has her own communications firm - with her mother as a significant employer. A nice twist on parenting.

I got my paper out at the beginning of August, after ample trials and tribulations with software, ably aided by my more modern mentors in the department. But I combined symbols and color into a glorious artistic masterwork! I thought I'd better ask the editor if there was any limit to the color one could use. He said not at all. It just costs \$500 per page. So now in revision I'm becoming a master at symbols and shades of gray. I'm looking forward to having the penultimate draft out early in December. Then I need to get fully into

mathematical modeling of melting, which is THE way to go to understand the marvelous melted rocks that we have in Wyoming. That shouldn't take more than a couple of years, by which time I suppose I shall be somewhat retired. Actually, with the stunning addition of Vicki Hansen, John Goodge, and Tim Demko, it will be just fine to go with the knowledge that the department is in really first class shape for the foreseeable future.

With best wishes for the New Year!

JOHN GREEN No twiddling of thumbs yet in my retirement! I'm involved in a number of geological projects, including helping out with the Minnesota Geological Survey's bedrock mapping between Duluth and Two Harbors and beyond, and gathering rock samples for teaching and display for Moose Lake State Park's new interpretive center, which is focused on the State's geology. I'm also helping to assemble a data base of geochemical analyses of North Shore/Midcontinent Rift rocks.

Combining my enjoyment of hiking and my predilection for bushwhacking and exploring around in the woods, I am having fun helping to lay out the route for the Superior Hiking Trail from Two Harbors through Duluth to and through Jay Cooke State Park. I try to tweak it towards a heightened aesthetic experience, routing the alignment through old pine groves, by old sugar maples and oaks in their beautiful fall colors, or along open ridges with views. You'd be surprised at the wonderful opportunities there are within the city limits, but trying to avoid illegal ATV devastation is a challenge in some areas.

As a sideline, I ran a three-day workshop for the Minnesota DNR's County Biological Survey biologists last June on the North Shore, showing them a variety of geological environments that might have an influence on rare plant distribution. And I've continued my birding interests as well, especially with a trip to South Florida in January.

TOM JOHNSON This past year has been pretty quiet in many respects – no major expeditions, no major family affairs that I can admit to, and no major changes in how I spend my days. I am thoroughly enjoying my splendid group of Ph.D. students! Andy Breckenridge is making great progress on his cores from Lake Superior, unraveling the secrets of the varved record laid down between 7000 and 9000 years ago. Jim Russell is writing up some of his latest results from Lake Edward (equatorial Africa), after returning to Uganda during the past year to core some crater lakes near Edward. Two of my students are on the Twin Cities campus: Chad Wittkop is working on varved sediments from Michigan lakes, and Amy Myrbo is working out the details of carbon cycling and burial in three Minnesota lakes.

Lindsay Powers is in her second year in LLO, and will sort out a thesis problem on some aspect of the paleoclimate record from Lake Malawi. Lindsay was selected to spend six weeks on Lake Tanganyika last summer, participating in the Nyanza Project, an undergraduate and graduate education program run by the University of Arizona. Isla Castaneda joined our group this fall, after finishing her M.S. in Geology at the University of Colorado. She, too, will become involved in our Malawi program.

Speaking of Malawi, we are delayed for yet another year in the drilling project. We were lacking the last bit of funds needed to carry out the drilling and by the time we found them, there was not enough time to line up a drilling company that could mobilize in time for a January, 2003 operation. The winds are too severe on Malawi for drilling operations most of the year, so we need to be on the lake in the January – February window of calm weather if we are to optimize our chances for success. So now we are planning on drilling Malawi in January, 2004 – really.

Life on the home front continues to be wonderful. Kate and I have been plugging away on the cabin up on Lake Vermilion, and we are now about 90% complete with the interior construction. I have a purple fingernail to document my carpentry skills, and Kate learned some new vocabulary words as I set hammer to finger. Kate's (and therefore my!) niece, Erin, moved to Duluth from Los Angeles last December and lived with us for a few months before taking a job clearing trails and campsites in the BWCA last summer. She is enrolled in the Outdoor Rec major program at UMD, so we get to see her quite often. It is great to have her as part of the family in Duluth. Daughter Heidi continues to clerk for a federal judge in town, and her husband, my favorite son-in-law, Neil, still teaches at the middle school in Hermantown. (You know – that school that let VP Cheney in to not talk to the students or teachers? Don't get me started ----.) Son Ryan is still in Cedar Rapids crafting software for aircraft electronic systems. I hope that the local aircraft manufacturer (Cirrus) grows to a size where we can entice him to move to Duluth as well!

I managed to get out on a couple of cruises on the Blue Heron this summer, the longest being from Milwaukee to Duluth. We cored a couple of sites in the eastern and western basins of Lake Superior, to add to the cores being studied by Andy for varves and by Nigel for polygonal faults. I also convened a workshop in Duluth in July on the Science of Freshwater Inland Seas. This workshop was funded by NSF and involved 20 large lakes scientists from the U.S. and Canada, with the purpose of enhancing the level of NSF support for basic research on large lakes in future years. The workshop report is high on my agenda. Cheers to all!

CHARLIE MATSCH I am well into my second year of emeritus status, and I'm getting used to a more casual lifestyle. I get opportunities to be helpful around the department. For example, I read three M.S. theses in the spring and summer, and participated in their defenses. And I got to meet all of the candidates for new faculty positions as their campus tour guide. And, I continue to be one of the editors of this newsletter. It's still fun to participate in field trips, give a guest lecture once in awhile, and just be available as a resource.

The coast of Maine was the major focus of my summer. One highlight was a visit from Kent Syverson (BS 86) and his family. Kent is Associate Professor in the Geology Department at the University of Wisconsin-Eau Claire. He was in Maine mapping glacial deposits for the Maine Geological Survey, but it was a month-long holiday for Lila and their three children. It was another opportunity for me to point out the biological wonders of the intertidal zone (I did teach oceanography, you know) and to show off some glacial features, especially some really large subglacially shaped erratics, called bullet boulders. Lobsters were unusually abundant this past season, and the mussels continue to reproduce in large enough numbers to keep predators happy. Visitors are always welcome.



Upon returning to Duluth, watching a big pile of boulders and slabs of quarried rock turn into a fetching rock garden in my yard was a pleasant experience. In September, a one-day cruise on the Research Vessel Blue Heron with a crew from the Large Lakes Observatory gave me an opportunity to observe their technical skills in recovering sediment cores from Lake Superior. Impressive! And it's been fun to monitor the fall bird migration at Hawk Ridge and elsewhere. So my interest in birding continues to grow. It's still possible to spot a few old coots in the department. So, come on by when you get the chance. I hope all goes well with you and yours.

HOWARD MOOERS Here's what's going on. Ben Bertsch successfully defended his M.S. thesis over the past summer. His thesis focused on wellhead protection delineations for four communities in Cass County, Minnesota. In addition, Matt Whitehill also defended his M.S. thesis on the significance of minor moraines in west-central Minnesota associated with the margin of the Des Moines Lobe. Both Ben and Matt, along with Dave Stark (M.S. 2000) and Andrea Grygo continue to work on the Camp Ripley, Minnesota, comprehensive water management plan. We are now entering the final year of this project.

As for the current students, Lisa Marlow is making excellent progress on her investigation of the dunes of the Glacial Lake Aitkin and Upham basin. An important question has long been the timing of dune formation in the Upper Midwest. A series of ¹⁴C dates on paleosols in dunes near Lake Winnibigoshish, Minnesota, established that there was an episode of dune formation in that area during the middle Holocene between 7500 and 4500 BP. Subsequent workers have used these dates as evidence that ALL now inactive dunes in Minnesota were formed during the middle Holocene, a conclusion that we do not share. Lisa's work to date has produced abundant evidence that the dunes on the Lake Aitkin/Upham plain were active during the Late Glacial and earliest Holocene and that the episodes of eolian activity were intimately linked to a source of sand made available by stepwise drainage of the glacial lakes. Her work shows NO eolian activity after about 8000 BP, the time when others suggest the dunes were actively forming. Stay tuned for future results.

Phil Larson continues his work toward a Ph.D., focusing on the pattern of glacial erosion beneath the Laurentide Ice Sheet from Hudson Bay to its southern margin in Minnesota. In particular, Phil is working on steady- and non-steady-state landscapes of glacial erosion. Phil and I submitted an abstract to the Fall AGU meeting in San Francisco. In a nutshell, attainment of steady-state equilibrium between the ice sheet and landscape implies higher total erosion and/or longer-term duration of subglacial erosion relative to a non-equilibrium landscape. Steady-state equilibrium is thus potentially characterized by spatially uniform erosion rates irrespective of bedrock composition during the final stages of glaciation. The record of erosion preserved in Late Wisconsinan tills over an area with two contrasting bed lithologies in the central portion of the former LIS indicates the presence of non-equilibrium landforms, implying limited cumulative bedrock erosion during Pleistocene glaciation. Bedrock east of Lake Nipigon, Ontario consists of Archean greenstones, intruded by a west-dipping Proterozoic diabase sill. Today, the diabase forms a scarp with 50 m of relief over the surrounding greenstone. The last phase of

Wisconsinan glaciation advanced westward over the area to the 9.5 ka BP Nipigon moraine. Tills formed during this advance are coarse-textured, derived predominantly from local bedrock, and occur as a thin mantle over bedrock (~1m thick). Diabase forms a distinctive indicator dispersal train. Diabase concentrations in tills overlying the diabase outcrop, and in downice tills overlying greenstone indicate erosion and entrainment rates (eroded and entrained mass per unit bed area per unit flowline length) are 10^2 higher over the greenstone. From these data, a number of insights into the nature of erosion of hard (crystalline) bedrock by the LIS are evident: erosion occurred at high rates over short periods of time, suggesting significant bedrock erosion on an ice sheet scale was spatially and temporally restricted. Erosion rates were about 10^2 higher over the greenstone than the diabase, indicating the persistence of significant bedrock heterogeneity with respect to the erosive power of the ice sheet throughout the period of active erosion. These data suggest that Pleistocene glaciation may have accomplished little beyond removal of a preglacial cover of soft regolith from hard crystalline bedrock.

Wanna see something cool? Check out the deformation in this sequence of deformed glaciolacustrine sediments in the Vermilion moraine. In addition to the large fold-and-thrust, the sediments are folded and thrust on the scale of centimeters for a total shortening of about 50%.



RON MORTON The past year was one I will never forget - it was interesting, different, odd, unusual, and downright busy.

Spring semester I taught four courses - Intro Geology (both the day and the evening sections), a freshman seminar, and Earth Science for Teachers (a course Charlie had taught for 25 plus years). This kept me totally occupied until May. In late May we bought a new house up the North Shore. Three days after Penny left for field camp I sold our old, big house on 5th Street. I then spent the next three weeks packing before also heading out to field camp.

My three plus weeks at Park City were great, from the Tetons where three evenings were spent at Dornan's

(the restaurant at Moose Junction) sitting on the upper deck, drinking wine and watching the sun set over Grand Teton, to Bonanza, Albion Basin, and Jupiter Ridge. I shared the faculty house with Tim Flood and we had a good time, often at Penny's expense.

Penny and I then drove back to Duluth, arriving home on a Monday and closing on two houses on Wednesday! Fortunately, we then had two weeks to finish packing and get rid of an awful lot of stuff. We moved into our new, smaller house in mid-August and immediately had the kitchen and floors completely redone. During this time we lived for five weeks in the utility room and on the sun porch. Though we do not have a view of the lake, we have ten acres of land, no close neighbors, and a really neat house. So far we both love it there, though Penny seems to spend most of her time in the Geology office trying to keep our bigger and better department running smoothly (notice I said "Penny" spends a lot of time-----). Two weeks after we returned to Duluth, during our frantic packing, I taught a two-week, inquiry-based field course for Earth Science Teachers, part of a program sponsored by the Science Museum of Minnesota.

On Friday, Sept 13th, I somehow managed to fall while walking the dog on one of our trails and ended up with a broken left hand. That meant five long weeks in a double splint, unable to sign checks, tie shoes, or use the computer (one hand just doesn't work). During this time I did manage to teach two one-week sessions of Elderhostel, one up on the Gunflint Trail and one at Superior Shores in Two Harbors.

My first book, *Music of the Earth*, is going into a paperback edition and will be released this Christmas. I am working on another book (not much done over the past six months), continuing work at Sturgeon Lake and in northeastern Minnesota, where Carrie Heiling, a Master's student, is working on the caldera at Gaffer Lake and specifically on peperites (there's a good word for you!).

I write this note from Boston where I am visiting our daughter, Megan. She is in her 3rd year of civil engineering, seems to love it, and is doing very well. Son, Chris graduated last December with a degree in computer science. He then worked six months in Duluth for Citon, a local computer company, before taking a job with a computer company in Minneapolis where his fiancée is starting grad school.

It's a lot warmer here in Boston than back in wintry Duluth, so I am heading out to walk around the Boston fens. When I told Megan I was getting up at 6:00 or 6:30 to go walking she just rolled here eyes and said "Adults - go figure!"

To close, in these rather unsettled times, I hope this finds everyone injury-free and in good spirits. All the best from Beantown.

RIP RAPP Rip Rapp, after 45 years as a professor (27 at UMD), is the next "old geezer" to retire from the Department of Geological Sciences. His magic day occurs next May. Following that he will still be up to his old tricks, writing books. The latest came out this past June, "Archaeomineralogy" [Springer-Verlag 2002]. Two more are in press. His most active field project remains his major excavation/survey at Anyang, China -- the world's largest Bronze Age site. This project will, of course, lead to another book.

JOHN SWENSON It's hard to believe that I've already started my third year at UMD—time flies when you're having fun. I spent a decent chunk of the last year staring out the window of either an airplane or an automobile. Last fall, I attended research meetings at Lamont-Doherty Earth Observatory in Palisades, New York, and the Office of Naval Research (ONR) headquarters in Washington, D.C. Winter saw me in San Francisco for the annual AGU meeting and, later, at the University of Colorado, Boulder, for an NSF-sponsored planning meeting on the development of a Community Sediment Model. In the spring, I gave seminars on my recent research at Duke University, Oberlin College, and Indiana University, where I enjoyed meeting with faculty, graduate students, and, most importantly, inquisitive and skeptical undergraduates, some of whom, with any luck, might find their way to UMD for graduate school. In addition, I had the pleasure of accompanying two of my UROP students (Patty Crawford and Mel Huff) to the University of Wisconsin, Whitewater, where they presented their research results at the National Conference on Undergraduate Research. Phil Larson, one of our Ph.D. students, convinced me to "go see the prairie," so, in early summer, I took a topography-free road trip to the surprisingly metropolitan city of Saskatoon, Saskatchewan, where we presented some of our preliminary work on glacially driven emplacement of shallow brines in the Lake Superior basin at the annual Geological Society of Canada meeting. Finally, I had the pleasure of traveling to historical Winchester, England (home of the famous cathedral) for the annual ONR meeting.

Speaking of the Navy, the primary focus of my research efforts continues to be the EuroSTRATAFORM program for modeling the stratigraphic evolution of continental margins. EuroSTRATAFORM is a joint US-European (hence the England trip!) initiative to understand how physical processes generate stratigraphy across a spectrum of length and time scales. Why, you might ask, is the US Navy interested in stratigraphic modeling? Some of the reasons are classified, but, in a nutshell, the strata in the upper few tens of meters control the acoustic signature of the seabed. Thus, if you know something about the

stratigraphy, you know something about the acoustic backscatter, which might be handy for finding/hiding various things.

Although it might not always appear to be true, the renovation of my lab space is nearing completion—just in time for some new students. Jere Mohr, a graduate of the Twin Cities campus, has taken the plunge and will work with me on physical models, i.e., flume experiments of shelf-clinoform progradation. Chris Paola (TC Campus; my Ph.D. co-advisor) and I are co-advising Wonsuck Kim as he pursues a Ph.D. in stratigraphic modeling at Saint Anthony Falls Laboratory. Wonsuck comes to us from Korea via the University of South Carolina, where he earned a Master's degree in Geology. Stephanie Goshey has a UROP grant to work with me on geomorphic modeling. Finally, Darin Albrecht, whom I co-advise with Erik Brown, is finishing his Master's degree in Water Resource Science.

NIGEL WATTRUS Once again my summer was spent "bobbing around" on Lake Superior. In May I spent a week mapping the lake floor off the Nemadji River. This survey required that we collect the data on a very tightly spaced grid. I later learned that the Blue Heron's crew called this the "Groundhog Day" cruise because they felt they were sailing the same transect over and over again! Probably their disposition was not helped by the ever presence of Duluth (and home) just on the horizon!

My other big cruise this summer was a seismic and coring cruise to the eastern part of Lake Superior, where the "deep spot" in the lake is found. On the way, we collected some long piston cores in an area where we had previously collected a detailed high resolution seismic survey. This survey, and the cores we collected this past summer, is aimed at understanding the origin of the ring-shaped depressions on the lake floor and their possible connection to fractures in the underlying sediments. Analysis of the seismic data last winter suggested that a mobilized layer (remobilized after deposition) exists in the sediments. One of the principal objectives of our coring efforts this summer was to get a sample of this horizon. I'm pleased to report that we think we have that sample. For those of you familiar with Superior's soft sedimentary record, this interval sits at the base of the grey varved section above the red varved section. In our cores, this interval exhibits evidence of mobilization and includes whole fragments of the red and grey varved clays. We're still arguing amongst ourselves what the origin of this interval might be.

The department is gradually upgrading its geophysical gear. A couple of years ago we bought a Ground Penetrating Radar (GPR) system, and this past

year we were able to buy a new 24-channel engineering seismograph which we will use in our teaching.

This summer, Howard Mooers and I conducted a 3D GPR experiment on the Cass Lake Indian Reservation at a Super Fund site. The objective of the survey was to map the top of a near-surface till horizon, looking for low spots where pollutants might collect. After processing, the data were loaded onto a workstation for interpretation. The maps we made from the data clearly show that there is significant structure on the surface of the till where pollutants might collect.

The department recently purchased a Geowall, an inexpensive 3D visualization system built from a pair of computer projectors equipped with polarizing lenses that are driven by a PC. We are working with several other Geology Departments around the country to develop modules to use in the Geowall. These will be used in our Intro Geology labs to illustrate concepts that

many students have difficulty visualizing. These modules will include tools to: project 3D photographs; create 3D renderings of geologic maps; create 3D visualizations of mantle convection; display the 3D distribution of earthquake hypocenters. Ultimately, we hope to set these modules up so that they can be manipulated by the students themselves.

My family continues to flourish. Sally is now in the 7th grade at Ordean Middle School. She loves it and is into everything that 7th grade offers (?) Sam is having fun in 3rd grade this fall. He's taken up Tae Kwon Do and has given up hockey (hurrah, no more flooding for his father!). My wife, Jane, continues to teach in the Biology Department at the College of St. Scholastica, and this year she has started to teach courses in their Accelerated Degree Program, which is offered at night.

HOW QUICKLY TIME PASSES ...



*Three of our first geology majors at field camp.
Left: Dick Beckman, Right: Lee Benoit,
Center: Dick Ojakangas*

GET READY TO CELEBRATE!

2004 will mark the 50th anniversary of the establishment of a geology major at UMD. Plan to help the department celebrate. We'll keep you posted!



Geology Club 1969

*Front: L. Benoit, J. Berg,
D. Kelso, J. Cherra,
J. Finstad*

*Middle: D. Vavra, D. Witt,
H. Noyes, J. Dolan,
P. Treumer, W. Anderson,
D. Davidson*

*Back: H. Knutson,
C. Karasti, O. Christensen,
R. Merritt, G. Anderson,
J. Winston, S. Holets*

DICK OJAKANGAS, RETIRED!

Would you believe it? I have spent 44 years at UMD—five as an undergraduate (1950-1955), one as an instructor (1957-1958), and 38 as a professor (1964-2002)!

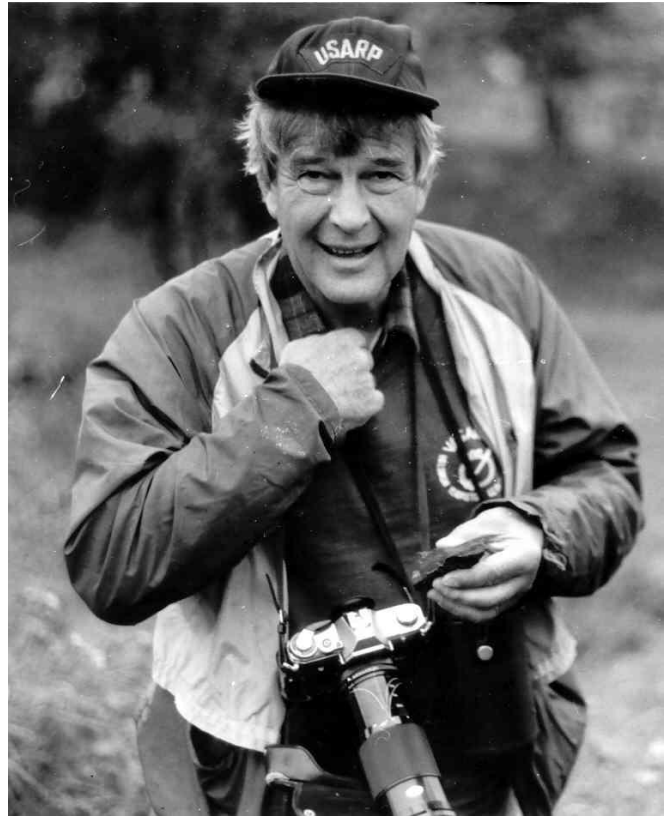
After my B.A. in 1955, I went on active duty with the U.S.A.F. (via ROTC) and spent my entire two-year military career at a SAC (Strategic Air Command—i.e., bomber command) base in England. I was separated in August, 1957, just in time to enroll in graduate school. However, the two-man department at UMD (Bob Heller and Henry Lepp) had just received authorization for a third faculty member. They wanted to do a careful search for the right person (eventually, John Green), but yet it was important to these two overloaded professors to fill the position immediately in order to relieve their load of Physical and Historical Geology labs. I was ‘coerced’ into teaching the 2-credit labs, all day-long, on Tuesdays and Thursdays. It was a great year of experience and a great year for Peaches and me. Our first child, Cathy, was born within days of the flight of the first Soviet space satellite. Cathy became our own

“sputnik”. And, 12 days after she was born, Peach flew to LA and won the 2nd Grand Prize of \$5,000 in the Pillsbury Bakeoff with her Chunk-O-Cheese Bread!

We left Duluth to spend the summer of 1958 in Casper, Wyoming, where I was working for Gulf Research, putting the geology of Wyoming onto computer cards. Our two-man party (I was Assistant Party Chief) measured and sampled, inch-by-inch, the same thick Mesozoic section at eight different localities around the state. Then two years at the university of Missouri-Columbia for the MA degree, with my thesis on the Upper Cambrian Lamotte Sandstone of Missouri, a stable epicontinental deposit overlying the Precambrian basement.

I wanted to work on “geosynclinal” (i.e., active plate margin in today’s terminology) deposits for my Ph.D., which meant applying to universities on the east or west coasts. However, I was fortunate to get a Fulbright Fellowship to Finland. There I applied sedimentological techniques to Early Proterozoic quartzites of eastern Finland and Lapland.

Then on to Stanford where I worked on the Cretaceous Great Valley sequence, a 30,000-ft-thick pile of turbidites and mudstones, derived, so I “proved”, largely from the Sierran magmatic arc. This study involved much field work and much laboratory work. The title should have included key words like paleocurrents, paleogeography, turbidites, longitudinal basin fill, and petrography, but I was ignorant. It was published in the GSA bulletin under the title of “Cretaceous Sedimentation, Sacramento Valley, California”, and consequently it was not picked up in review articles and was kind of forgotten. However, in 1999, GSA Special Paper #338 entitled “Classic Cordilleran Concepts (A View from California)” was published. Nineteen of the most significant papers of the previous century were reprinted in that volume, including my paper! So, it is no longer forgotten.



Me, retired? (I don't think so!)

What have been some of the high points of the past 38 years at UMD, in addition to teaching so many excellent undergraduate and graduate students, and interacting with so many excellent colleagues? (1) The startup of the Wasatch-Uinta Field Camp in Park City, Utah. I taught there for four summers, and studied the Mineral Fork Tillite with Charlie. (2) Countless summers of fieldwork for the Minnesota Geological Survey, and for the U.S.G.S. in the Lake Superior region. (3) While on leave, teaching Finnish students at the University of Helsinki how to look through the metamorphism to interpret the original sedimentary protoliths, plus short courses in Finland, Russia, and China. (4) Discovering 2.3 b.y.-old glacial deposits in Finland and adjacent Russia. (5) Every minute of a 3-month field season in Antarctica where Charlie and I concentrated our research on the Whiteout Conglomerate, a product of late Paleozoic Gondwanaland glaciation. (6) Other research projects in Australia, South Africa, India, Canada, and Puerto Rico, and field trips in Mali, the Ukraine, Australia, China, Italy, and other places. (7) Lecturing on cruise ships and expedition ships in Antarctica, South America, China Sea, Australia, South Pacific, North Atlantic, northern Japan, eastern Siberia, and Hawaii.

The Geology Club annual banquet honored this retiring professor, and a university-wide party at Griggs Center was fun. The Department faculty and staff presented me with a most beautiful 22-inch long Eocene fish (Phareodus encaustus) from the Green River beds of Wyoming. And this fall, the Department had another great farewell party for me, hosted by the Grants. (I guess they really want me to go!)

My final seminar was entitled, “SO, WHERE ARE YOU OFF TO NEXT? (A Geological Career in Time and Space)”. Of course, everyone expected ‘Audiovisuals Ojakangas’ to show lots and lots of 35 mm slides. However, with the expert help of Howard Mooers and Joel Ness, I prepared a power point presentation that was kept a secret until the last second. Just as I was ready to start “flicking slides”, I called Leah, the projectionist, down to the front –“You forgot carousels 4, 5 and 6! And remember, change them really fast!” It was a fun event. Peaches, her mother, Esther, our three children (Cathy from Rhode Island, Greg from Missouri, and Susanna from St. Paul), five of our grandchildren, and several off-campus friends were part of the full Life Science 175. Retiring is fun!

SO, WHERE AM I OFF TO NEXT? There are more oceans to cruise on. There are new overseas projects to develop. I have about 50 unfinished research projects—I have been a great “starterer” and a poor “finisherer”, because there are so many interesting things to study. Two recently finished products are a geologic map of Voyageurs National Park (I’m only a co-author) and a paper in a special rift volume of Sedimentary Geology on our (Ojakangas and Dickas) studies of two deep drill holes in the sedimentary rocks of the Midcontinent Rift System. This spring, I attended the GAC-MAC meeting in Saskatoon (R.W. Ojakangas and G.W. Ojakangas presented a paper on tidal aspects of the Pokegama Formation) and the Institute on Lake Superior Geology at Kenora. Field trips were into underground gold and massive sulfide mines. The priority item now is Roadside Geology of Minnesota, with daughter Susanna Elliott as co-author. And, Charlie and I are still in the process of revising Minnesota’s Geology. I can’t forget that my main job is food tester & taster for my food-writer wife, Peaches. I could say, as others have said, “The Lord put me on this Earth to accomplish a certain number of things, and at the rate I am completing them, I will be around for another 100 years!” SEE YOU!

OJ’s New Office Hours

OPEN some days, occasionally as early as 9 or 10, but some days as late as 4.

CLOSE about 5:30 or 6, sometimes about 4 or 5, and rarely as late as 9 or 10.

SOME DAYS I’m not here at all, but lately I’ve been here except when I’ve been someplace else.

No clock. No money. No worries.

(RETIRED!)

MEET OUR NEW FACULTY

**John W. Goodge**

My research interests are in metamorphic petrology, structural geology, isotope geochemistry and thermochronology as applied to problems in continental tectonics. In particular, I'm interested in the relation of metamorphism, deformation, and fluid-flow to crustal growth during convergent-margin and collisional orogenesis. I am also interested in applying what we can learn about mountain belt evolution to gaining a better understanding of paleogeographic relationships between cratonic elements in early Earth history. Most of my work for the past 15 years has addressed the tectonic evolution of the Ross orogenic belt in Antarctica, which spans a very interesting time in Earth history between about 1 billion to 500 million

years ago. Relationships in the Ross belt are helping us to better understand the tectonic changes that took place during the transformation from the Rodinia supercontinent to Gondwanaland, as well as the relations between Antarctica, Australia, and North America.

My field-based studies combine classical methods of field mapping, structural analysis, and petrographic study, with analytical approaches involving kinematic interpretation of petrofabrics, quantitative mineral analysis, geothermobarometry, thermochronology and isotope geochemistry. I address the timing and rates of orogenic processes by employing $^{40}\text{Ar}/^{39}\text{Ar}$, U-Pb, and Sm-Nd geochronology in collaboration with others. I have also used stable-isotope geochemistry and mineralogy to address questions of fluid interactions with solid phases during metamorphism. Integration of these techniques allows us to understand sequences of events, crustal conditions, rock displacements, and the role of fluids in modifying physical conditions, mass transport, and deformation. There are many different avenues to explore in the broad area of continental tectonics, so I use the best tools to address specific topical problems. For example, my principal research for the past three years involves stratigraphic, structural and geochronological study of Neoproterozoic and lower Paleozoic sedimentary successions in Antarctica. Before you know it, I'm doing provenance analysis and studying denudation rates!

My interests have led me to research in a variety of tectonic settings, including those of crustal extension, subduction, rifting, and collision, particularly in the Cordilleran and Rocky Mountain regions of North America, and the Transantarctic Mountains of Antarctica. Among these areas I have studied the structural and petrologic evolution of convergent plate margins (Klamath Mountains, California), Proterozoic and Archean crustal evolution (Antarctica), the structural evolution of metamorphic core complexes (Mojave Desert of California and Arizona, and Omineca belt of eastern Washington), the effects of fluids, deformation, and rock composition on mineral stability (Proterozoic belts of northern New Mexico and Colorado), strain partitioning during continental-margin transpression (Ross Orogen, Antarctica), and the use of mineral chronometers to trace sediment transport and denudation rates (Ross Orogen, Antarctica).

The move to UMD is a great opportunity for me, and I'm very excited to be here with a wonderful group of colleagues, great geology and good students! In the future, I am very interested to begin research projects in Proterozoic and Archean metamorphic terrains in Minnesota, Wisconsin and Ontario.

On a personal note, Vicki and I met at Carleton College many winters ago (over structure problems, as we recall!) and since then are fortunate to have found good opportunities in the same places. We worked a couple of years at the USGS, including support of MS thesis research at the University of Montana. We ventured from Montana to LA (what a change!) for PhD work at UCLA, and then on to Dallas where we taught at SMU for the past 15 years. We have two children, ages 10 (son Casey) and 8 (daughter Berit), who are very happy to be living in Minnesota.

Vicki L. Hansen

I began my professional life as a terrestrial field structural geologist, happily challenged by work in extensional terrain (in Arizona, California, and Washington) and contractional regimes recording continental growth and subduction zone processes (AZ, AK, and Yukon). Serendipity expanded my horizons to study tectonic and geodynamic processes on Earth's sister planet, Venus. My terrestrial research focuses on understanding processes involved in the growth of continental crust. Deformed rocks, and sheared rocks in particular, have the most interesting stories to tell. Integrated structural, thermobarometric, and thermochronometric analysis allow me to track how rocks moved, the physical conditions they experienced, and ultimately when and for how long.

Recent work in Yukon and Alaska addresses the prototectonic evolution of the Yukon-Tanana terrane (YTT), and its boundaries with the North American craton and adjacent terranes. The YTT comprises a huge tract of multiple deformed middle crustal rocks that extends 700 km from Yukon to Alaska, and records a history of crustal assembly from Devonian through Tertiary time. Some YTT rocks record rifting from, and returning to, North America, while other YTT rocks simply slipped along the North American margin and had other rock packages thrust over them, locally experiencing younger plutonism and extensional collapse. Despite YTT's status as a so-called "allochthonous terrane", most YTT rocks are not foreign to North America, but rather they represent geological adventures close to home and ultimately are native to North America.

On Venus the fieldwork is remote, and the questions are a bit larger: How does Venus get the heat out (plate tectonics is not the answer), and how has Venus evolved through 4.6 billion years? My students and I use the incredible images and datasets from the NASA Magellan mission of the early 90's: Synthetic Aperture Radar (SAR), altimetry, gravity, and emissivity. Venus provides the perfect structure-tectonists' playground as the planet lacks water, life and sediment, all factors that contribute to blurring deformation records. Whereas Earth displays linear features indicative of plate tectonic processes, Venus is dominated by circular features formed by volcanic and upwelling processes related to different types of mantle diapirs. Impact craters are equally distributed, indicating that Venus lacks large tracts of very old and very young crust. Coronae and plateau/rises record modes of internal heat transfer, the work of different types of mantle diapirs. Volcanism, evidenced in huge features that dwarf Earth's volcanoes, and hundreds of thousands of small 'shields' distributed over millions of square kilometers, illustrates that Venus preserves a very different world than Earth.

Geomorphic and structural analysis study of crustal plateaus reveals widespread early extension of a thin (~1-3 km thick) competent layer over a ductile substrate (envision a chocolate-covered caramel bar the size of the western U.S.); with time the competent layer (chocolate) thickened and deformed into broad open folds along the plateau margins. Local flood-type volcanism accompanied evolution of the surface, suggesting a very high local geothermal gradient. These large crustal plateaus reflect the surface signature of deep mantle plumes on an ancient thin lithosphere, and as such have critical implications for the evolution of Venus' interior, crust, atmosphere, and climate, with potentially important lessons for the pre-plate tectonic evolution of early Earth. Volcanic rises formed by a similar mechanism, but more recently after the lithosphere had thickened with planet cooling. Smaller coronae likely represent blobs of low-density mantle material that rose and blistered the surface in chains, clusters, and isolated ring features.

We are currently attempting to understand mechanisms of large-scale planet resurfacing on the plains, which cover ~70% of Venus; several competing processes could be operative through time. My students and I are mapping >25 million sq km at the highest resolution permitted. Our maps, which are published as part of the USGS Venus mapping program (the first due out for Christmas), are leading us to postulate new surface processes. The plains seem to be variably resurfaced, in part, by very thin volcanic layers comprising thousands of coalescing shields, rather than as extensive thick surface flows as previously suggested.



**Tim Demko**

I am a brand new assistant professor in the Department of Geological Sciences, filling the position vacated by the retirement of Dick Ojakangas (...huge shoes for me to fill, I know!). I was a research geologist at ExxonMobil Upstream Research Company for the past 6 years. My research interests are in sedimentary geology, including sedimentology, sequence stratigraphy, terrestrial environments and paleoecosystems, paleoclimatology, petroleum and coal geology. I have several areas of continuing interest, including the Late Paleozoic and Mesozoic fluvial and lacustrine depositional systems of the Colorado Plateau and Rocky Mountain Regions, the Late Paleozoic wetlands in the Appalachian Mountains region, and the Tertiary and Triassic fluvial deposits of the Iberian Range and Pyrenees in Spain. However, I am also

pursuing possible projects as far afield as the modern Tigris River basin in Turkey, the Transantarctic Mountains, and the Gulf of Carpentaria in northern Australia! I'm also going to be starting some new projects in northern Minnesota, including a look at the large-scale stratal architecture of the BIF in the Iron Ranges, examining some of the exposure surfaces in the North Shore Volcanics for possible signs of pedogenesis, and looking at some of the depositional facies of Pleistocene glacial-lake margins. I will be teaching the sedimentology, stratigraphy, and basin analysis courses (with John Swenson), Earth History, and also taking over the Life and Death of the Dinosaurs course from Rip.

GEOLOGY CLUB

The Geology Club has been busy, busy, busy again this year. We started off the year with our annual weekend trip to Camp Du Nord. Twelve club members made the trek up to Ely. It was a tight fit in the department's new 15-passenger Dodge, but the aching legs and backs were definitely worth the trip. Du Nord is always a great opportunity to relax before the homework, tests and projects of spring semester begin to pile up. Snowshoeing, games, "reading hour" and good food made it a great weekend. Fun was had by all. As everyone knows, the Geology Club is committed to giving something back to the community. One of our pride and joy projects is the annual 4th Graders' Geology Week. Once again the week of little rascals infesting Heller Hall was a hit. Undergrads and grad students had the opportunity to pass on their geologic knowledge to spry little minds. The "volcano lab", which uses the vinegar, baking soda and red food coloring trick to make magma, was the children's favorite lab for the second year running. Not too much of a surprise, since we all know how much kids like to see messes being made. Maybe next year we can add another messy trick to the program. Suggestions are welcome! Although the Club did not take a Spring Break trip last year, we are already planning a new adventure for Spring, 2003. Hopefully, we will be able to put together a fun trip and see some great geology. In April, new officers were chosen and announced at the Spring Banquet. They are: Sue Hattenberger-President, Stephanie Goshey-Vice President, Kim Smith-Secretary/Treasurer, Matt Haacker and Jill Flater-Activities Directors. The banquet, held at Lafayette Plaza on Park Point, provides an opportunity for students to interact with the faculty in a non-academic setting. It is also a great place for everyone to gather and give special thanks to those that have had an impact on the lives of so many students. Thanks again, OJ. Though he has decided to hang up his teaching shoes, much to our delight, we still see his smiling face on a regular basis. Overall, the banquet went off without a hitch. Scholarships were awarded, refreshments were served, and entertaining stories were told. For the most part, the club activities are fairly subdued during the summer months. Our Adopt A Highway contract expired in May and we are working on renewing it. We are hoping to continue participating in this great project. You just can't beat

cleaning up trash! This school year started off with a bang. With a new club meeting-time set, attendance has been staggering. Members who attend meetings are contributing more than ever. Progress is being made in all aspects of the club. Many of us felt that the club needed a little boost towards more member interaction. After all, the friendships we make in college can last a lifetime. They will be valuable in future careers, research, and even teaching if some of us choose that route. So far the club has sponsored events such as game nights, bowling nights, field trips and much more. Club members have found each other more entertaining than ever! Many more activities are on the agenda for the upcoming year, along with several community service projects, and some unique field trips. I think this year will be one to remember! *Sue Hattenberger*



Left to Right: Rod Pieper, Nicole Lang, Diana Kniebush, Ben Kelley, Zac Gonsior, Zac Erickson (Not Pictured: Matt Timp and Mike Loch)

FIELD CAMP 2002

It was HOT HOT HOT in Park City, Utah this summer, where eight UMD students traveled for their first (if not only) experience in the field. On the first day we were met by three other vans boasting 35 students from Illinois, Iowa, Michigan, and Wisconsin. The awesome faculty included our very own Ron and Penny Morton, and Dean Peterson, along with Steve Marshak, Phil Brown, Tim Flood, TA Brian Hartman, and the wonderful staff at the Chateau Après.

Mapping started right away with projects in the hottest, driest, most dangerous places you can think of. Between the snakes, high cliffs, cyanide guns, the Heber Creeper, Sunday's mystery meat, barbed wire fences, and injuries from the previous

night's activities, many of us were ready to give up. Then came the most wonderful thing in the world, the Fourth of July trip to the Tetons. Ah, the Tetons. Field trips were included the first day and a half, but who can complain when you are surrounded by snow-capped mountains, streams, wildlife, and cooler temperatures. Having nothing to do but enjoy our time, many of us went whitewater rafting, hiking in the backcountry, rock climbing, exploring Jackson Hole, singing and enjoying adult beverages by the campfire, or just relaxing and enjoying the break from mapping. After the extended weekend in the Tetons, we were back to mapping in the Park City area. Many of the remaining projects were at higher altitudes with more pleasant conditions, providing us relief from the summer heat.

As field camp came to an end, all of us walked away from this experience with memories of new friends, sedimentary rocks, and a night of crashing the hot tub at the faculty house (right Ron?). Aside from all the work, great times were had by all. *Zac Gonsior and Diana Kniebush*

The James R. Frantes Graduate Fellowship

Our department is establishing an endowment, in the name of James R. Frantes, to be used specifically for graduate student fellowships. Jim received his Master's from us in 1987. While at UMD, he was diagnosed with cancer; however, he did not let it deter him. Not only did he finish his thesis (while undergoing chemotherapy), he did research on his medical condition. We thought he had the disease beaten, but, his remission did not last. Jim passed away in 1995. He was a true fighter, very determined, and the epitome of a successful graduate student. It is with this in mind that we are naming this endowment after Jim.

This endowment will enable us to augment offers of assistantships to students who might otherwise not accept. We have a unique opportunity to match any money raised from a special University account. The catch is, the endowment must have funds and/or pledges for at least \$25,000. Once the fund reaches or exceeds \$25,000, the University matches the interest income that is generated by the fund. This in effect doubles the impact of the original contributions. We already have pledges from faculty totaling over \$16,000 toward our goal. We are asking that if you are planning to give money to the department that you think about designating some of that money to this endowment for Graduate Fellowships.

ALUMNI NEWS

SEND US YOUR BUSINESS CARDS

Keep the news coming! We look forward to hearing from you.

Our email address is: geol@d.umn.edu

Adamson, Kent, MS 97, stopped in for a visit this past fall. He is working with a new group at Geoquest called Intouch/GeoFrame Central Support. Kent's address is 2500 Lazy Hollow #244C, Houston, TX 77063

Armitage, Sally, BS 89, continues to teach classes at Planned Parenthood and has been appointed to the Board. Her second son, Jeffrey, was born August 3, 2001. Their address remains 27677 Camargo Drive, Golden, CO 80401.

Baumgartner, David, BS 82, is owner/president of Global Computer Services in Burnsville, MN. His address is 705 Thole Lake Circle, Shakopee, MN 55379.

Bekker, Andrey, MS 98, is a post-doctoral research associate with the Dept. of Earth and Planetary Sciences at Harvard University. He's working on a project that deals with the timing of atmospheric oxygen level rise in the Precambrian. Andrey's address is 7 Vernon Street #3, Brookline, MA 02446.

Berg, Corey, BA 99, after receiving his MS in Industrial Hygiene at UMD, Corey moved to Austin, Texas and is working for Motorola's Environmental Health and Safety Dept. His address is 210 Shep Street, Austin, TX 78748.

Borrell, Joshua, BS 98, has joined the Army and will pursue a teaching degree. His address is SPC J. Borrell, HHC 1/8th INF. Box 146, Ft. Carson, CO 80913.

Davidson, Don, former professor 1965-79, continues to stay active by skiing, bike riding, and race walking to name a few. Don and Mary traveled back to Minnesota this past summer for class reunions and to visit with family and friends. Don also ran into several alumni at the SEG conference in Denver (Odin Christianson, Harold Noyes, Ken Krahulec & Alan Coyner). Don's new address is 2 Trocito Corte, P.O. Box 2571, Tubac, AZ 85646

Frantes, Tom, BS 79, continues to work for ExxonMobil. He currently supervises the geoscience activities associated with the development of the North Caspian Sea. Tom's address is 2 Shoreline Point Drive, The Woodlands, TX 77381.

Hill, Christopher, BS 82 (PhD SMU), is an Assistant Professor in the Dept. of Anthropology at Boise State University. His address is 4 Redfern Place, Boise, ID 83716.

Hoff, Melissa, BA 01, is working for General Mills as a programmer analyst. Her address is 5427 Fisher Street, White Bear Lake, MN 55110

Huber, Jim, MS 87 (PhD UMN), is an adjunct assistant professor in the Geoscience Department at the University of Iowa. His address is 2573 58th Street, Vinton, IA 52345.

Idris, Mohd-Kamil, BS 86, is head of Operations Division—Record Management for HeiTech Padu (a total IT solutions provider) in Malaysia that converts physical documents to digital images. Although he never got into a geology-related field, he has fond memories of field camp and UMD. His current address is No. 75, LKNP Taman Muhibbah, Benus, 28700 Bentong, Pahang D.M., Malaysia

Johnson, Joel, BS 96 (MS Univ. of Illinois), is working on his PhD in Oceanography (Marine Geology) at Oregon State and hopes to finish up by Summer 2003. Joel's mailing address is Oregon State University, College of Oceanic & Atmospheric Sciences, 104 Ocean Admin. Bldg., Corvallis, OR 97331.

Karl, Carrie, BS 99, after working at Acadia National Park this past summer, she now works part-time at the Jackson Hole Wildlife Foundation as well as Snow King Mountain Resort. Her address is P.O. Box 8403, Jackson, WY 83002.

Kirstein, Mark, MS 80, has been living in England with his wife and children since the 1980s. He teaches 5 year olds at a village school just outside of Eastbourne and runs science clubs for children ages 4-11. Mark's address is 31 Brightland Road, Eastbourne, East Sussex, England BN20 8BE.

MacDonald, Michael, BS 86, when we last heard from Michael, he and his wife were applying to the Peace Corps. Their address is 5303 Sherman Street #94, Wausau, WI 54401.

McCarthy, James, BS 97, after doing an internship for the USGS in Maine and then working as a hydrogeologist in Minneapolis, Jaime now works in the field of web design/computer graphics. He enjoys canoeing and would someday like to move back to Duluth. His address is 2625 Lyndale Ave. S #2, Minneapolis, MN 55408.

McCarthy, John, BS 89 and **Christine (Dorgan) McCarthy**, BA 89, run an antique business in Two Harbors called North Shore Architectural Antiques. Visit their web site (www.north-shore-architectural-antiques.com). Their son, Sean, is now 5 months old and Olivia is 4 yrs. old.

McGilp, Kevin, BA 93, is a geologist for Barr Engineering Co. in Minneapolis. Kevin lives at 7109 112th Ave. N, Champlin, MN 55316.

McMaster, Steven, BS 94 (MS So. Illinois), works for the State of Nebraska as the State Coordinator for flood damage reduction programs. His address is 1959 Euclid Ave., Lincoln, NE 68502.

Neisse, Jeffrey, BS 00, is a staff scientist for EPOCH Environmental Group in Lino Lakes, Minnesota. His address is 828 23rd Ave. SE, Minneapolis, MN 55414.

Nemitz, Michael, BS 01, is working on his Master's degree at the University of Idaho as well as for Newmont in their surface geology group on the Carlin Trend. His address is 101 Spruce Road #C101, Elko, NV 89801

Noyes, Harold, BA 70 (PhD MIT), is now a mineral consultant. In the past, he has worked as chief geologist and manager of business development for Doyon, Ltd. in Fairbanks, Alaska. He also formed North Star Exploration, Inc. in Lakewood, Colorado which focuses on mineral evaluation. Harold has also been appointed to the Board of Directors of Tri-Valley Corporation. His address is P.O. Box 1186, Golden, CO 80402.

Ojakangas, Greg, BS 82 (PhD Cal Tech), is now a tenured faculty member in the Department of Physics teaching physics, astronomy and earth science at Drury University, Springfield, MO. He spent last summer doing contract work for NASA on space debris. Greg's address is 3638 North Broadway, Springfield, MO 65803.

Olson, Karen, BS 96, started her own consulting business in St. Paul. Her address is 56 Inner Drive #D6, St. Paul, MN 55116

Raye, Jeremy, BS 99, stopped in for a visit last spring. He married Yana Grigorchouk last fall and he continues to work for EMR. Their address is 3716 Westland Place, Lawrence, KS 66049.

Rog, Chris, is principal hydrogeologist for Sand Creek Consultants, a group of environmental and geological scientists. The company is based in Rhindelander, Wisconsin. His address is 324 North Baird Ave., Rhindelander, WI 54501.

Sadofsky, Seth, 2001-02 sabbatical replacement, is a research associate at GEOMAR Research Center in Keil Germany. He is using melt-inclusions in olivine phenocrysts to try to understand the flux of volatile elements from subducted slabs to arc volcanoes. He and his wife, Jen, are settling in, taking language classes, and doing some sightseeing. His address is Mollingstr. 17, D-24103 Kiel, Germany.

Schemmel, Matt, BS 97, is working as a hydrogeologist for DPRA in St. Paul. Matt's address is 2115 Berkeley Ave., St. Paul, MN 55105

Schneider, Robert, BS 81 (PhD Univ. of Texas-El Paso), is the Director of the Energy Institute at the University of Louisiana at Lafayette. Bob is busy working on visualization proposals and starting his own research program. Bob and his wife, Sue, have two daughters – Madeline (10) and Rebecca

(7). Their address is 104 Sundance Pass, Lafayette, LA 70508.

Schulte, Pauline, BS 94, has lived in Alaska since 1994 and is currently working as a project manager at URS Corporation in Anchorage. She enjoys sea kayaking and has competed in skiing in the free style 25 km division of the Tour of Anchorage. Her address is P.O. Box 1178, Girdwood, AK 99587

Suszek, Thomas, MS 91, is an Assoc. Instrumentation Specialist for the Dept. of Geology at the University of Wisconsin Oshkosh. His new address is 2366 Burnwood Drive, Oshkosh, WI 54902.

Stoltz, Eric BA 98, and **Nicole (Ristow) Stoltz**, BS 99: Eric is working for Continental Express and Nicole is working as a senior field engineering geologist at Corrigan Consulting, Inc. in Houston, TX. They've purchased a home and now live at 19110 Spruce Bough Lane, Humble, TX 77346.

Tuovila, Lori, BS 01, continues to work on her Master's degree at the University of Pretoria, South Africa. Her mailing address is Department of Earth Sciences, University of Pretoria, Pretoria 0002, South Africa.

Venzke, Ed, continues his work on a new database-driven volcano website as well as putting out a monthly volcano newsletter for the Smithsonian Institution's National Museum of Natural History. His wife Amy continues working on the Star-Spangled Banner project (restoring the flag). Their sons Alex and Jason keep them busy. Ed and his family have moved to Virginia and live at 7933 Bolling Drive, Alexandria, VA 22308.

Vervoort, Jeff, MS 87 (PhD Cornell Univ.), recently moved to Pullman, Washington with his wife Kathleen and children Tyson (16 yrs.) and Kaitlin (13). Jeff accepted a faculty position as an Isotope Geochemist at Washington State University in Pullman. Their address is 830 SE Meadowvale, Pullman, WA 99163.

Wenz, Zach, BS 02, is working on his Master's degree at the University of Alaska Fairbanks. His project deals with mineral and elemental zonation at Greens Creek Mine on Admiralty Island and is enjoying being a TA. Zach's address is 407 Wedgewood Drive, Apt. K-14, Fairbanks, AK 99701.

Zwaschka, Mark, BS 81 (MS Auburn Univ), was with Homestake until the mine closed. An NSF sub-committee recommended the mine for lab conversion but it will be some time before the outcome is known. Jessica is teaching full-time at the high school and finishing her Masters. Mark ran in six races and took three first place finishes. Their address is 831 Harding Street, Spearfish, SD 57783.

Franklin (Frank) Dickson III, BA 79, passed away in August, 2002. He was 61.

George Holliday, Jr., BS 63, passed away in June, 2002 from a sudden heart attack. He was 63.

Scholarships and Awards

The *Outstanding Graduate Student Award* recognizes a geology graduate degree candidate for the greatest overall contribution to the Geology Department, including scholarship. This award is given in memory of Ralph W. Marsden, who was respected the world over as a scientist and person. He was head of the Geology Department from 1967 to 1974 and retired from UMD in 1980. It is also in memory of Randy Seeling, who was a graduate student in Geology at UMD and completed his Master's degree in 1977. He met an untimely death in May, 1979, in an accident while touring Europe. The recipient of this \$1,000 award for the year 2002 is **Dean Peterson**.

The *Outstanding Graduate Teaching Assistant Award*, was presented to **Andrew Sharpe** in the amount of \$200 for the 2001-02 academic year.

Outstanding Senior Award, (Ralph W. Marsden Fund and the SME) is a \$750 award given to one or two outstanding graduating seniors, on the basis of scholarship. The recipients' names are engraved on a plaque that is displayed in the Geology Department. The recipients for 2001-02 are **Melinda Huff** and **Zachary Gonsior**.

The *Robert C. Bright Field Camp Scholarship* is given in memory of Robert C. Bright, who was a professor in the Department of Ecology on the Twin Cities Campus. Professor Bright was instrumental in establishing the Wasatch-Uinta Field Camp in 1967 and was its first director, a position he retained until 1972. The 2002 recipient of this \$500 scholarship is **Nicole Lang**.

The *SME Tools-Of-The-Trade Award* is given to outstanding sophomores on the basis of promise in the Mineralogy/Petrology sequence and Geomorphology. Awards are given to students in the form of \$200 worth of geological field gear. **Aaron Fritz, Matthew Haacker** and **Kim Smith** were presented this award at the 2002 SME Minnesota Section Mining Symposium luncheon, which was held in the spring.

The *Robert L. Heller Field Camp Scholarship* is in memory of Robert L. Heller who founded the Geology Department and became Chancellor of UMD. Four scholarships were awarded to UMD geology majors attending field camp, on the basis of scholarship and need. The 2002 recipients were **Zachary Gonsior, Nicole Lang, Matthew Timp** and **Rodney Pieper**.

The *Lempi M. & John W. Pagnucco Scholarship*, established by Lempi (Erickson) Pagnucco to support field camp expenses for UMD students, awarded scholarships to **Zachary Erickson, Benjamin Kelley, Diana Kniebush** and **Michael Loch**.

The "Rip" *Rapp Field Camp Scholarship* awarded a \$1,000 scholarship to **Zachary Gonsior**.

The *Charlie Matsch Field Camp Fund* awarded \$500 scholarships to **Rodney Pieper** and **Matthew Timp**.

The *Roderick Syck Field Camp Scholarship*, established by his family in his memory, is awarded to a UMD student with the highest achievement at field camp each summer. **Zachary Gonsior** was awarded \$500 for his efforts at Wasatch-Uinta Field Camp in 2002.

Scholarship Opportunity

From the UMD Alumni Office

UMD Alumni Scholarship – Scholarships will be awarded to non-resident, non-reciprocity first-year students who have a parent or a grandparent who graduated from UMD. Recipients of this scholarship will pay current Minnesota resident tuition rather than non-resident tuition rates. The scholarship is renewable if the recipient remains in good academic standing and is making normal progress toward a degree. Check out the following web page: <http://www.d.umn.edu/sss/admissions/discover/TuitionWaivers.html>

Additional Recognition

Kristen Riker-Coleman received a \$1,000 scholarship from the Duluth Branch of the American Association of University Women, which promotes equity for women, education and self-development over the life span, and positive, societal change.

Jill Flater and **Kim Smith** each received \$2,000 in scholarship support from the Department for a six-week study abroad program to Iceland.

Zachary Gonsior received a \$500 scholarship from the 2002 Summer Field Course Scholarship Program, supported by contributions from the American Association of State Geologists, NAGT, NAGT's Rosalski Fund, and several major petroleum companies. Scholarships are awarded to undergraduate students who will be attending a summer geology field course.

Wendell Wilson was presented the 2001 Carnegie Mineralogical Award at the Tucson Gem and Mineral Show on February 16, 2002. This award honors outstanding contributions in mineralogical preservation, conservation, and education. Wendell has been the publisher and Editor-in-Chief of *The Mineralogical Record* for over 25 years. He received his BA from UMD in 1969 and earned his PhD in 1977.

William Crain and the late **Robert Heller** received the William B. Heroy, Jr. Award for Distinguished Service from The American Geological Institute. The Heroy Award is presented annually to a geoscientist in recognition of outstanding service to the Institute and to the geoscience profession. These men were instrumental in generating the vision and support of AGI's inquiry-based secondary-school Earth science curricula. William Crain received his BS from UMD in 1955 and his Masters from the Twin Cities campus. Robert Heller joined the UMD faculty in 1950 to develop a geology department and program. He became Provost of UMD in 1976.

William Crain was also recognized at the First Annual Academy of Science and Engineering Dinner and Award Ceremony held at UMD on September 27, 2002. The Academy of Science and Engineering was established to give public recognition to distinguished alumni and special friends of the College of Science and Engineering, who have brought distinction to themselves through their participation, commitment, and leadership in their chosen profession.

Claudia Rock and **Colleen Wergin** received Outstanding Service Awards for their active participation in last year's faculty search, and for their dedication to the department. The Department of Human Resources at UMD gives this competitive award to civil service employees for work above and beyond the call of duty.

2002 GRADUATES

<u>BA</u>	<u>BS</u>	<u>MS</u>	<u>PhD</u>
Melinda Huff	Mathea McCutchin	Christopher Nordlund	Benjamin Bertsch (WRS)
Nicole Lang	Joshua Michaud	Matthew Timp	Lois (Glatczak) Bray
	Jennifer Miller	Zachary Wenz	Matthew Whitehill
	Gregory Miron, Jr.	Eric Wirz	Dean Peterson

