At Long Last: The December Issue

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A Note from the Chair
Greetings to all friends and alumni of the Department. This past semester, I returned to the Department after spending three years as Interim Director of the Office of Research and Program Development, and I am highly pleased with the state of the Department. Our enrollments are steady, the students are eager and enthusiastic about geology, and the faculty have been especially encouraging by their volunteer efforts to do things for our students and for the Department in general. In particular, Joseph Hartman has put forth exceptional effort in enhancing displays in Leonard Hall, photographing and displaying department activities, seeking to enhance AV equipment in classrooms, and in building strong ties with alumni. Of course, all that is on top of his teaching and research, both of which are outstanding. Dexter Perkins has organized and led a number of field trips for students and in doing so has built student participation and interest in geology. I cannot recall seeing as much student camaraderie during the past 22 years as I see today, and I believe it is largely due to the efforts of our faculty. Faculty who have enhanced the Department’s research capabilities by seeking and obtaining external funding include Ahmad Ghassemi, Phil Gerla, Scott Korom, Joseph Hartman, and Richard Josephs. Their efforts especially help our graduate students in their thesis research and help make the department visible nationally through publication in mainstream literature and through presentations at professional meetings. One result of this is that the Department had eight presentations at the GSA Annual Meeting in Denver. (continued on page 2)
A Note from the Chair, continued

There are many challenges ahead. One of our most immediate was to hire an outstanding researcher to fill the vacancy in Geological Engineering. We had a number of excellent candidates who met our expectations, and we began campus interviews in early February. I am glad to announce the hiring of Dr. Zheng-Wen Zeng from New Mexico Institute of Mining and Technology, who will join us this August. Some of the challenges on a longer time scale include the following: 1) Build external research funding to a level that will invigorate our graduate program. Our goals in meeting this challenge during the next five years are to (a) increase the number of externally funded projects in the department to 10; (b) increase external grant support to $750,000; (c) increase enrollment in graduate programs to 25–28 M.S. students and 4–6 Ph.D. students. 2) Establish a $2,000,000 endowment for the Department for support in several areas, including student field trips, research equipment, classroom equipment, laboratory upgrades, student research, seed money for faculty research, faculty developmental leave, and student and faculty participation in professional meetings. Meeting this last challenge will require the strong involvement and support of our alumni and the efforts of our faculty.

I believe we can meet these challenges, and I am optimistic about the growth of the department in the upcoming years.

To Acknowledge with Thanks

The Department thanks its many friends who continue to support its activities on behalf of the education and scholarship of students and the intellectual growth of faculty through financial donations. Your generosity represents a significant aspect of the success of our students and faculty. Feel free to visit with faculty at homecoming or any time you are in Grand Forks and ask for a tour.

2004 Newsletter Editor, Joseph Hartman; please send comments, corrections, and suggestions to joseph_hartman@und.nodak.edu, (701) 777-5055.


Contributions to the Next GGE Newsletter (planned for December 2005)

Send Your Alumni Notes to Joseph Hartman at joseph_hartman@und.nodak.edu (snail mail, of course, is always appropriate).

Feel free to include photos or other images you feel alumni might find memorable.

I would like to specifically thank Ed Murphy (BS ‘79, MS ‘83), T.T. Quirk, Jr., and Harry Short (PhB ‘56) for their submission of Geology “art,” legacy photos, and other documentary information to the Department.

Or Visit http://www.geology.und.edu under “Our Alumni” to post a message. See comments under our new Alumni and Friends database later in the newsletter.

2005 Homecoming Events

UND’s Homecoming events for Fall 2005 are scheduled for the week of September 28 through October 1. The Department’s banquet will be held on September 30 at the Hilton Garden Inn. The social hour will start at 5:30 p.m., with dining at 6:30 p.m.

Additional details will be posted on our Web site as they are known (www.geology.und.edu). Please join us for a noon seminar, an advisory meeting, a tour of the building, and an evening of good company.
2004 GGE Alumni Advisory Meeting

UND Homecoming affords the opportunity for GGE alumni to advise the Department on any and all issues that concern its well being.

The next advisory meeting will be held at 2:00 p.m. on September 30, 2005 (Friday of Homecoming Week). Please feel free to stop in at the Conference Room next to the departmental office in Leonard Hall to be apprised of current department events and future plans.

The advisory meeting included Sid Anderson (PhB '51), Ed Murphy (BS '79, MS '83), John Hoganson (PhD '85), J. Mark Erickson (MS '68, Ph.D. '71), Will Gosnold (presiding), and Joseph Hartman (behind the camera).

The Leonard Medal

The Arthur Gray Leonard Award was established by the Department of Geology and Geological Engineering in 1992 in honor of its namesake (1865–1932), who, as a pioneering geologist across many fields of interest in North Dakota, was also a leader and a scholar. Award of this medal recognizes outstanding achievement in the geosciences in research, teaching studies and projects applied to societal needs, teaching, educational development, and leadership in conservation of Earth’s resources and environment, conferred by faculty and alumni of the Department and of the University of North Dakota.

To date, the following individuals have received the Leonard Medal:

Wilson M. Laird (1992)
Andrew G. Alpha (1993)
F.D. Holland, Jr. (1993)
Sidney B. Anderson (1994)
Bernold M. Hanson (1994)
Walter L. Moore (1995)
Lee Clayton (1995)
Samuel J. Tuthill (1996)
Alan M. Cvancara (1997)
Clarence “Kelly” Carlson (1998)
Thomas M. Hamilton (1998)
Wallace G. Dow (2000)
Rodney M. Feldmann (2001)
Robert M. Harris (2003)
Gerald H. Groenewold — 2004 A.G. Leonard Award Recipient

On October 15, 2004, Gerald H. Groenewold was presented with the 17th Arthur Gray Leonard Medal. The well-attended event was an opportunity to share memories, some old and treasured and some just for fun.

Gerry was born in Forreston, Illinois, November 3, 1945. He received his B.S. in Geology from the University of Illinois in 1967 and began graduate studies at UND in the fall of that year. Working with the vigor and energy that are two of his characteristics, Gerry earned his M.S. in Geology in 1971 and his Ph.D. in Environmental Geology in 1972. Professor Frank Karner served as M.S. advisor for Gerry’s thesis entitled Concretions and nodules in the Hell Creek Formation, southwestern North Dakota. Professor Lee Clayton served as Ph.D. advisor for Gerry’s dissertation entitled Applied geology of the Bismarck–Mandan area, North Dakota.


The EERC is the premiere research facility at UND. Gerry manages a multidisciplinary science and engineering research team of more than 270 people who focus on the development, demonstration, deployment, and commercialization of energy and environmental technologies. The EERC has pursued a practical, market-driven approach with national and international clientele, emphasizing joint venture projects between government, industry, and the research community. Under his direction, the EERC has broadened its scope to include alternative fuels, advanced air pollution control technologies, water management, nuclear weapons site remediation, and the development of state-of-the-art analytical and cleanup techniques for air, soil, and water. During his tenure, the EERC has developed major program initiatives in the areas of air toxics and fine particulate, renewable energy, water treatment, flood prevention, global climate change, waste utilization, and energy-efficient technologies. Most recently, Gerry has been recognized for his contributions in receiving the North Dakota Research Advocate of the Year (2004) and the Grand Forks Region Economic Development Corporation Abe Muscari Grand Champion Award (2002).

Gerry’s busy life is shared with Constance Triplett and three sons, Gerd, Nikolaus, and Justin. Connie is an attorney, a Grand Forks County Commissioner, and a State Senator. Gerd is working toward
his Ph.D. in Philosophy at Yale University, while Nikolaus attends Montana State University and seems most interested in a profession related to “digging.” Justin is a senior at Red River High School.

Gerry is involved in numerous and various professional, economic development, and historical organizations and activities. Close to his heart is his concern for Western history and culture. He is currently a member of the Board of Trustees of the North Dakota Heritage Foundation and North Dakota Cowboy Hall of Fame and is the President of the Frontier Heritage Alliance. One related passion is Gerry’s collection and restoration of unique antique cars (and a stagecoach). As Connie notes, this is one activity that consumes all remaining available time and many family road trips.

Leonard Award Noon Seminar

An A.G. Leonard Award seminar was held at noon on October 15 in the Lecture Bowl. Two alumni, John Hoganson (PhD ‘85) and Ed Murphy (BS ‘79, MS ‘83), teamed presented a splendid overview of the geology Lewis and Clark Voyage of Discovery with their talk: “Geological observations of the Lewis and Clark expedition in North Dakota.”

Ed and John conversing in Leonard Hall Lecture Bowl with off camera visitors J. Mark Erickson (MS ’68, PhD ’71), Bud Holland, and Erik Holland.

Any guess as to what year this photo was taken of Hogie and by whom?

Gerry and Connie enjoying the evening’s festivities.

Some EERC UND staff alumni were unable to attend because of the timing of an important conference in Billings, Montana. GGE solved this problem by having John Harju, Dan Daly, Beth Bolles, and Jim Sorensen videotaped for airing at the banquet.
Will Gosnold handing Gerry the Leonard Medal. Anne Watson, Will, and Dean John Watson (School of Engineering and Mines) sharing after dinner.

Will and Gerry listen to Frank Karner tell a story about the old days in Leonard Hall.

Julie LeFever (NDGS), Ed Murphy (Acting Director of the North Dakota Geological Survey), and Mardi Holland.
An evening of Leonard Award Festivities, enjoyed by students, friends, and faculty alike.

Some of the students who had the opportunity to learn of the success of our alumni (and a little about how that success comes about) are: Quingeng Tao, Alyssa Boock, Ryan Klapperich, Mike Harpel, Reed Brandvik, Mike Blackstone, Rebecca Salinas, Anna Franklin and Mike Davis, and Sarah Dunbar and Paul Skubinna.

Old and new friends, Mardi Holland, Mark Erickson, Victoria Swift, and Bud Holland.

Connie Larson (helping to make the evenings events a success) and Anastasia Dobroskob, a postdoctoral student of Amad Ghassemi.
Thanks for Your Help and Contributions!

This is a listing of late 2003–2004 Departmental donors according to the UND Alumni Foundation. If you are not included, we apologize. Please let us know.

Your contributions are truly a significant contribution to the success of our programs.

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Fred and Beth Wosick
Bryan D. Zinda
Your continued support is very much appreciated.

Our department is a campus leader in student educational activities because of all the geological activities we undertake to provide the best programs.

However, we could not afford LEEPS lectures, field trips, and the latest equipment for teaching without contributions from our friends and alums.

Your dollars mean more now than ever before. UND continues to be supportive of our mission to provide the best possible teaching and learning environment, but State funds only go so far. General donations provide the greatest flexibility for departmental use, but contributions can also be specified to a specific activity.

The various fund account categories are listed below or let us know how you would like to see your contribution used. In other words, your support is sincerely appreciated, and we abide by your specific wishes on the use of contributed dollars.

Some of the special accounts we have are as follows –

- The John R. Reid Fund
- Paleontology Development Fund
- Sedimentology Lab Fund
- Stable Isotope Geochemistry Fund
- Water Quality Lab Fund
- Alan M. Cvechare Graduate Research Award Fund
- F.D. Holland, Jr. Geology Library Endowment Fund
- N.N. Kohanowski Memorial Fund (mining, economic geology, geochemistry, petrology, or mineralogy)
- Carbonate Geology Studies Fund

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To recognize and honor contributors to the Department of Geology and Geological Engineering, the Geology Alumni Advisory Committee has designated the following categories of donors: Life Patron, Honor Patron, Sustaining Patron, and Patron. All contributions are accumulative and applicable toward the next larger category (as reported by the Alumni Foundation). To express our continued appreciation and gratitude for their generous gifts to the Department, the names of our Patrons will be listed in each issue of the Alumni News.

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Thank you hardly begins to
cover our appreciation!
2003–2004 GGE Faculty Grant Activity

Our Departmental faculty continue to be successful in pursuing outside funding for research across a wide range of scholarly, applied, and educational topics. Without such funding, we would not be able to stay competitive in scientific research and bring exciting research opportunities to the classroom. Of significance is that outside funding enables the Department to afford research opportunities for undergraduate, graduate, and postgraduate students. Besides many small grants for specific projects or travel, we continue to have significant projects funded. The following is a partial list of funding by PI, title, and funding source. As is the case in academia, many additional proposals were submitted that still remain unfunded.

Nels Forsman
- Opportunities for Geologic Evaluations of Ancient Tuffs and Tuff–Bentonite Associations in North Dakota; UND School of Engineering and Mines Seed Money Grant

Phil Gerla
- Student Summer Scholarship; North Dakota Water Resources Research Institute
- Faculty Laboratory and Research Experiences; North Dakota EPSCoR
- Various projects; The Nature Conservancy

Phil Gerla (with Joseph Hartman and Greg Gagnon)
- INGEOS, Indians into Geological Sciences; National Science Foundation

Ahmad Ghassemi
- Estimating Injection-Induced Joint Slip and Permeability Variation; Energy & Geoscience Institute, Utah
- Fracture Propagation and Reactive Fluid Flow for Geothermal Reservoir Development; U.S. Department of Defense
- Geomechanics Model for Geothermal Reservoir Development; U.S. Department of Energy INEEL
- A Reservoir Geomechanics Model for Enhanced Geothermal Systems; National Science Foundation
- Modelling Slow, Accelerated, and Seismic Deformations on Interacting Plate Boundaries; U.S. Department of Energy

Ahmad Ghassemi (with Cheng and Defournay)
- A Thermoelastic Fracture Propagation Model for Geothermal Reservoir Development (in two parts); U.S. Department of the Navy and UND Office of Research and Program Development

Will Gosnold (with Todhunter, Rundquist, Dong, and Blackwell)
- A Test of Borehole Paleoclimatology as a Method to Quantify the Anthropogenic Component in Climate Change; National Science Foundation
- Gravity Survey of Surprise Valley, California; U.S. Department of Energy, Lake City Geothermal LLC
- Travel to Moscow, Russia, and Hannover, Germany, and Presentations at AGU; UND Senate Scholarly Activities Committee

Joseph Hartman
- An Important Record of Climate Change at the End of the Cretaceous: A Model for Interpretation of Paleocological Data for Present-Day Global Climate Change (Fort Peck Hell Creek Project); U.S. Department of Energy
- Stratigraphic Evaluation and Entry of North Dakota Lignite Data into the National Coal Resources Data System; U.S. Geological Survey
- Virtual Geology in the Classroom; Faculty Instructional Development Grant, UND Office of Instructional Development
- Grants for faculty travel, museum research, and education (Biospheric Evolution of Earth) in Australia, and presentations at the 15th World Malacological Congress, Perth; UND Scholarly Activities Committee, Office of Research and Program Development, and Office of Instructional Development

Scott Korom
- Karlsruhe Aquifer Denitrification Study (in two parts); North Dakota State Water Commission and North Dakota Department of Health
- Amendment to Assessment of denitrification capabilities in North Dakota aquifers (in two parts); U.S. Environmental Protection Agency and North Dakota Department of Health
Scott Korom, continued
- North Dakota Water Resources Research Fellowship (two); U.S. Geological Survey & North Dakota State Water Commission
- Designing a new class project for hydrogeology; UND Office of Instructional Development

Scott Korom (with Phil Gerla and W. Seames)
- Total Carbon and Total Sulfur Analyzers Equipment for UND Water Resources Research Laboratory; EPSCoR IIP Equipment Grant and UND

Ron Matheney
- Summer Instructional Development Professorship: Implementing Knowledge Surveys in Geology 101 and Geo 102; UND Office of Instructional Development

Dex Perkins and Joseph Hartman
- A University of North Dakota Geoscience Digital Image Library (GeoDIL); National Science Foundation and UND

Dex Perkins
- Redesigning an Undergraduate Mineralogy Course; UND Office of Instructional Development
- Case Studies in Science Workshop, State University at Buffalo; UND Office of Instructional Development
- Geology and Hollywood; UND Office of Instructional Development
- Petrographic Microscope Purchases; UND Office of Program Development and Office of Instructional Development

Will’s office used to seem to be bigger. Back in the early ‘80s, everyone seem to have more hair, too.

Dedication of the Wilson M. Laird Core and Sample Library.
Standing ovation for Dr. Laird (Faculty, 1940–1971). L to R: Commissioner of Agriculture; Clarence G. (Kelly) Carlson (MS ’60); Sidney B. Anderson (PhB ’51); Governor Arthur Link; Mrs. Mary Anderson; and Dr. Laird (at podium).
2004 Departmental Field Trips

GGE was again active in getting students into memorable field activities. Field trips to Death Valley, California; Arkansas and Texas; the Adirondak region of New York and Ontario; as well as North Dakota enriched the geological experiences of our students.

This year I received office and field photos to enhance departmental image collections from T.T. Quirke, Jr., Harry Short (PhB '56), and Ed Murphy (BS '79, MS '83). I am sure that other alumni have similar precious photos in one format or another.

**Feel free to send them to the Department for scanning and archiving. Please provide as much information about the image as possible. Just the usual, what, when, where, who, and why, if known.** We will include selected images in the newsletter, and we are investigating a way to put more images on the Web. To preserve images, we will start a scanning program in the fall. An update on our progress will be given in the next newsletter.

**Visiting Death Twice**

R. Needham, R. Suggs, and S. Heinle

Another year, another January geology field trip. This year the trip extended from January 2 to January 10, 2004. The participants on the see-your-life-flash-before-your-eyes trip were Rebecca Salinas, Rebecca Needham, Shannon Heinle, Rich Suggs, Amy Decker, Reed Brandvik, Kathryn LeFever, and our chaperon Dr. Dexter Perkins of the University of North Dakota.

To avoid the grueling 24-hour van ride out to our destination, California, we opted to fly out of Minneapolis and land in Las Vegas. Really, it was the best possible approach. Our trip got off to the usual hilariously fun start when our van broke down at UND transportation and we had to replace it. Oddly enough, the replacement van broke down in Fargo, but no worries, NDSU lent us a van that worked, and we made our flight and touched down in Las Vegas. We stayed the first night in Vegas because it was getting to late too drive farther; honest, it is the truth. Day 2 of the adventure saw us on the road into Death Valley National Park. Our first geological stop was at the sand dunes near Stovepipe Wells Village. There we visited Mosaic Canyon, where we saw excellent breccia, and water-polished marble walls. We camped at Inyo campground just outside of Death Valley.

Day 3, we skipped a lot of cool stuff because, of all the things we were trying to escape, i.e., snow in California making things difficult. We finally made it to Panum Crater, a rhyolitic plug dome volcano that last erupted sometime during 1325–1365 A.D. Mono Lake was next on our stop. It is an ancient pluvial lake, over 700,000 years old, and one of the oldest lakes in North America. Mono Lake’s most noticeable feature are its tufa towers formed when calcium-bearing freshwater springs well up through alkaline lake water. Because we planned to stay at Yosemite, we spent the rest of the day avoiding snow-filled passes to reach our destination.

Day 4, we spent some time checking out the sites and view in Yosemite before continuing on to see New Idria, an old mercury mining town. Farther up the road were outcrops of serpentine. Steep, muddy roads forced a retreat. The road up to the serpentine was an adventure, but we have survived to tell the tale. We stayed the night at Pinnacles campground near Pinnacles National Monument.

Day 5, we drove the California coast, with a stop at Point Lobos State Reserve, described as the greatest meeting of land and water in the world. We saw some really cool rock formations, phenocrysts, and seals. We also stopped at a San Simeon beach and watched elephant seals sleep and roll over. We stayed near the famous Hearst Castle in San Simeon and, while there, we checked out Moonstone Beach, a great collecting site for pebbles from the Franciscan Formation. We also managed to black out the town and had no electricity for about 10 hours.

Day 6, our first stop was at Morro Rock, an
eroded volcanic neck. Morro Rock is a mass of rhyolite that rose about 24 million years ago. Next, we went to Port San Luis to see pillow basalts. We stopped on the pier to have some lunch with some very fresh seafood, noisy seals; Rich ate a really large crab. We then drove over Wheeler Ridge and crossed the aqueduct between San Francisco and Los Angeles. We did not stop because the cattle were attacking us and a sign notified us that trespassers would be castrated. We continued on to Red Rocks Canyon campground.

Day 7, Back to Death Valley, where we stalked a wild burro. We also saw the Eureka Mine, an old gold mine, closed because an endangered bat species lives there, although we did try to have a peek. At Harmony Borax Mine, we almost got run over by a crazy old person on a scooter. Zabriskie Point is where we took a 3-mile hike through the canyon. Then we stopped and saw Devil’s Golf Course. As water evaporates, the salt wedges up the ground and heaves up sections of earth. Our next stop was Bad Water Basin, the lowest elevation in the U.S. at 282 feet below sea level. The water was bad. That night we camped at Furnace Creek in the Texas Spring campground. Lots of rocks and the wood burned extraordinarily fast.

Day 8, we took a drive through the park to stop and see desert pavement and desert varnish, the dark orange color that settles on some of the rocks. Next, we stopped and saw salt wedging and broke some rocks. Finally, we drove through Artist Drive, a painted canyon passing some goats along the way. We went back to Vegas, where some lucky people won some money at the airport and came back to sunny and warm North Dakota.

All the Way to Texas (On Their Own)

A quick summary of this trip organized and run by students includes stops at Guadalupe State Park, Longhorn Caverns, and Devils Hole, near Fredericksburg, Texas. “Wet” beach processes were examined on Mustang Island near Corpus Christi, along with the Alamo, before heading back north. Studies were made in the Hot Spring and Crater of Diamonds areas of Arkansas and tours of Mammoth Caves and the Lost River were enjoyed in Kentucky. Remember marathon drives? Still have your field notebooks?

Shannon Heinle, Reed Brandvik, Jordan Bremer, and Marron Bingle show off quarter-size hail stones from Arkansas. Spring Break field trips harken back to memories of iffy weather, but good spirits (if stinky vans).

Students now give talks on their departmental field trips. Presenting in the spring of 2004 were Shannon Heinle, Jordan Bremer, Amy Decker, Rich Suggs, Rebecca Salinas, and Ryan Klapperich.

Reed and Jessica Phillips (below), and Jordan, Rich Suggs, Marron and Mike Lannon side atop a part of Enchanted Rock (not shown are Becky Brenner, Ryan Klapperich, Amy Decker, Rebecca Salinas, and Shannon).
A Little About Field Camp

Ryan Klapperich reports that “Field camp was fun and rewarding and yet laborious and frustrating all at the same time. My fellow campers and I hiked up, down, and around hill sides, mountains, and valleys, while enduring rain, snow, sleet, and blistering sun, usually in the same day. We learned the basics of field mapping and how difficult real world geology can be. Communication skills were stressed at each week’s project culminated in a formal written report and inked field map. (Get those rapidographs ready!) No two days were the same and dinner was usually and adventure. (This is lasagna??) All in all we had a good time and left with plenty of stories to tell. Just ask the folks at the Beulah bar.

Danielle Marquardt, Jordan Bremer, Bryan Kendall (squatting), Mel Dvorak, and Aric Brackel, aka Team Stinky Danger, celebrate their victory of Thompson Gulch, near Beulah, Wyoming.

The Adirondacks of New York and Canada

August 14–20, 2004

Late this summer, Dr. Perkins led a small touring and rock-collecting trip to the Adirondack Mountains and Canadian Shield. Present on the trip were Shannon Heinle, Rebecca Salinas, Becki Brenner, and Jordan Bremer. Highlights of the trip included a ferry ride to the Bruce Peninsula, a hike up Whiteface Mountain, and some great stops at various mines.

The first of these was the Gore Mountain garnet mine, which produces about 95% of the world’s industrial garnets. This stop was followed by the Nyco-Williston wollastonite mine, the Sanford Creek ilmenite titanium mine, the Valentine wollastonite and blue calcite mine, and the McCloud siderite mine. On the return trip we visited Pike’s hill, which is home to some of the continent’s oldest rocks (about 3 billion years old). We also stopped at the Gunflint Chert near Thunder Bay, Ontario, where we examined the 2.5 billion year old stromatolites.

The Adirondack Mountains are an amazing place, especially in late summer; it was the experience of a lifetime to see all the legendary outcrops that we’ve only read about. If you’re ever in the area, stop by Shoals Provincial Park for great camping. Finally, a memory of a time while we were being searched by Canadian customs people. [guy opens door]: “Wow . . . you look like geologists to me” [guy closes door].

A ferry ride to the Bruce Peninsula: Becki Brenner, Rebecca Salinas, Jordan Bremer, and Shannon Heinle (with Dexter Perkins behind the camera).

Aric, Rich, Becky, Ryan, Jordan, Lookout Point (on the Pahasapa Formation), near Spearfish, South Dakota.
Black Hills Field Trip

September was crowned by a short trip to the Black Hills, primarily for petrology and rock mechanics classes. Drs. Perkins and Ghassemi sheparded 24 students with the hope that they would get a grasp on rocks that we’re not so used to in Grand Forks, as well as enjoy the grandeur of this time of the year. Our geologizing commenced at Devil’s Tower, followed by a special tour of the backrooms of the Black Hills Institute of Geological Research in Hill City. We had a hike around Sylvan Lake and around Needles highway. On the following day, we had

Devils Tower, Wyoming. This unique formation was once thought to be the neck of a volcano, but more recently has been interpreted as the erosional remnant of a lava flow or sill. The columnar joints developed as the magma cooled, much the same way that mud cracks develop when a puddle dries up.

Becky, Rebecca, Jordan, and Shannon at Whiteface Mountain, near Lake Placid, New York, sitting on Archean charnockite (what is that you ask?; see end of addresses).

The open cut at the Homestake Mine, Lead, South Dakota. This pit is no longer being mined, but has produced a large amount of gold. The country rock is Precambrian schist, and the light layers are granite intrusions. Hydrothermal alteration (the same process that introduced the gold) has rusted and discolored the country rock.
a tour of Wind Cave, which is known for its boxwork speothems and extensive size. We hiked Harney Peak – the highest spot in the U.S. east of the Rocky Mountains. We also stopped at some nice outcrops in Deadwood, where the stratigraphy of the area could be observed, and sparry calcite crystals could be collected. We finished the trip with a stop at the Home-stake Mine pit and a drive through Spearfish Canyon.

View to the northeast, toward Mt. Rushmore and Rapid City, from the top of Harney Peak (granite). The parking garage at Mt. Rushmore is just barely visible near the center of this photo, but is difficult to pick out at this scale.

Introduction to Paleontology
(Geol 415) Field Trip to Southwestern North Dakota

This year’s introductory paleo class traveled to Bowman country in September to examine sections, collect fossils, and visit the Pioneer Trails Regional Museum. We were kindly hosted by Dean Pearson, and Don and Kathy Wilkening. The trip was led by Joseph Hartman and Richard LeFever, and Timothy Kroeger (PhD ’95) provided

Chris Milford, Jordan Bremer, and Tanya Fenstra are doing what we hope students will be doing on a class trip: Taking notes, while Dean Pearson discusses PTRM collecting and documenting procedures.

The crew/class at the Wilkening locality getting practice cleaning section for interpretation.
insight at one of the K/T boundary localities that will likely become famous for its fossils and propinquity to the boundary. The crew helped clean the section for interpretation and then proceeded to help find mollusks at a superjacent locality. And the crew did well!

Another view to brighten a molluskeers heart, faces planted in the outcrop looking for small shells, just a few meters above the kT/ bundary.

Tanya, Becki, Jordan, and Chris, showed that Locality L6687 also produced snails, not just clams, as had previously been noted (Joseph behind the camera).

Hydrodology Outings

The photo below includes some of Scott Korom’s students in hydrogeology (Geol 417) on October 9 at the Pleasant Lake Aquifer, northeast of Rugby, North Dakota. In the back row from left to right: Shannon Heinle (Geology), Richard Suggs (Geology), Aniruddh Singh (Environmental Engineering), Md Shahriar Pervaz (Geography), and Laura West (Geological Engineering). Front row from left to right: Lloyd Hegle (Geological Engineering), Brad Troftgruben (Geological Engineering), Jordan Bremer (Geology), and Brandee Pang (Geography).

(L) Jason Warne purging an in situ mesocosm and preparing a protective casing at a site in the Karlsruhe Aquifer. (R) Eben Spencer filtering samples at a research site at the Karlsruhe Aquifer. In the background are two employees with the North Dakota State Water Commission. Tedros Tesfay is taking a groundwater sample (below).

Jordan (left), Becki, Tanya, Chris, Reed Brandvik, Richard, Tim, Dean, Joseph, Kathy (and Don behind the camera).
Faculty Corner
An extended update from a “retired” GGE faculty member

News from Bud Holland
(1954–1989)

Some years just seem more exciting and more fun than others. This was a good year! After UND winter sports were over in April, we took a tour to South Africa with the National Historic Trust. We flew from New York to Dakar and Johannesburg before changing planes for Cape Town. Our luggage caught up with us the next day, as we toured Cape Town and area for several days, including Robben Island where Nelson Mandela was imprisoned. Then we boarded Rovos Rail, a private train of beautifully restored previous-century cars and engines owned by wealthy South African businessman Rohan Vos. The train travels on the State rail lines, but Mr. Vos met us at the station with orange juice and champagne and his entourage of servants and train attendants. We traveled 960 miles to Pretoria in five days with stops for touring in Kimberely, Johannesburg, and Soweto, and a side train trip to Kruger National Park. We also toured the Apartheid Museum and the Voortrekker Monument. These were great, and one couldn’t help but be impressed by the Kimberley 400-m-deep “Big Hole,” from which 2722 kg of diamonds were mined from 1871 to cessation in 1914.

From Pretoria, we flew in one of Mr. Vos’ restored Convairs to Livingstone, Zambia, where we stayed at the luxurious Royal Livingstone Hotel, where
zebras grazed quietly on the grounds and monkeys played along the river’s edge. Besides walking to view 350-foot Victoria Falls and the Zambesi River in flood stage, we flew by helicopter over the river, the mile-long falls, and the deep gorge beyond the falls.

We then traveled to Kasane, Botswana, where we stayed at the Mowana Safari Lodge for several days of Land Rover game drives into the Chobe National Park. We saw white rhinoceros (at Kruger), exotic birds, leopard, lion, elephant, hippos, warthogs, water buffalo, jackals, and many impala and giraffe. It may just be that the latter were the most impressive because of their huge size. We flew to Johannesburg and the States after an interesting, exciting, and informative two-week trip. The Republic of SA is modern and progressive with a powerful constitution, and is making rapid strides toward complete public integration, except for large, poor, black, “informal settlements” near large cities.

It’s hard to stay home after so much excitement so our older son, Del, joined us, after his school was out, for a trip to Alaska in our new Buick (7700 mi. roundtrip). After visiting the Royal Tyrrell Museum in Drumheller, and passing through the LeDuc Field and Edmonton, we drove the Alcan Highway. It is spectacular and in splendid shape for highway speeds with only a few patches of slowed traffic for regrading. In Alaska, the drive from Tok south to Anchorage brings one close along the Matanuska Glacier and a striking view of the terminus and its associated moraine field. In Anchorage, we stayed with the Jim Pappas family, visited family and friends and drove to Seward and watched better tidal-bore in Turnagain Arm of Cook Inlet than we had seen two years ago in the Bay of Fundy. Denali was gorgeous the day we drove north to Fairbanks, as was the whole drive home by the southern route and through Jasper, Columbia Ice Fields, and Banff. Both the “Head-Smashed-In” Buffalo Jump (west of Lethbridge, Alberta) and the Lewis and Clark Historic Trail Center (in Great Falls, Montana) have wonderful museums and interpretive centers.

The garden hadn’t grown a bit in the three weeks we were away, and the cool summer, while pleasant, was hard on farmers and gardens. On 8 September, Mardi and I gave a “Free Lunch” (Subways, cookies, and milk or pop) in the Geol 102 lab for everyone associated with the Department on the 50th anniversary of our coming to UND (see above photo). In late September, son Erik and I flew from Minneapolis to Washington, D.C., where we joined the thrilling Native Peoples’ Procession for the dedication of the new National Museum of the American Indian on the southeast corner of the Mall. After touring the museum, Mount Vernon, the National Postage Museum, Arlington Cemetery, the WWII Memorial, and the Naval Heritage Center, we flew back two days later to meet Mardi in Minneapolis where she had stayed with Susan. Mardi and I flew on to Vancouver where we met for a four-day reunion with shipmates from the USS Quick, WWII destroyer minesweeper.

In November we made two trips to Iowa City for visits and Thanksgiving Holidays with family; but, at least for now, we think we’ll stay in Grand Forks for the rest of the year.

Best wishes to all from Mardi and Bud.

budholland@gra.midco.net
Darin Buri, Geology Librarian

I've had a great 8 months as the new Geology Library Manager. I have spent much of that time getting to know the faculty and students, as well as the library. Before coming to Geology, I was the Evening Circulation Supervisor at the Harley E. French Medical Library here at UND, a position I held since 2001. My educational background is in History, Anthropology, and Archaeology, and I enjoy the academic environment and being surrounded by books all day long. Who could ask for anything more?!

I am a North Dakota native originally from Hazen. After I finished high school, I joined the Navy and spent the next 4 years seeing the world from the deck of the aircraft carrier USS Ranger. (If you have any sea stories to swap or want to hear some, feel free to stop in any time!) After my active duty years, I transferred to the reserves, began attending classes at Minot State University, and married my lovely wife Susan. Both of our daughters, Ker-
stin age 13 and Brita age 10, were born in Minot. We moved to Grand Forks in the summer of 1995 so I could work on my Masters in History, and I have been at the University ever since. I was honorably discharged from the Navy Reserves in 1998. Some of my hobbies include woodturning, welding, and reading. I am also active in the VFW post here in Grand Forks and am currently serving as Adjutant/Quartermaster.

Please stop by the library and introduce yourself if you happen to be in the building. I always have a pot of coffee on, and appreciate feedback and suggestions for improving the library and the services we provide.

The Holland Library remains a treasured resource. It is electronically well equipped and we are lucky to have to Darin, who is electornically saavy and continues to look for new ways to improve our capabilities.
For Darin, much of the summer of 2004 was spent preparing for Aleph, the new library computer system. This involved assisting the cataloging department from the Chester Fritz Library in locating missing items and fixing incorrect item records to ensure the smoothest possible transition of data from Palstac our old library system, into Aleph. At the same time, all of the books were removed from the upper level shelves and dusted. The shelving was washed and the volumes were then replaced and checked for proper order. Around 100 journal volumes were sent to be bound in May. Binding started again in November and will continue into January. About 155 volumes will be sent during this time.

Darin was fortunate enough to be able to attend the GSA conference in Denver from November. In fact, he chaperoned the students (in the van) to and from Denver. He attended various seminars on geoscience information and education, and met with several colleagues from the Geoscience Information Society. Among these were Mary Scott and Joanne Lerud-Heck, both former librarians in the UND Geology Library.

The library currently employs four undergraduate students, who assist with daily tasks and circulation, and also staff the library during the evening hours.

My Journey from Geology to Math and back to a Geology Library...Mary Scott

It has been almost twenty years since I left North Dakota. In that time I completed my library science degree at the University of Pittsburgh while working part-time at the Carnegie Public Library in Oakland. The Library is attached to the Carnegie Museum of Natural History and I often took a walk through the Hall of Dinosaurs on my lunch hour. I was also working part-time at the Research Center for the Presbytery of Shenango (Presbyterian Church)—nothing like being on both sides of Creationism and Evolution at the same time. We left western Pennsylvania in 1990 and moved to central Ohio and The Ohio State University— we being, myself, my husband, Michael, and 3 year old daughter, Abigail. (Abigail is now a freshman at Indiana University.) My position at OSU was Head of the Mathematical Sciences Library. Different from geology, but at that time it included the geodetic science collection so there was a “little” tie to geology. The Geology Library was across the Oval and my good friend Regina Brown was the Head. I remained active in the Geoscience Information Society and attended GSA each year usually with Reggie—all the time waiting for her to retire. In 1993, the science and engineering libraries (minus geology) were merged into the Science and Engineering Library, a lovely library designed by Phillip Johnson. A few years later I was appointed Head of that library. A very challenging time, libraries and the Web, redefining what the library should be on campus, particularly a science and engineering library. In 2001, Reggie finally retired and I was offered the position as Head of the Orton Memorial Geology Library. It was so nice to move across the Oval and into this beautiful library. I moved from one of the newer libraries to the oldest library on campus.

Mary with preservation boxes for rare books.
Orton Hall was built in 1893. The University Library was housed here until 1918 and the Geology Library moved from two small rooms in Orton Hall into the large library area in 1923. It is a beautiful space and is occasionally used for special dinners or other events. This past fall it was used by CNN-FN to broadcast during the Presidential and Vice Presidential debates. Three broadcasts originated from the library. One had to be moved elsewhere on campus because of a dinner in the Library. The library also houses a collection of art with a geological theme. This was the personal collection of Dr. Edward Orton, Jr., and is worth a visit. My favorite is The Petrified Forest by Thomas Moran. The Library also has a rare book collection that I am just now having time to review and evaluate. It is neat to be able to handle books written by geologists that we studied in the History of Geology class with Bud Holland. It is nice to be able to share these with current History of Geology classes. One exciting one is Smith, William, Strata Identified By Organized Fossils, London, W. Arding, 1876. William Smith’s original work on the Principle of Faunal Succession. OSU has one of the few copies in a library in the United States. University of New Hampshire Professor Emeritus Cecil Schaefer has put a copy up on the web. If you want to see it go to www.uch.edu/esci/explanation.html. Not sure what else I will uncover in that collection. The challenge is making time to spend working on it with everything else that needs to be done in a library. This collection has been heavily supported over the years by faculty and alumni.

Recently, I received a contribution to purchase books in memory of a former student. A group of his friends had collected the money. This is a great way to “pay back by paying forward” and support the collection for the future. We can do that for the UND Geology Library with a contribution to the UND Foundation that is designated for the purchase of books for the Geology Library.

If this is the salamander procession, I must be in Slovakia ...
Joanne Lerud-Heck

In 1978, I left North Dakota – the place where I had been bred and buttered, nurtured, educated, and mentored – for the big city of Denver. I had had responsibility for the Geology Library while working on my Master’s in Geology at the University of North Dakota. Lee Gerhard’s prophecy was ringing in my ears – someday I could become the Library Director of the Colorado School of Mines. In characteristic North Dakota disbelief, I thought, “Yeah, right!” I received a Master’s in Librarianship and Information Management from the University of Denver in 1980; the same year I completed my Master’s in Geology from the University of North Dakota.

My first professional position was as a Technical Information Specialist in the Denver Research Center of Marathon Oil Company in a southern suburb of Denver called Littleton. This was wonderful training as I answered questions from geologists and geophysicists company-wide; I never knew if the next request would be from Java or Artesia, New Mexico. It helped that budgets were great in “Big Oil” from 1980–1986 while I was at Marathon. Our small group of information professionals (about five) put together a corporate information structure that is still in place today. No one told me that the information field was full of adventures, but those adventures began to happen. I still would like to know how the CIA got my name or why we weren’t blown off the road after a dog and pony show on our databases in Wyoming in January.

In 1986, I decided I might like to try to contribute a little more to society and chose to look for a new position in higher education. Montana Tech (formerly Montana School of Mines) took a leap of faith and hired me as Director of Libraries. Again, how fortunate I was to have such
a training ground. Montana Tech was small enough so that I could immediately see the effect of decisions (or non-decisions); the Administration was willing to give me a lot of freedom; and the State was very supportive of libraries. I was even allowed to participate in the legislative process so that I could see how budgets were forged and how the law was made. Butte had amazing political machinery still in place even though Anaconda had closed the Berkeley Pit by that time. What do you expect from a feisty mining town for whom St. Patrick’s Day is more celebrated than Christmas? Adventures included sapphire and opal hunting, meeting the Prince of Wales (ok, he had recently been released from Warm Springs Mental Hospital), town meetings for support for new library laws in Montana, lecturing my boss how a flat budget is really a cut in funds, and advising the cheerleaders of Montana Tech (the announcement of that activity made my Father laugh for ten whole minutes).

I then saw an ad for the Director of the Library of the Colorado School of Mines. I thought I didn’t have enough supervisory experience as I had only been in Butte a couple of years, but I applied anyway. I was so thrilled when I was invited for an interview and had a great time, as I had convinced myself that it was a courtesy interview. (Don’t you love that North Dakota confidence?) So when the offer came to me, I actually took ten days to make the decision. I have never taken ten days to decide anything, but off I went to Golden, Colorado in 1989. The first few years were spent laying down the philosophy under which the Library works and staffing with the right people. Soon the Library sort of began to run itself and the Administration in its infinite wisdom (?) decided that I should do a little international travel to represent some of the interests of the Colorado School of Mines. Talk about adventures! Mines doesn’t care about lovely vacation spots like Paris and Rome. I travel to such places as Freiburg (Saxony), Germany; Leoben, Austria; Banska Stiavnica, Slovakia; and Idrija, Slovenia. I pack steel-toed boots, a rock hammer (when they were allowed), blue jeans, and presents – lots of presents. I jump over leather aprons, experience Salaman- der processions, go into ecstasy regarding the Schwazer Bergbuch (one of ten identical books handmade by clerics in 1556 regarding mining in Saxony), and see mercury ore so rich that it forms heads on the host rock. There is always a time when I wonder “What is a North Dakota kid doing here?” but find the most interesting people, places, history, and experiences.

The Colorado School of Mines is a public research university devoted to engineering and applied science related to resources. It is one of the leading institutions of the nation and the world in these areas. It has the highest admission standards of any university in Colorado and among the highest of any public university in the United States. The Arthur Lakes Library is a regional information center for engineering, energy, minerals, and materials science, and associated engineering and science fields. The collections include more than 500,000 volumes, approximately 1800 serials titles with hundreds of databases and e-journals; over 200,000 maps; archival materials on western mining history; and several other special collections. The Library is a selective U.S. and Colorado state depository with over 600,000 government publications. For more information, see http://www.mines.edu/library/.

Arthur Lakes, for whom the Library is named, was an interesting guy. Besides being one of the first professors of the School of Mines, Arthur is responsible for the discovery of large dinosaur bones in Colorado. He first wrote to O.C. Marsh regarding his discoveries, but thought Marsh
Mary Reinertson-Sand, the Geology librarian when I first arrived on campus in 1986 provides us with her thoughts on working in the library in the late 1980s.

I was the Geology Librarian from June 1984 until August 1990. Among my most memorable thoughts are-

- Photocopying articles for hours from the reading lists assigned to students
- Working with NDGS personnel
- Unpacking, stamping, and filing topographic maps
- The great office I had – one entire wall of windows overlooking campus
- Gloria Pederson – the Geology secretary who remains a dear sweet friend of mine to this day
- The remodeling of the library to add a second level
- The renaming of the library from the Geology Library to its present name
- Dr. Holland – who supervised the library during my time there
- Kris Brummer – my partner-in-crime student assistant for many years
- The department for allowing me to take time off for three summers while I traveled to the University of Alabama to complete my Masters in Library Service degree.
- The scary cage in the basement, where storage was for the library
The way it was, in transition to a two-story library. Book stacks piled high on the floors, with the third floor hallway a temporary library (photos by Mary).

Mary Scott states that the Geology Library a major regional resource and is what we worked to build during our tenures as the geology librarians there. However, there is almost no money to purchase new books. All of us benefited from the library in the past, it is now time to “pay back by paying forward.” Send your check to the UND Foundation and designate it for Chester Fritz Library, Geology Branch Library Book Fund. This will get it into a fund that Darin Buri can use for geology book purchases.

Hanying Xu (M.S. in Analytical Chemistry, 1999, Hunan University) is the new Director of the Environmental Analytical Research Laboratory (EARL). Hanying was previously the Director of the Chemical Analysis Laboratory at the Jilin Entry/Exit Inspection and Quarantine Bureau. He has numerous grants and publications and one patent. He replaced Jason Warne (BS GE, 2002; MS EnvE, 2004), who graciously filled in as Director for the fall semester (2004) until a replacement was found. Hanying’s wife, Julia Xiaojun Zhao (Ph.D. in Analytical Chemistry, 1999, Jilin University) is an assistant professor in the Department of Chemistry at UND. We are pleased that a person of Hanying’s experience is leading EARL and we wish him well in his new position.

Phil Farquharson (BS ‘75) shares a moment with us at his poster on the Cretaceous San Marcos dike swarm of northern Baja California.
A Big Year At GSA

The Department was well represented at the annual meeting of the Geological Society of America in November 2004. A number of faculty and a vanload of students, along with our geology librarian, presented talks, posters, had their first or umpteenth meeting, and held a great gathering a Wynkoops Brewing Company. In total, 18 students and faculty participated in the meeting and 38 folks enjoyed the alumni evening. Of interest is that one of the presentations made at GSA was interdepartment, with geography also represent. A listing of students and faculty involved is as follows and titles and abstracts available online at www.geosociety.org.

- Marron Bingle (graduate student)
- Jordan Bremer (undergraduate student)
- Mike Davis (graduate student)
- Phil Gerla (faculty, on two contributions)
- Will Gosnold (faculty)
- Joseph Hartman (faculty, on two contributions)
- Richard Josephs (faculty)
- Ryan Klapperich (undergraduate student)
- Scott Korom (faculty, on two contributions)
- LaBonte (undergraduate student)
- Dexter Perkins (faculty)

Ryan Klapperich presents a senior thesis project above and enjoys his student colleague posters on another day (left). Mike Davis and Jordan Bremer wait patiently to inform passers by of Mike's senior thesis project.

GSA regional and national meetings provide students with opportunities to develop confidence and contacts. The Department promotes these activities at an early stage in the student's academic career.

Will Gosnold presents a poster in collaboration with members of UND's Department of Geography on borehole paleoclimatology (upper left).

Marron Bingle and Joseph Hartman stand for a photo in front of Marron's soon-to-be-completed Master's student thesis on Cretaceous Hell Creek mussels (lower left).
Alumni Gathering in Denver, GSA-Style


Above: Scott Korom (glass half full). Above right: Ryan and Reed watch taped UND-Colorado hockey game (mailed in special for evening's festivities). Below right: John Hoganson (PhD '85) and Tom Heck (MS '79) visit affectionately.

Left: Will Gosnold, John (Emeritus) and Barbara Reid, and Michelle (Manly) Mostowy (BS EGT '00) enjoy a chat that only a conference is likely to provide.
Alumni and Friends Seen At . . .

Society of Vertebrate Paleontology
Annual Meeting in Denver,
November 2004

Joseph Hartman and John Hoganson

Geological Society of America
Annual Meeting in Denver
November 2004

Greg Batey, Edward Beason,
Witney Shiers Beason, Antoine Bercovici,
Marron Bingle, Darin Buri, Becky Cheedham,
Amy Decker, J. Mark Erickson, Lance Erickson,
Phil Farquharson, Rod Feldmann,
Bob Ferris, Valerie Fu, Will Gosnold,
Joseph Hartman, Joanne Lerud-Heck, Tom Heck,
Shannon Heinle, John Hoganson,
Richard Josephs, Tricia Kelley, Ryan Klapperich,
Scott Korom, Peter Loeffler, Mark Melton,
Chris Milford, Michelle (Manly) Mostowy,
Ed Murphy, Kori Norberg, Camille Patin,
Dexter Perkins, Reed Brandvik,
John and Barbara Reid, Rebecca Salinas,
Mary Scott, Christopher Stevens, Steve Sturm, Richard Suggs, Lon Weznick

Keep an eye out for us – from the faculty activities pages you will see that we attend a variety of other meetings around the country.

visit www.GeoDIL.com

Scholarships & Awards
2003 Spring Banquet
We congratulate our students on their efforts!

C.B. "Burt" Folsom Memorial Scholarship
Amy Decker

Bernold M. (Bruno) Hanson Scholarship
Jessica Phillips

Henry Hinds Memorial Scholarship
Shannon Heinle
Ryan Klapperich
Erick Zacher

Reba A. Laird Scholarship
Amy Decker
Jessica Phillips
Rachael Robinson
Laura West

Hugh and Ruth Palmer Scholarship
Jordan Bremer
Aric Brackel
Tracy Christopher
Rebecca Needham
Andrew Mau
Teri Nelson
Laura Pederson
Steve Smith
Joseph Thompson

Harold J. Polta Scholarship
Laura West

Emil and Audrey Stoltz Geological Engineering Scholarship
Matt Jergens

Estwing Pick Award
Shannon Heinle

Outstanding Graduate Teaching Assistant Award
The John Reid Award
Corey Askin
Tricia Knutson

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### Recent Theses And Dissertations

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<td>Kristján F. Bekker (M.S.), Flow Through Well Screens as a Function of Pump Intake Location</td>
<td>Kristján F. Bekker</td>
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<td>2001</td>
<td>Alison E. Kammer (M.S.), Laboratory Denitrification Using Sediments from the Elk Valley Aquifer</td>
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<td>Karyn A. Alme (M.S.), Description and Genesis of the Western Cold Turkey Creek Field Anomaly, Williston Basin, Bowman County, North Dakota</td>
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<td>Erica Peterson</td>
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<td>2002</td>
<td>Joseph Lee Stone (M.S.), The sedimentology and stratigraphy of the Sentinel Butte Formation around Beicegel Creek, McKenzie County, North Dakota</td>
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<td>2002</td>
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<td>Trent Hubbard (Ph.D.), Flute-forming Conditions in Alberta and North Dakota – A Comparison Using Ice Sheet Reconstructions and Field Techniques</td>
<td>Trent Hubbard</td>
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<td>2004</td>
<td>Qiang Zhang (M.S.), A boundary element method for thermo-poroelasticity with applications in rock mechanics</td>
<td>Qiang Zhang</td>
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<td>Aaron Ulishney</td>
<td>Richard D. LeFever</td>
</tr>
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<td>2004</td>
<td>Eben J. Spencer (M.S.), Isotopic tracers as evidence of denitrification in the Karlsruhe aquifer</td>
<td>Eben J. Spencer</td>
<td>Scott F. Korom</td>
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Red River of the North basin. 

Chairman: Frank W. Beaver

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Arron Ulishney

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Eben Spencer
Recent Degree Recipients

2002
Dustin Jay Auch, B.S., EGT
Twyla Beth Baker-Demaray, B.S., EGT
Mike A. Davis, B.A., Geol
Denise Christina Davids, M.S., Geol
Michael Wayne Hirst, B.S., EGT
Trent D. Hubbard, Ph.D., Geol
Tricia L. Knutson, B.S., Geol
James Bradlee Mertz, B.S., EGT
Trika Lee Nelson, B.S., Geol
Jennifer Lynn Olson, B.S., Geol
Michael Sean Robinson, B.S., EGT
Derek Thomas Senn, B.S., GE
Erica Michella Snare, B.S. Geol
Darla K. Sondrol, B.S., Geol
Joseph Lee Stone, M.A., Geol
Warne, Jason Mark, B.S., GE
Thomas William Wyatt, B.S., GE

2003
Rose Nessa Eull, B.S., EGT
John Andrew Gunckelman, B.S., Geol
Melanie H. Johnson, M.S., Geol
Kelly A. Nelson, B.S., GE
Andrew John Nygren, B.S., GE
Md. Salah Uddin Sharif, M.S., Geol
Eben James Spencer, B.S., GE

2004
Erin Elizabeth Borgschatz, B.S., Geol.
Jonathan Lee Labonte, B.S. EGT
Laura Kay Pederson, B.A., Geol.
Paul Andrew Skubina, M.S., Geol.
Eben James Spencer, M.S.
Richard Allan Suggs, B.S., Geol.
Aaron James Ulishney, M.S. Geol.

Departmental Activities

The Spring Awards Banquet was again held in the North Dakota Museum of Art. This venue provided us with a chance to be the only revelers within ear shot. The more formal, “artsy” surroundings gives geologists and geological engineers alike a chance for dress-up (we clean up pretty well).

(L) Henry Pollack, Victoria Swift, Dexter Perkins, and Ahmad Ghassemi. As guest speaker, Dr. Pollack (University of Michigan) spoke on “Q: How certain is global climate change? A: Very.”

Babies with parents’ Erica and Shaun Wood and Qiang Zhang (Claire, [Tiantian]).

To right (next page): Shannon looks ready to use her Estwing (Award) hammer. Richard LeFever ponders “the most likely to use it clause” in giving the award to Shannon.

Phil and Janet Gerla.

Jessica Phillips and Sean Archer.

Shannon Heinle and Amy Decker.
Connie and Owen Larson, Kathy Spencer and Richard LeFever.

Matt Jurgens and Frank Beaver (above center). Brock and Becky Needham (above).

Andrew Nygren, Eben Spencer, Matt Jurgens, and Jason Warne.

Aaron Ulishney, Rebecca Salinas, Ryan Klapperich, and Adam Ulishney.

Frank and Joan Karner.
Departmental Activities

Dexter and Betsy Perkins again kindly offered their home a wonderous departmental Halloween Party. Like last year, students turned out the night before to help festively decorate the Perkins' home in ghoulish motif. Homemade beer and delightful hors d'oeuvres made easy going fare with a night of good geological and geological engineering company.

Hosts, Betsy and Dexter. Jessica Phillips and Chris Harpel (below). Fiancé and Mike Blackstone (lower right).

Amy Decker, Will Gosnold, Rich Suggs, Reed Brandvik, Jordan Bremer, Ryan Klapperich

Marissa Linback.

Alyssa Boock (a rock) and Jordan. Scott and Katheryn Korom (tuna or shark?).
Mark Melton and Marron Bingle (high on life).

Kristjan Bekker (MS '01) enjoys the good life and never lacks for a complex but thought seminar question.

Becki Brenner, Joseph Hartman, and Amy Decker (all in need of good health coverage).

View of Leonard Hall from the recently painted UND water tower. Hoping for a good photo, I gave my precious digital camera to a crewman welding on the tower prior to painting. I came back at midday to find the camera still working and some nice campus shots (they would not let me up on the tower).

During the past year, Leonard Hall had its hallways painted. Our unsung renovation heros were Richard Fore and Richard Gunville.

All of the lighting in Leonard, except for the Lecture Bowl, which will happen later, was also replaced with more energy saving lamps (less light, too).
Departmental Activities

The Department continues to host a variety of seminars for scholastic development of its students (see LEEPS Lectures). One such event was the hosting of Gregg Gunnell of the University of Michigan Museum of Paleontology. I invited Gregg to present summaries of his research on the fossil evidence for the origin of bats and climate change and mammalian evolution at the time of the Paleocene–Eocene thermal event. Victoria and I held a Hartman open house for Gregg on November 19 at which time members of the Department, and Dean’s office, GGE students, and friends had a chance to share a few rare social moments together.

Amy Decker, Shannon Heinle, Marissa Lindback, and Matt Jurgens watch/guffaw over recent snapshots taken in Australia being shown on the tele. Brent, April Brackel, Laura Pederson, Marron Bingle, Jessica Phillips, Marissa testing the various pies.

Richard and Julie LeFever regularly attend departmental social functions.

Cadence Youngberg is typically cooperatively, but her secret punch recipe required unusual arm twisting.

Anne Watson and Victoria Swift deep into something.
LEEPS AND OTHER LECTURES

Leading Edge of Earth and Planetary Science Lectures in 2004

The Department is committed to an exciting and thoughtful learning environment, and there are few better ways of enhancing a student’s education than bringing in experts in specific current topics of interest. LEEPS lectures are supported by the Dean’s office, The John R. Reid Fund, alumni donations, and from the Department. Typically, seminars are held on Friday at 12:00 p.m. and 3:00 p.m., with refreshments at the latter. Students have lunch with the speaker at 1:00, so an informal time exists for questions and answers. If formal seminars are not scheduled, student presentations and defenses are frequently conducted at these times.

Ed Murphy and John Hoganson (Homecoming Speakers): North Dakota Geological Survey,
—“Geological observations of the Lewis and Clark Expedition in North Dakota”

Gregg Gunnell (LEEPS): University of Michigan,
—“Fossil evidence for the origin of bats”
—“Why we should care about the Paleocene–Eocene boundary—Perspectives from mammalian paleontology”

Linda Ivany (LEEPS): Syracuse University,
—“The Paleogene greenhouse-to-icehouse transition in Antarctica—Climate and ecology in a shallow marine system.”
—“The ABCs of paleobiology—Insights about the geochemistry of accretionary biogenic carbonates.”

Bridget C. Doyle (GE search): Hope College,
—“Identification and classification of lateral spread features in the New Madrid Seismic Zone”

Matt Kohn (LEEPS): University of South Carolina,
—“The chemistry of teeth, the rise of the Cascades, and the cooling of Antarctica”
—“Repeated Miocene–Pliocene thrusting at plate-tectonic velocities in the central Himalaya, Nepal”

Hong Kim (GGE Search), University of Nevada-Reno,
—“Contributions of advective and diffusive oxygen transport through multilayer composite caps over mine waste”

Barry Allred (GGE Search), USDA, Columbus, Ohio
—”Application of near-surface geophysics in agriculture drainage pipe detections”

Henry N. Pollack (LEEPS): University of Michigan,
—“Climate Change: The View from Underground”
—”Q: How certain is global climate change? A: Very” (Spring Awards banquet talk)

Lee Phillips (LEEPS): University of North Carolina-Pembroke
—“Evidence for submarine meteoric groundwater flow in the Cretaceous Ashville Formation, Manitoba Escarpment and Pasqua Hills areas, Canada”
—“The role of synsedimentary precipitation of carbonate cements in the preservation of dinosaur tracks, example from the Cretaceous Dakota Formation, Nebraska, USA”
The Department’s Christmas party was organized and largely ran by AUG (Association for Undergraduate Students; which includes an active group of grads, too). The festivities were held at the Blue Moose in East Grand Forks to a good number of students and faculty. Even Santa made an appearance.

One of our long tables (left). The Gerlas, William Lenarz, Mike Davis, and Alyssa Boock.

Santa (Ryan Klapperich) (left). Scott Korom instructing Karolyne (above) and doing likewise with Richard Josephs (above right). Will Gosnold, Darin Buri, and Jordan Bremer enjoying “slide” show (right). Betsy and Dexter Perkins and Katheryn Korom in one of the Blue Moose
Other Departmental Activities

Inauguration of Master of Science in Geological Engineering

Geological Engineering is a profession in which geomechanics, geological knowledge, and implications of geological processes are used to help solve complex engineering problems in exploration and extraction of minerals and energy resources; geomechanics; environmental site planning; geohazard investigations; and hydrogeology, reclamation and contaminant remediation.

The M.S. in GeoE enables the faculty to enhance their contributions to the research mission of the university and nicely relates to the mines mission of the SEM. It also serves the State, as the students enrolled in the program acquire advanced skills and training that are necessary to develop N.D. energy resources and deal with its geoenvironmental problems; it is thus and is a form of technology transfer, and contributes to the economic development.

The program has been designed with flexibility in mind. It requires completion of 24 credits of coursework, 12 hr of which are chosen from the GGE, and a thesis. The coursework is designed by the student and his/her advisor along with the thesis committee.

In addition to the regular faculty, the M.S. program benefits from two Research Scientists (Anastasia Dobroskok and Suresh Kumar). Already, there are two students in the program, one from Bismarck, and one from People’s Republic of China. We anticipate increasing the enrollment to six to eight students through additional research activity and recruitment.

Ahmad Ghassemi announced the new degree offering with President Kupchella, Dean Watson, Dean Benoit, Chair Gosnold, and members of the Department providing the appropriate hurrahs for this exciting new mission.

The above well-dressed group presented research at the North Dakota Academy of Science meeting held in Fargo in the spring of 2004. I presented work on Hell Creek mussels that Marron Bingle and Paige Baker (far left) had been analyzing, in part, with INGEOS support. Ryan Klapperich (center left) and Mike Davis (center right) presented on aquifer denitification and prairie potholes representing Senior and Master’s thesis projects, respectively. Phil Gerla participated in these efforts, but was unable to attend the meeting.

Ryan receives a supersize award for second place for a quality undergraduate presentation in the A. Rodger Denison Student Research Competition.

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Use of Department Paleo Collections

GGC fossils are studied in-house and loaned for examination by paleontologists. One such visit included a former paleo student, Nathan. The group is studying the Paleocene plants from the Almont locality.

The Department has hosted the Science in the Circle of Life program at various times over the years. In June 2004, with Marron Bingle as the team leader and Joseph Hartman as faculty coordinator, this Dakota Science Center program had a paleo theme. SCL is a two-week, summer residential science camp for middle-school age children. The program is designed specifically for rural and American Indian students to strengthen their interest in science and technology as potential career paths.

During the first week, three larger groups of students get to have a “brief” exploration experience of the workings of lab science on campus.

During the Investigation Phase (Week 2), students chose which discipline they would specifically like to work with for more intensive laboratory and field exercises. Back left: Lindsay Two Bears, Maloni Fox, Kevin Krautbauer, Chris Held, Marron; Front left: Kristi Haadem (Program Leader), Jon Bowen, and Edward Wall.
The Department also continues to provide numerous tours to K–12 classes. Graduate students typically host the tours, but I find it fun to stop in and say hi to the youngsters that visit the paleo lab.

A vanload of students (a few shown here) listened to hear AAPG Distinguished Lecturer, Phil Curie, speak on “Feathered Dinosaurs, and the Origin of Birds” at the Heritage Center in Bismarck in December. The presentation was sponsored by the North Dakota Geological Society. Dr. Curie is a well-known dinosaur paleontologist of the Royal Tyrrell Museum of Palaeontology.

Tours frequently include precocious Grand Forks Head Start classes (above) and school groups from out of town. Lakota 4th grade elementary is pictured on the left.

Marron Bingle, Dr. Curie, Jordan Bremer, and Chris Milford (Joseph behind the camera again).

AUG (Association for Undergraduate Geologists) raises money for field trips by selling hot chocolate and doughnuts on cold mornings (in Grand Forks).

Will Gosnold routinely takes his students out for equipment-based technical exercises. This high-end GPS rover and base station is being run by Reed Brandvik and Mike Davis for Digital Mapping Methods (Geol 330).

Shown here are a helper and Jordan Bremer. Shannon Heinle (Treasurer) and Amy Decker (President) were also some of the active members.
Phil Gerla. At the end of August 2004, I finished 15 months of full-time work with The Nature Conservancy (TNC) (one academic year and the prior and latter summer) as part of developmental leave from the University. During this time, I worked on several projects that explored how natural hydrological conditions on the large TNC preserves in the region could be either restored or protected. I also coauthored an analysis and report that identifies streams and rivers in Red River Basin that reveal a high priority for the conservation of aquatic biodiversity.

Although I was not teaching classes, work with students continued during my leave. Md. Sharif (MS ’03) and I presented research on selenium geochemistry at the Soil Science Society of America Annual Meeting last year. Sharif is now working towards a Ph.D. degree in environmental dynamics at the University of Arkansas. At the annual meeting of the Geological Society of America in Denver this year, Mike Davis (BS ’02), undergraduate students Jordan Bremer and Jonathan LaBonte, and I presented a poster describing detailed bathymetric mapping of prairie potholes. Mike is exploring ways to better predict pothole volume from surface area and to understand the processes leading to pothole shoreline/basin profiles. Cory Askin (MS ’04) is finishing a thesis that evaluates the water budget and recharge capture zone for the remarkable springs and seeps at The Nature Conservancy’s Pigeon Point Preserve in the Sheyenne delta. New to the department this year is Bill Lenarz, who plans to focus his research on explaining the

No one could quite remember the last time a faculty–staff photo was taken, so it seemed like a good idea and Chuck Kimmerle, UND, award-winning photographer obliged. This photo was taken in December 2004 in the Lecture Bowl.

Stephanie Houston, Becky Jacobson, and Ryan Klapperich (left to right) panning concentrate from the old Griswold gold mine near Fort Ransom, North Dakota. A few minute flakes were collected from the pan.
unusual spatial variation of spring and seep hydro-geochemistry at the Point.

A few of the participants in the “Natural History of Glacial Lake Agassiz” field trip this fall are looking toward glacial deposits exposed at Red Lake Falls.

Ahmad Ghassemi. Ahmad has provided an enumerated list of his current activities in Geomechanics Research for energy and geoscience:

1) Poro-viscoelastic modeling of coupled rock deformation and fluid flow in enhanced geothermal systems to study the effects of a magma body on the dynamics of deformation in the Coso geothermal field. We are also studying the interaction of fault and chamber mechanisms in caldera formation (AG and Alexander Simakin).

2) Investigation of the critically stressed fractures (CSF) in geothermal reservoirs and their response to reactive flow, pore pressure and thermal stress. This research consists of identifying the CSFs based on the geological stress regimes and the hydraulic fracture, and drilling-induced stress data and investigating the slip on joints and faults due to fluid pressure, precipitation/dissolution, and thermal stress and estimating the resulting permeability change (AG, Suresh Kumar, and Andrew Nygren).

3) Analytical Poro-Thermoelastic Stress Analysis. The objective here is to develop a wellbore stability model to assist in designing optimum borehole trajectories with respect to future production, hydraulic fracturing, and hole integrity/lost circulation (AG and Qingfeng Tao).

Some recent publications include:


Richard Josephs. “Greetings from Room 324, high atop beautiful Leonard Hall. It’s been a busy and an exciting 2004. Time flies when you’re having fun ... or, more realistically, the older you get. The highlight of the past year has to be my geoarchaeological research in Labrador as the newest member of the Porcupine Strand Archaeology Project headed by Dr. Lisa Rankin, Department of Anthropology, Memorial University of Newfoundland in St. John’s. My contribution to this eclectic research group is the use of micromorphology to locate buried Maritime Archaic sites (ca. 7500–3500 BP) in an attempt to explain the sudden demise of this culture sometime between
4000 and 3500 years ago. I am actively seeking graduate students to assist me with this work.

In addition to writing proposals to fund more trips to Labrador, I have been busy “spreading the geoarchaeological word” through journal articles (my seventh since joining the UND faculty was just accepted for publication in Geoarchaeology) and poster presentations at the Archaeological Sciences in the Americas Symposium (Tucson, AZ, September 23–25) and at the Geological Society of America annual meetings (Denver, CO, November 6–10). I am looking forward to participating in the “Geological Contributions to the Understanding of Late Holocene Human Populations in the Northeast” symposium at the Northeast Regional GSA meeting in Saratoga Springs, NY, March 14–16, 2005. All the best!

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Dexter Perkins. The past year has been a busy one, as usual. It seems that I have been traveling at least two weekends a month. When I received notice from Northwest Airlines that I was now a Gold Elite member, I tried to calculate how much time I have spent in airplanes. A rough guess would put it at 140 hours for the year. Way too much.

Much of my traveling has involved students. In January 2004, some students and I took a field trip to California. I skipped the 2004 Spring Break trip (but AUG ran their own trip without me). Then, late in the summer some students and I went to look at geology in Ontario and the Adirondacks. The 2004 fall field trip was to the Black Hills again and Ahmad participated. We spent some time designing a tunnel to go through a hill of Harney Peak granite.

In November, I and a half dozen students went to Ann Arbor to use the microprobe at the University of Michigan. We are investigating xenoliths – trying to see if compositional zoning can be used to infer the rate at which the xenos were emplaced in the crust.

Besides traveling, I am busy writing. Two more books are in preparation – one on National Parks, and the other on gems. I hope to have them essentially completed by the end of next summer.

Betsy’s store has done exceptionally well recently, and my kids are off at grad school: George at New Mexico (geology) and Doug at Carnegie Mellon (philosophy and computers). The two boys and Betsy are still willing to take time off for adventures and to play with Dad. George and I went climbing in the Bugaboos in August and more recently (over Thanksgiving) climbing at Red Rocks, Nevada. Doug, Betsy and I have had some good travel and are looking forward to 10 days in Portugal at Christmas time.

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Joseph Hartman. Yes, the newsletter is very late and I am to blame. More on that elsewhere. Besides some health issues, 2004 was a grand and fantastical-ly busy year. I gave and participated in talks in Fargo (North Dakota Academy of Science); Tysons Corner, Virginia (GSA Northeast/Southeast Regional); two in Boise, Idaho (GSA Rocky Mountain–Cordilleran Regional); Berlin (Museum für Naturkunde); two in Perth, Western Australia (15th World Congress of Malacology); Plymouth, United Kingdom (University of Plymouth, Marine Biological Association, British Ecological Society, and Freshwater Biological Association); Florence, Italy (32nd International Geological Congress); Denver (Society of Vertebrate
Paleontology annual); and two in Denver (GSA annual). Through grants, departmental, ORPD/ORDC, Scholarly Activities support, and paid travel, I had opportunities to plant the UND GGE flag over a lot of venues. The topics covered Cretaceous nonmarine mollusks, K/T boundary extinction scenarios, environments in the Tongue River Formation/Member of North Dakota, Meek and Hayden’s nonmarine paleontology and geology of the Upper Missouri River country, mammals and bird tracks of the Sentinel Butte Formation/Member of North Dakota, molluscan paleontology of the Deccan Plateau of India, and the INGEOS program (Indians into Geological Sciences) at UND. The trips to Berlin, Germany, and various cities in Australia would have to be considered the highlight of the activities, but each was special in its own way. My wife, Victoria Swift, finally was able to travel with me and, although most days were spent in museums, the travel to the type area of the Ediacaran biota and its boundary stratotype were a rare educational thrill. A number of papers went along with these presentations. I finally published a paper on J.C. Frémont and his fossil collecting exploits in southwestern Wyoming on the Oregon Trail.

The new academic year started with a plus. I was awarded an Olson Professorship for 2004–2005 academic year having “successfully demonstrated abilities in teaching, service, and especially research.” The monetary award will permit additional student-related field activities to be undertaken in 2005.

In the fall of 2004, I taught Mass Extinctions as a full-blown course. These undertakings are gratifying and exhausting at the same time. During the fall, the department also published a “Guide to the vertebrate paleontology of the High Plains – The late Mesozoic-Cenozoic record of North Dakota.” This is the department’s first fully electronic publication. This peer-reviewed pub is available from me or Connie Larson for the nominal cost (including shipping) of $10.00 (make checks out to GGE Paleo Development Fund).

Marron Bingle is close to finishing her Master’s thesis on discriminating selected species of Hell Creek freshwater mussels. Marron has decided to continue on for her Ph.D. at UND and work on a Cretaceous project in India.

**Kimberella, interpreted as a proto-mollusk. I had no idea that they got this big, in the treasureland that is the northern Flinders Range, South Australia.**

**Richard LeFever.** Richard turned over the reins of the Department to Will Gosnold after more than two terms as Chair, counselor, friend, ombudsman, and toastmaster. Richard is shown here turning out student awards at the Spring Banquet at the North Dakota Art Museum. I apologize for the quality of the image. It turned out that Richard is illusive photographic prey.

Richard guided Aaron Ulishney through the completion of M.S. this year on the “Discontinuities in the Icebox Formation (Ordovician), Williston Basin, North Dakota and Montana.”
Scott Korom. For me, 2004 was the year of theses. Ryan Klapperich (BS Geol ’04), Jason Warne (BS GE ’02, MS EnvE ’04), Paul Skubinna (BS GE ‘98, MS Geol ’04), and Eben Spencer (BS GE ‘03, MS EnvE, ‘04) completed their theses.

Ryan Klapperich completed his honors thesis (and senior thesis) this summer: “Aquifer Denitrification: Correlation of 15N Isotopic Enrichment and First-Order Rate Constants.” He analyzed data gathered by my graduate students and me since 1997 from our in situ denitrification mesocosms. Ryan presented his results at the North Dakota Academy of Science meeting in Fargo in April, and at the Geological Society of America Conference in Denver in November. At the former he was awarded Runner-Up for the Denison Undergraduate Research Competition for oral presentations. Ryan is currently applying to graduate programs.

Jason Warne was the first student to complete an MS in environmental engineering at UND. This new graduate program combines those aspects of chemical, civil, and geological engineering applicable to environmental problems. Students are hosted by one of the three departments: Chemical Engineering, Civil Engineering, or Geology & Geological Engineering. Jason’s thesis was titled, “Design and Evaluation of a Modified In Situ Mesocosm to Study Denitrification in the Karlsruhe Aquifer”; he defended it in July. His version of in situ mesocosm modified the original version designed by Allen Schlag (BS EGT, ’96; MS Geology, ’99). Jason’s design incorporated a small pump that allows it to be used for installations exceeding a depth of 25 feet below the ground surface. His research was funded by the North Dakota Department of Health and North Dakota State Water Commission. Jason presented his results at two conferences last March: The UND Graduate School Scholarly Forum and the Environmental and Ground Water Quality Conference in Pierre, South Dakota. Jason, his wife Christy, and his two boys, Ethan and Kaiden, recently moved to Buffalo, Minnesota, where Jason works with Wenck Associates in Maple Plain, Minnesota.

After over a three-year absence from UND, Paul Skubinna, completed his MS in geology. His thesis was entitled, “Modeling the Hydrogeochemistry of Denitrification in the Elk Valley Aquifer”; he defended it in October. Because of time constraints it was the earliest defense on record — it started at 7 a.m. Paul used PHREEQC-2, a thermodynamic geochemical modeling code, to test the hypothesis of Allen Schlag (BS EGT ’96; MS Geol ’99) that organic carbon was the other electron donor, after sulfide in pyrite, to contribute to denitrification in the Elk Valley Aquifer; Paul’s work supported Allen’s hypothesis. Paul’s research was funded by the North Dakota State Water Commission, North Dakota Department of Health, and North Dakota Water Resources Research Institute, which is funded by the U.S. Geological Survey. Paul left UND a few years ago to take a position with a consulting company in Montana. Recently, Paul took a position as a Water Quality Specialist with the Montana Department of Environmental Quality. Paul’s wife Sarah accompanied him to his defense, as did his father from Minnesota. This fall Paul also got his first elk; he’s promised Korom some steaks (hint, hint).

Eben Spencer’s environmental engineering thesis was entitled, “Isotopic Tracers as Evidence of Denitrification in the Karlsruhe Aquifer”; he defended it in December. Eben used primarily 15N/14N and 18O/16O ratios in nitrate to show that denitrification occurs in some locations in the Karlsruhe Aquifer and that the primary source of nitrate is from the oxidation of ammonia-based fertilizers. Eben is the son of Kathy Spencer, the former librarian of our F. D. Holland, Jr., Geology Library. Eben presented his research in March at the UND Graduate School Scholarly Forum and in October at the Midwest Environmental Chemistry Workshop in Madison, Wisconsin. His work was funded by the North Dakota State Water Commission, North Dakota Department of Health, and North Dakota Water Resources Research Institute. In January, 2005, Eben started work with Barr Engineering in Minneapolis, Minnesota.
In addition, Tracey Christopher (BS GE, in progress) and Amy Decker (BS GE, in progress) are working under Korom’s supervision on their Senior Engineering Design Projects. Tracey is working with Dave Rush (MS Geol, ‘00) on a riparian restoration project at Turtle River State Park. Amy is working with Hank Hauge (a UND graduate in civil engineering) and Lafarge Dakota on a soil stabilization project. Tedros Tesfay (PhD Geol, in progress) heard recently that his fellowship has been extended for a third year by the North Dakota Water Resources Research Institute. Tedros has finished his coursework and hopes to make great progress on his research this year.

Will Gosnold. Will reports that his research activities during the past year are all ongoing and are all related to some aspect of terrestrial heat flow. The largest project is titled A Test of Borehole Paleoclimatology and includes colleagues from Atmospheric Sciences (Xi Quan Dong), Geography (Brad Rundquist and Paul Todhunter), Geosciences at Southern Methodist University (Dave Blackwell), and Canada (Jacek Majorowicz – Edmonton; Jean Claude Mareschal – QUAM). We have supported four graduate students and three undergraduates during various parts of the research. The project will enter its third year this summer and has begun to generate significant results. During this past year we have generated 18 abstracts, three journal articles and have at six more articles in preparation. We have presented the results in a variety of venues including Monaca, Aachen, Halifax, New Orleans, Minneapolis, Vienna, and Zakopane (Jacek is a bit of a traveler). Major results include detection of the solar cycle in ground-based temperature data, validation of borehole temperature data as an accurate record of paleoclimate, and documenta-

tion climate warming during the past 150 years. This coming year we expect that our work on the solar and cloud components will lead to quantification of the anthropogenic component of climate warming. This will be a significant result since all other methods rely on models rather than data. Two special sessions at national meetings are in the works also. The first will be in Calgary at GSA’s Earth System Processes II Meeting. The session is titled: High-resolution Climate Records: Correlating the Proxy Record with the Meteorological Record and will be co-convened by Bill Patterson, Isabel Montanez, and myself. The second will be at the Fall AGU and will be co-convened by Hugo Beltrami, Fidel Gonzalez-Ruocco, Hans Von Storch, and myself.

A especially interesting new project that I began last with colleagues from the Czech Republic (Jan Safanda), Poland (Janek Szewczyk), Finland (Ilmo Kukkonen), Canada (Jacek Majorowicz), and SMU (Jason McKenna) is an investigation of the impact of post-glacial warming on northern hemisphere heat flow data. If our hypothesis is correct, northern hemisphere heat flow values may require revision by 30 to 60 percent depending on the depth at which heat flow was determined in the original research. We are testing this hypothesis by participating in the ICDP-USGS deep borehole in the Chesapeake Bay Impact Crater that will be drilled and continuously cored beginning in September 2005.

I am continuing work on the Global Heat Flow Database and have arranged with Waliya Hamza (Brazil) to begin work on publishing the updated database within the next year. Waliya and I will present a paper comparing heat flow transects across magmatic arcs in the Cascades and Andes at the IASPEI General Assembly, Oct. 2-8, in Santiago, Chile.

Other than research, my athletic endeavors did suffer some due to the time constraints imposed on training by the three years I spent in ORPD. That led to a few extra pounds, but they are mostly gone now after a year back in the Department. Cross country skiing and running have been the main activities because shoulder and back injuries have kept me out of the swimming pool for most of the past year. Fortunately, the injuries were minor and have healed so I am back in the water and am considering going to USMS long

Will at a lock on a cruise ship on the Volga River, Russia. The entire conference on “Earth’s Thermal Field” was held afloat.
course championships nationals in August. Yes, I am still a bit of a nut on this stuff. May 17, I ran a 5 km race at GAC-MAC in Halifax, May 21 I did the Thief River Falls triathlon, and May 24 I ran a 5 km race at AGU in New Orleans.

Nels Forsman. Nels taught our core Introduction to Geology (Geol 101) to the masses and directing all of the labs including the design and writing of his own laboratory manual. He also taught the growing demand for Geol 101 as a correspondence course. This year Nels also taught Geology for Engineers (GeoEng 203). Three proposals were also submitted; two based on volcanic deposits in North Dakota and the other on teaching methods associated with developing pedagogy on Web-based knowledge surveys developed with Ron Matheney.

Ron Matheney. Ron’s research has shifted to Web-based knowledge survey tools for instructors in introductory geology and Earth history. As part of the Department’s program of assessment of student learning, especially in the transfer of knowledge from one semester to another, the implementation of prelecture “what do you think you know” and other means of assessment represent a new area of teaching and learning that we feel is a valuable resource to our faculty and likely of national interest. To this end, Nels and Ron have submitted an NSF proposal to fund a pilot project: “Development and Release of Knowledge Surveyor, a Web-Based Assessment Tool.”
The Association for Undergraduate Geologists includes those students shown here and a number of others that come in and out of the program through out the year depending on schedules. AUG includes both geology and geological engineers and some graduate students as well. AUG was active this year, meeting irregularly but often under the faculty supervision of Dexter Perkins and Joseph Hartman. Various fund raisers were held to help sponsor outings, particularly field trips, an activity the group has come to rally around (mentioned elsewhere). The Department has helped sponsor these field trips through alumni donations.

**INGEOS, Alive and Well in Geology**

Indians into Geological Sciences, a NSF-funded project, completed another year of supporting undergraduate and graduate student mentoring by providing stipends and counseling on projects across a wide spectrum of topics. The main event was an INGEOS sponsored conference – “Collaboration for Science Learning,” where students presented on projects to tribal representatives and students from North and South Dakota and Minnesota at the Rural Technology Center in Grand Forks. Later, in the fall at GSA, on behalf of the INGEOS team, Hartman presented “Indians into geological sciences: An approach to mentor young scientists at the University of North Dakota,” in a Topical Session innovative solutions to teaching in the geosciences.
Alumni Recognition

Golden Breakfast

On May 28, 2004, the School of Engineering and Mines celebrated “50 year” anniversaries with alumni, which included Paul Cableman (BS Geol ’54). The breakfast in Swanson Hall was convened by Dean John Watson. Seated below with Paul is his wife, Doreen, Scott Korom, Joseph Hartman, Will Gosnold, and Kelly Carlson (MS ’60).

The SEM Academy

On behalf of the Department of Geology and Geological Engineering, friend Gerry Groenewold accepted a plaque honoring Bernold “Bruno” Hanson (BS Geol ’51) as a member of the School of Engineering and Mines Academy on October 15, 2005.

Bernold M. Hanson

“Bruno”

Born: May 7, 1926, Mayville, North Dakota
Education: UND BS Engineering Geology 1951 University of Wyoming, BS Geology 1954
Career Experience
1951-52 Magnolia Petroleum Co., Texas
1952-53 U.S. Corps of Engineers, Alaska & S. California
1953-57 Oilwell Drilling, California Oil and Refining Co., Texas
1959-60 President, Hanson Corp., Texas

Accomplishments
Authority in Oil and Gas Drilling Industry
Wrote six papers in 14 occasions
A total of 15 publications in geological trips
1970 President of UND Society in Petroleum Engineers
1975 President of West Texas Geological Society
1981 Board Member of Petroleum Society of America
1980-81 Board members of UND Presidents, and 1984 President

Awards
1971 Honorary Life Member of West Texas Geological Society
1979 John Atchley Award from Boy Scouts of America
1978 UND Alumni Award
1981 AAPG Distinguished Service Award
1982 Distinguished Alumnus Award from University of Wyoming
1987 Honorary Doctorate from University of Wyoming
1985 ND Leadership Award for Excellence
1956 AAPG Pioneers Memorial Award
1958 AAPG President’s Award

Bruno at a somewhat earlier but no less accomplished age (photo provided by Marcella Hanson Melsted).
Ron Kresl (BS Geol '55, MS '64) has two development projects in Laramie, Wyoming; he is Project Manager for 84-unit condominium and a 125-room Hilton Garden Hotel for the University of Wyoming. That hotel will have a large conference room and retail/office space. Joanne retires in February and they plan to do TRAVELLING! RK2421@aol.com

Roger Reede (BS '59, MS '67, PhD '72) and Karen are enjoying their beautiful new home in Paynesville, Minnesota. They took time to tour France last year with friends. They are proud to report that daughter, Monica, had a near sell-out art show in Minneapolis and son, Tim's cabinetry made the cover of Midwest Home magazine last year. Daughter, Susan had chemotherapy and seems clear of cancer, they rejoice! Their letter closes with: “Grant me the senility to forget the people I never liked anyway, the good fortune to run into the ones I do, and the eyesight to tell the difference.”

Harry Short (PhB '56) has sent wonderful legacy photos of North Dakota and geological topics of interest for classroom use (e.g., mass wasting).

The following photos are a sample from a 1954 field trip with some typical events and activities.

Dr. Godon Bell (1953–1957) does not seem to be in nonplussed over difficulties encountered while mapping work following his junior year. We have four daughters and eleven grandchildren spread all over the country. Presently, our granddaughter is in her junior year at UND, making four generations of our family UND people.”
Alumni News 1960s

Rod Feldmann (BS ‘61, MS ‘63, PhD ‘67) reports that “This has been another eventful year. Carrie and I have done field work and museum research in several countries and the results, other than exhaustion, have been preparation of several more fossil decapod papers.

We began the year with a vacation/work trip to Puerto Rico, where we collected a bunch of crabs and Carrie has now completed a manuscript with several students on that region. The work was enhanced by a shipment of crabs from Cuba, so this represents a first occurrence for both areas.

We returned from Puerto Rico just before New Years, did the laundy, and departed for Chile, where we spent two weeks examining Miocene rocks and collecting more crabs. These localities had originally been studied by Darwin, but he did not find the crabs. That work has been submitted to the Journal of Crustacean Biology.

At Spring Break, we headed to Argentina and did more collecting along the foothills of the Andes at Bariloche, one of the major resort spots in the country, and then headed toward the coast to collect from a place I have been rained out of twice previously. It rained like crazy again so that was a bust. Maybe next time . . . .

In May, we headed to Spain and worked in the Pyrenees for a month, collecting tiny crabs from an early Eocene reef complex. Great place to be and good people to work with, as everywhere else in the world.

Finally, in July we travelled to Romania for a month of field work in the Jurassic of the Carpathians (see photo). Our Romanian associates are currently in Kent as part of the NSF International grant program that sponsored the research. When we finished in Romania, we returned to Croatia for a few days of collecting in southwestern Croatia – one of the most beautiful places in the world.

In between those trips, we both taught classes, drove around in our 1937 Packard and 1930 Model A truck, attended the GSA, where we saw a bunch of North Dakota folks, and generally enjoyed life. Other than that, not much has happened.”

Frank Schulte (BS ‘65, MS ‘71, PhD ‘72) is retired from Exxon, but still heads his own company, Global Ventures/Consulting, Inc. Cindy is now retired, too. They spent three weeks in England (where they used to live) and another 10 days in Portugal. Both daughters, Maren and Jen, have three sons between them. Frank owns land in south-central North Dakota to which he returns to escape Houston several times/year. He is restoring the family farm as it was in 1905. Frank reports that John Delimata (MS ‘69; PhD 1975) was over for Thanksgiving and “looks good,” but is experiencing some hearing, vision, and breathing problems. Ladd Hagmaier (MS ‘67, PhD ‘71) recently completed a 2½-year job for Exxon Mobil and is back to working for Frank again. Tom Hamilton (MS ‘67, PhD ‘70, HON ‘93) “is supposed to retire, but has already started a couple of new businesses.” Frank Caramanica (PhD 1973) has taken long trips to the coast and other places on his motorcycle. Thanks, Frank, for sharing all this news! franksch@airmail.net

Neil Sherrod (MS ‘63) has spent time visiting volcanoes this past year, Mount Rainier and Mount St. Helens, and then Arenal Volcano in Costa Rica. He found each awesome and beautiful. Neil continues to volunteer for the Red Cross and the Poudre Wilderness Volunteers. He and his daughter, Nancy, climbed two 14ers on the same day, Grey’s Peak and Torrey’s Peak. Another, Long’s Peak was closed to non-technical climbers this summer, otherwise they would have attempted that, too. Glad to learn that you are so active, Neil. bnrsherrod@juno.com
Jim Hollarn (BS Geol '64) had been visiting his parents regularly in Grand Forks, until his Dad died last year; Jim’s Mother still resides in GF so Jim returns for short visits when he can. Jim taught Remote Sensing at San Diego State this past spring, and Phil Farquharson (BS Geol ‘75) was one of his students.

J. Mark Erickson (MS ‘68, PhD 71) writes “May was great for me because son Lance graduated cum laude from Macalester College with a double major in Geology and Physics. His plans for use of the degrees are still uncertain, but he likes the Twin Cities area so I get to visit with him on my travels to North Dakota! Bud Holland, who was visiting his son, Erik, in St. Paul, attended graduation with me and he was kind enough to drive me immediately to the airport so I could return to St. Lawrence’s graduation the next day. There I placed an honorary doctoral hood on Mark Klett, who had been among the first students to do research with me in North Dakota and now is an internationally known photographer and interpreter of landscape.

I traveled to North Dakota a couple of times in 2004. In June, I spent some time with two students working on Fox Hills–Hell Creek transitional paleobotany in the Missouri Valley. We were hosted in Bismarck by John Hoganson and the North Dakota Geological Survey. I was even able to attend John Blumle’s retirement celebration at the state capital and to congratulate him on his accomplishments. The Geological Survey has been an important facilitating organization for the numerous students that have visited ND with me over the past 30+ years, as has the University I might add. We were greeted in 2004 by some unusually cool June weather, and eventually the rain that seems to characterize my field adventures all too often! We were not well rewarded with leaves, but Trisha feels she has enough data to suggest some relationships with the western part of the Williston Basin flora so she has submitted an abstract for the Northeast GSA section meeting in March. In fact, I am participating in five papers for that meeting! One of these is with Dr. Trent Hubbard (MS ’97, PhD ‘02), who is both one of my alums and one of UND’s (twice!).

My other visit was for Homecoming in October. I was pleased to hear John Hoganson and Ed Murphy present the Arthur Gray Leonard Lecture, a very interesting discussion of Lewis and Clark’s geological observations in North Dakota in honor of Gerry Groenewold. The dignified banquet that evening at which the A.G. Leonard Medal was presented to Gerry was a most enjoyable event. I hope more alums will develop the habit of attending and visiting with faculty and particularly with students. It was kind of Bud and Mardi to put up with me as a house guest on short notice, and I very much enjoyed their hospitality! There Bud, John H. and I worked on a paper we have had in the mill for 10 years or so! I found that there seemed to be good spirit in the department and at the U.

I made it to GSA Denver where I was proud to attend Lance’s first poster, where he presented some structural data based on calcite c-axis orientations that he began as a senior project and finished last summer. A wonderful alumni party was held in Denver too, giving me a chance to play pool with Lance and to visit with old friends like the Reids, Mary Scott, Joni Lerud-Heck; who I don’t see often enough. Also at GSA, my paper on the earliest evidence of invertebrate sexual behavior attracted quite a bit of attention as well, but the second highlight of the meeting for me was to have a different area of my past research sighted each day of the meeting! I guess that pleases me because Dr. Kingma (do you remember Jacobus Kingma teaching at UND around 1970?) used to tell me that I was too broad and needed to specialize in some group if I were to be recognized. I have found that he may have been correct for graduate teaching, but at the undergraduate level my diverse background and cross-disciplinary interests have been a real asset. UND played a great roll in assuring that strong diversity. So in keeping with that diversity I taught Invert. Paleo., Paleoecology, Geotechnical Writing and supervised four BS theses this past semester. Next semester, I will be doing Historical Geology, Paleoecology, Stratigraphy and the theses again while coordinating our department’s Geology Alumni Conference in April. The bright spot on the horizon is that 2005–2006 is a sabbatical year for me and will give me a chance to finish several projects before retirement comes over the horizon!

Anyway, that was my summer and fall of 2004, and ND played a goodly part in it. Thanks everyone and have a Happy and Productive New Year.”
Kent Johnson (BSGE ‘69, MS ‘71) is benefitting from the high oil/gas prices with his company, Kodiak Petroleum, Inc. He reports that his company is operating wells in KS, NE, and ND and are interest participants for wells in OH and NM. Cathy is at Denver University in the International Transportation Institute. Son, Erik (28), graduated from Santa Clara University as a computer engineer and now is employed with Avaya. Leif (24) recently graduated from Colorado State University with a degree in economics and finance and works for Northwestern Mutual Finance Group. kodiakpetinc@qwest.net

John Bluemle (PhD ‘71) was honored upon retirement as State Geologist and Director of the Geological Survey this summer. His accomplishments were many, but his efforts to educate the general public about the geology of North Dakota were outstanding. The past few years were most frustrating to him as he continued to educate politicians about the importance of service of Survey while it was been restructured (see NDGS following Alumni News). We thank you, John, for all you have done for North Dakota geology. johnbluemle@btinet.net

Laramie Winczewski (BS Ed ‘71, Ms ‘77; PhD ‘82) continues with his company “Fourthwavegroup.com,” but finds time to teach math at a high school for immigrants in Houston (last fall he has students from 77 countries, speaking 44 different languages!). Laramie urges us to check out his Web site for more original stories. Do it! They reflect Laramie’s clever imagination. www.fourthwavegroup.com

William J. Stone (PhD ‘73) writes “This holiday season marks the end of my first year in retirement. I retired on 1 Jan 04 after 30 years in hydrogeology. That includes 6 years with Los Alamos National Laboratory and 22 years with the State of New Mexico (plus a 1½-year diversion to Newtown Gold Co. in Nevada). To regain a reasonable cost of living, Rosanna and I left the Santa Fe area and bought a place in Bosque Farms, in the Rio Grande valley just south of Albuquerque. My Prentice Hall book, “Hydrogeology in Practice – a Guide to Characterizing Ground-Water Systems” is doing well and there’s no call for a 2nd edition yet. However, I continue to teach (hydrology and environment courses) and consult (under the business name stoneWATER) on a part-time basis. Spare time is divided among making the new place ours and pursuing my passion for trains, bicycling, short-story writing, photography, and kayaking. If any southwestern department field trips include New Mexico, or any students are looking into New Mexico jobs or universities, be sure to get in touch (505 869-6506) stonew@cybermesa.com

Alumni News 1980s

Art Schnacke (MS ‘82) completed his final trip to Moscow for Exxon Mobil. He and Barb are very ...
active in their church and son, Jonathan, now a senior in high school, has been to Venezuela and Memphis as part of church outreach ministry and is active in his school newspaper. Their younger son, David, is in preschool, learning Spanish and sign language! The entire family seems to be Purpose-Driven. Good for you! aschnacke@aol.com

Mark Lord (MS ’84, PhD ’88) is busy teaching in North Carolina still. Patty reports that son, Josh, started college this Fall! Cassie is a junior in high school (where does the time go?)

Steve Chipera (MS ’85) writes Dexter that “Work has been crazy. Of course, my personal play time seems just as bad. Wish there were 48 hours in a day. I have been heavily involved with the Single Action Shooting Society (see pic). Fear that the picture gives me a bit of the pot-bellied-pig look. Trust me – The Picture LIES. Currently, I am busy trying to get the old Willys in shape to meet all my high-school buddies over in Moab in two weeks to see what we can break. My affinity for “old crap” is as strong as ever. Of course, it all takes time. In addition to the ’48 Willys, I now have Dad’s old ’51 Willys in the backyard, tore down to the frame. I have another 1958 Seebug Jukebox tore down to the cabinet. I also have a 1950’s Bennet gas pump completely tore apart, primed and waiting to be painted. (Are we starting to see a pattern here? [grin]). Ski season is over. Time to pull out the canoe. Saw Nels Forsman a the Lunar and Planetary Science meeting. He was looking a bit crippled. What is with this old-age stuff? Doesn’t anyone get out alive?”

Mark Millsop (MS ’85) has a new company, Millsop Associates, Inc., started a year and a half ago, and he reports that business is great. Joni is Secretary, AutoCad drafter and Field Technician and their son, Luke, is the third employee! Way to go, Mark! Luke and Adam are now seniors in college. Luke and Lee are both married and have presented Mark and Joni with two grandchildren! Thanks for all the good news, Mark. mmillsop@millsop.com

Ed Steadman (MA ’85) provided us with the following educational document on an EERC project that involves a number of GGE alums.

The Plains CO2 Reduction Partnership. The increasing concern over global warming has pointed to the need for methods to reduce the amount of anthropogenic CO2 being released into the atmosphere. CO2 can be sequestered in two ways. Indirect sequestration is capturing CO2 from the air and storing it for some period of time in soils or vegetation. Direct sequestration is capturing CO2 from exhaust or process gas and placing it in relatively permanent storage, usually in underground geological formations (Daly, 2004, What is CO2 Sequestration? [MS ’84]).

The PCOR (Plains CO Reduction) Partnership is a diverse group of public and private sector stakeholders working together for a better understanding of the technical and economic feasibility of capturing and storing CO2 emissions from stationary sources of CO2 in the northern Great Plains and adjacent areas. The PCOR Partnership is coordinated by the Energy & Environmental Research Center (EERC) at the University of North Dakota and is one of seven regional partnerships funded by the U.S. Department of Energy’s (DOE) Regional Carbon Sequestration Partnership Program and a broad range of project sponsors. The partnership’s role is to assess and prioritize the opportunities for sequestration in the region and identify and work to resolve the technical, regulatory, and environmental barriers to the most promising sequestration opportunities. At the same time, the partnership will work to inform policy makers and the public regarding CO2 sources, sequestration strategies, and sequestration opportunities (Daly, 2004).

This exciting new program is headed up by many University of North Dakota (UND) Geology Alumni.

John Harju received his B.S. in Geology (BS ’86) from UND. He is an EERC Associate Director for
Research and is responsible for the overall management and development of the partnerships that will lead to demonstration projects in technology deployment.

**Ed Steadman** received his M.A. in Geology from the UND in 1985. He is an EERC Senior Research Advisor and is the PCOR Partnership Project Leader.

**James Sorensen** received his B.S. in Geology from UND in 1991. He is an EERC Senior Research Manager involved with the characterization of the major stationary sources and the terrestrial sinks in the PCOR Partnership region (see map). Steve Smith works closely with Jim researching the Williston Basin. The Williston Basin has tremendous potential as a CO₂ sink because of depleted oil reservoirs and the potential for enhanced oil recovery using CO₂ techniques. Steve received his B.S. in 2001 from UND.

**Dan Daly** received his M.S. in Geology from the UND in 1984. He is an EERC Research Manager and is in charge of public outreach. The PCOR Partnership, along with Prairie Public Television, is currently in the process of creating a 30-minute video to be aired in spring 2005 that describes what CO₂ sequestration is and the PCOR Partnership.

**Dave Fischer** received his M.S. in Paleoenvironmental analysis of the late Holocene deposit: Stanton site, west-central North Dakota from UND in 1980. Dave provides the PCOR Partnership with valuable knowledge in the Williston Basin Oil and Gas Project.

The PCOR Partnership team is now developing a proposal to DOE and private-sector sponsors that will provide resources for several CO₂ sequestration demonstrations over the next four years.

**Brian Sandberg** (MS ‘85) sent a photo of himself and his family, but no news. Peter is 14 and Anna is 7 years, respectively. (Don’t know how old Heidi is!!!)

**Jim Nordstog** (BA ‘86) has experienced health problems, including a blocked artery and a herniated disk. We hope that you are recovered fully by now, Jim. His work at GME Consultants continues with marketing, writing proposals and reports. Keep in touch, Jim jaordstog@bitstream.net or jnordstog@gmeconsultants.com

**Joseph Gibbens** (BS ‘87) writes “After receiving a MS in hydrology from the New Mexico Institute of Mining and Technology I spent 5 years in the underground coal mining industry in Pennsylvania and West Virginia. The next 6 years were spent in environmental consulting in the Seattle, WA area. I am currently the Hydrologist/Lead Engineer for McChord Air Force Base in Tacoma Washington. While in Pennsylvania my wife Laurie (krick) Gibbens (BA 1986) obtained her law degree from Duquesne University in Pittsburgh. She joined the US Navy as a JAG (yes it is just like the TV show) and served 6 years of active duty at the Bremerton Naval Shipyard and Naval Hospital. She is currently serving in the Naval Reserves. We have two children: Mackinley (4 yrs) and Sarah (2 yrs). Prior to the children’s arrival I spent a good deal of time doing cow routes on the cascades volcanoes. Lately I have only been able to attempt one or two peaks a year.” Joseph added: “read with interest the recent GGE newsletter. You included a picture on page 4 of Ed Murphy on the Big Bend field trip of 1985. I was on that trip (BS ’87) and I am pretty sure that the unidentified student in the photo with Ed is John Dahl (BS ’87).” jlgibbens@worldnet.att.net Thanks much for the identification Joseph.

**Chris Zygarlickie** (MS ‘87) reports “It’s hard to believe that I am entering my 18th year at the EERC, now working as a Senior Research Manager managing research related to converting biomass and wind into electricity, heat, ethanol (or moonshine depending on geography), biodiesel, hydrogen, biodegradable plastics, and anything else that can be marketed. I had the privilege of delivering a paper on cofiring sunflower hulls with coal at the World Biomass Conference in Rome this year. I took a vacation day and basically “did” Rome in a day with a backpack, sneakers, and bottle of water. An amazing geological tidbit from that trip is that Roman geologists and engineers built the spherical Pantheon dome (still standing with no degradation) in 120 A.D. for emperor Hadrian using dense basalt aggregate for the lower stone blocks and gradually lighter pumice blocks for
the upper parts of the dome (up to 142 feet!).

On a personal level, as I get older I am greatly encouraged by events such as the annual Geology Alumni gatherings, where I can see my advisors such as Frank Karner and Rich LeFever, who basically still look the same as when they grilled me during my defense. My boys will both be at Central High School in Grand Forks next year. This is both unnerving because they’re teens, exhilarating because I love to watch them do high school stuff, and disheartening because they will be out of my reach somewhat in just a couple years. My wife, Eileen, is still an English teacher at Community High School (alternative school for more at-risk teens) in Grand Forks. This year she is already half way to her goal of having eight students get stories published in the GF Herald. My greatest personal accomplishment is having bagged an eight-point buck in the Sheyenne River bottom area near McVille, North Dakota. I was hunting for the first time in 20 years with several experienced hunters, including Ed Steadman, who we have appropriately dubbed “the outfitter.”

Jeff Maletzke (MS ‘88) is now Regional Director (Southeast Wisconsin) with Ducks Unlimited!!! He no longer is active in geology, having resigned from his former position. (Quite a daring decision, Jeff!) He writes that he has always been interested in that organization and is excited about the new challenges. Penny continues to coach and is proud of their two daughters, Nichole (11 yrs) and Erin (8 yrs).

Alumni News 1990s

Jim Sorensen (BS, ’91) continues to work as a Senior Research Manager at the EERC. Work over the past year has been almost exclusively focused on a project to develop a roadmap for the sequestration of anthropogenic CO$_2$ in geological sinks in the northern Great Plains region, particularly the Williston Basin. Personal highlights of the year included the Sorensen family (Jim and Jeanie and their four kids, Ted, Jon, Ken, and Maggie) moving into a new house near Central Park in Grand Forks, a vacation with the boys in the badlands, and an impromptu drive to Sturgis for the rally.

Eric Brevik (BS ‘92, MS ‘94) reports that I am now starting my fourth year as a Geoscience faculty member at Valdosta State University in southern Georgia. At the time this information is being written up, we are waiting for Hurricane Ivan to arrive. If he does, it will be the third time in the last month we have been hit by a tropical storm or hurricane. Somehow, I think I’d rather contend with North Dakota blizzards!

One of my big highlights over the past year was the opportunity to spend a day with John Reid out in Colorado, where he has retired. Some friends and I met up with John and he took us on a quick tour of some of the Rocky Mountain front range geology he has been enjoying in retirement, followed by a dinner at John and Barbara’s house. All around a highly enjoyable day! For anyone who remembers John’s energy and enthusiasm in the field, it is all still there!

On the home front, I have been recommended for early promotion to Associate Professor by my department chair. With any luck, I’ll receive that promotion.
in the next year and tenure the year after. I have also taken classes on extended field trips (last year to ND, SD, NE, IA and IL). I was also awarded a major grant from the USDA to upgrade the field equipment. Lisa is a veterinarian at a local animal hospital. Our children keep them busy shuttling back and forth from scheduled activities. David is 9 yrs and in the 3rd grade; Josh is 7 yrs and in grade 2, and Kate is 2 yrs old. TheBreviks@bellsouth.net

Marc Kurz (BSEG ‘93) remarks that “It’s been another quick year! I am still working at the Energy & Environmental Research Center at UND and have been quite busy with various research projects related to geology. On a personal level, Bethany Bolles (MS Geol ‘99) and I were engaged to be married and are planning a wedding for early spring 2005. This summer we spent about three weeks in the Flin Flon, Manitoba area, where we enjoyed viewing the tremendous geology of the area and spent many days fishing and camping on their beautiful lakes. We are hoping to make this an annual trek. My son, Tyler, is now almost 15 and is getting his driver’s license, which is hard to believe. Anyway, I hope everyone has a great Holiday season.”

Cal Taylor (MS ‘94) writes: “Greetings from Tacoma, Washington. I just got the Homecoming letter from the Geol. Department. I had the pleasure of doing a little field work and backpacking with Alan Ashworth in late July. We backpacked 20 miles to the Blue Glacier located at about 5500 ft elevation on the north flank of Mt. Olympus. We collected some beetles for Alan’s research. Attached are a group photo on the lateral moraine and a shot up glacier toward the Mt. Olympus peaks from the same location. The fellows flanking Alan and me are his students. I wish everyone at the department well. Enjoy the homecoming activities.”

Barry Boten (BS EGT ’95), Lisa’s (BS EGT ‘00) husband, also graduated with a B.S. in environmental geology and technology, and is a research scientist at the EERC, shares Boten’s interest in environmental management. He works with the Integrated Remediation Technologies (IRT) Group and spent five years as a geologist in Anchorage. They share other interests as well, including fly fishing and playing with their golden retriever, Ciera.

Carmen Best (BS EGT ’97) graduated from the Nelson Institute for Environmental Studies at the University of Wisconsin with a Masters degree in Land Resources and earning a certificate in Energy Analysis and Policy! Her research concentrated on the economic benefits of sustainable energy strategies. While completing her program she was a Research Assistant with a consulting firm in Madison doing applied research on a statewide energy efficiency and renewable energy program. She is now employed by TecMarket Works, undertaking the same type of analysis for CA, MIU, OH, and other states. Congratulations, Carmen. Keep in touch!

Trent Hubbard (MS ‘97, PhD ‘02) and Grete Bergman were married in Fairbanks, Alaska, this past summer and are starting their second year at Central Missouri State University. Trent’s teaching load is heavy (two intro courses plus Quaternary Geology and Glacial) and Grete is now full-time with the Health Center on campus. They are enjoying their new lives together. thubbard@cmsu1.cmsu.edu
Debi Beck (MS ‘98) is Natural Resources Engineer for the Ohio Department of Natural Resources’ Office of Coastal Management. Here she is assessing existing conditions at a site where an erosion control measure is proposed along the shore of Lake Erie in Eastlake, Lake County, Ohio.

Patti Kleven (BS ’99) started her 16th year at the EERC in December. She reports that “I work with many former UND Geology graduates, including Kurt Eylands (BA ’81, MA ’89) and John Kay. The three of us work in the Natural Materials Analytical Laboratory. Couldn’t find a nicer couple of guys to work with. I was awarded my first large project this year. I will be working with Blasch Precision Ceramics Company located in Albany, New York. The project entails testing different refractory compositions with flowing gasifier slag, in a bench-scale furnace, under controlled atmospheres. Refractory is a material generally made up of coarse aggregate and fine-grained cement or matrix. The compositions vary greatly. It is used to protect or insulate the walls of gasifiers or coal-fired combustors. The object of our testing is to find the most corrosion resistant refractory for the particular slag composition it will see in service. Most of our previous work has been with alumina-based refractory. This work will deal with a variety of compositions. We have built two different bench-scale dynamic slagging application furnaces. The first furnace can be used to test either alloy tubes or refractory test blocks in the presence of flowing slag, under oxidizing conditions, up to 1600°C. The second is designed to test only refractory blocks, but can be used under either reducing or oxidizing atmospheres. My geology classes have come in handy working with the refractory materials and a lot of the other materials we analyze in the Natural Materials Analytical Laboratory.

On a personal note my husband, Jerry, and I spend most of our free time with our 4-year old grandson, Ian. We also enjoy traveling when we can. We bought a Harley Davidson motorcycle last year and enjoy riding it when the weather permits. Last year we also celebrated our 25th Wedding Anniversary with a Caribbean Cruise. Now that is the way to go on a vacation! We have three daughters. Our oldest daughter, Candice, is Ian’s mother, she is a Respiratory Therapist for Lincare Health Service’s in Grand Forks. Summer, our second daughter, is married and lives in Moorhead. She is a Special Education teacher at West Fargo High School. Our youngest daughter, Katrina, will graduate from UND in May, she hopes to find a job somewhere in Colorado.

Alumni News 2000s

Lisa (Hoff) Botnen (BS EGT ’00) reports that she is a research scientist at the EERC working in the water management group. She is a Minot, N.D., native earned her B.S. in environmental geology and technology and spent five years in Anchorage, Alaska, working as a project controls specialist for CH2M Hill. She also worked on wetland delineation and contaminated site remediation projects. Her principal areas of interest and expertise include water quality and quantity issues, water resource assessment and analysis, watershed management, and wetlands identification and delineation. Lisa, above, enjoying herself a little on the Kenai River.

Jamie Hendrickson (BS EGT ’00) reports “I have been living in the Denver, Colorado, Metro area since April of 2000. I have spent the past four summers living up in the mountains working as the assistant camp director at a Girl Scout Camp in Bailey,
Colorado. During the rest of the year (Sept.–May) I’ve been working at an alternative middle/high school. The school is for kids who are on probation or who get tossed out of their regular home school for one reason or another. Working there for 2.5 years has been rewarding, but stressful at times. I recently attended the University of Denver and graduated in March of 2004 with a graduate certificate in Geographic Information Systems (GIS). The program was exciting and rewarding. The program allowed me to take graduate level courses and the amount of credits equal half of a masters degree. In July of 2004, I was offered a GIS technician position with Pacific Western Technologies (PWT) based out of Lakewood, Colorado. Through PWT, I am a contractor and work for the Central Federal Highway Division. My job involves traveling 75% of the time to various national parks across the United States. My traveling partner and I drive a big, yellow automatic road analyzer (ARAN) van to collect data on the park roads. The van has about nine different computers in it that allow us to collect GPS, cracking, grade, pitch, slope, video, etc., on the road. The looks we get from people as we drive by are always amusing and everyone wants to talk and see exactly what we have in our rig. It is a fun, exciting job. I can’t wait to find out what park I will be visiting next. I am hoping Hawaii is in the near future. Best Wishes to everyone.” What a grand job.

A note from Blaise Mibebek (EERC) tells us that: “Kristjan Bekker (MS ‘01) is doing well. He went back to a well yesterday. Last Saturday we went up to the Museum of Man and Nature in Winnipeg with Chris Milford and my son. Thought you would enjoy this picture. I can’t believe we got through the border both ways no problem . . .”

With Chris Milford (BS Geol ’future).

Darla Sondrol (BS Geol ’02) reports to Dexter “Glad to hear you got your book back!! Well I am still in Fargo at Braun Intertec testing materials (which I don’t think will last through the next year). I took on a second part time seasonal job at Wimmers Diamonds and really enjoy it. I plan on keeping that job and going to California or Nevada to become a graduate gemologist through the GIA or AGS, not sure yet, but I am really excited about the whole thing!!” Darla writes a little later: “Well, I am in Wisconsin still. Working with Braun Intertec, doing environmental site assessments, soil and water sampling, writing reports . . . you know the stuff. Learning a bunch and seeing a lot about Wisconsin at the same time. I got engaged this past month and we’ll be getting married at the Peace Gardens in July. Should be a good time! Clear your calendar! So that’s what’s up here. I hope the new year treats you well, and the students don’t stress you out too much! Greet everyone for me!” Congratulations Darla.

Erin Borgschatz (BS Geol ’04) reports her engagement to Fernando Alves this spring. Congratulations, Erin. Erin’s mother, Mary, provided me with her field camp pictures from Turkey, and I have chosen the following to share.
E.A. (Ned) Noble (1965–1978) continues to live in Virginia, but maintains a ranch in western Colorado. The fires last year came close, but son, Bill, who lives nearby cleared the area around the buildings to prevent their destruction. Ned and Polly keep busy and are probably glad they aren’t back in Islamabad! sunnynoble@aol.com

Art Reesman (1962–1963) and Joan celebrated their 40th anniversary this past year (they both turned 70!). The event of the year apparently was an Elderhostel trip to Nova Scotia (where John Reid’s parents were born and raised). Art also completed two Vanderbilt Retirement Learning courses this past year, one on Policy Issues and the other on the effects of geology on battles (mostly Civil). Joan enrolled in a writing course and enjoyed sharing stories with other classmates. They are proud of their family: Bill (with Verizon), Amy (teaching Geology at Middle Tennessee State University), Jon (flying for Fed Ex), and Vivian (home maker and fitness teacher). And, of course, they are proud of their grandchildren!

Mark Rich and Symma are traveling everywhere! (Baltic, Caribbean, Madeira, Mediterranean, and the Inside Passage to Alaska). Mark served as Enrichment/Destination lecturer. They write that their most memorable part was in the Palace Square in St. Petersburg upon the occasion of the 300th anniversary of that city. This past December Mark was with son, David, in the Chilean fjord region. Son, Todd is a pilot for AA, Jon lives in LA, Jordana is with the Creative Writing Program at the University of Georgia, David has just completed his final year at the Law School there, and Daniel, having graduated from Millsaps College is now in a computer science graduate program at Clemson University. geomark232@aol.com

Tricia Kelley (1992–1997) received the 2003 Outstanding Educator Award from the Association for Women Geoscientists at the Annual GSA meeting in Seattle a few weeks after surviving an automobile crash when a tire blew on I-40. The car was totaled! Jonathan is in his residency program in pastoral psychotherapy in Manhattan and he, too, was stranded on his way to Southport when the timing belt shattered. He is succeeding in his attempt to maintain his family ties in North Carolina and make progress toward his degree completion. Daughter, Katherine, was also in an accident in which their Chevy S-10 was totaled. Again, no serious injuries. Son, Timothy, has graduated and at the time of their letter was considering employment with New York Life, or with the Information Technology Department at Davidson College, or teaching English in China! Congratulations, Tricia, for all that you continue to accomplish!

Tim Cross (1976–1978) is retired from Colorado School of Mines and works at Platte River Associates, where he has been developing a stratigraphic computer model of the Snorre Field, the largest oil field in the North Sea. He was able to predict horizons with far greater accuracy than had been accomplished before. Maggie is a manager of a condominium for retired people and continues to update the Evergreen (Colorado) Community Plan. Tim and Maggie took a month-long trip to Egypt, where son, Cameron, was studying Arabic at the...
American University of Cairo. It was the best family experience ever. Son, Jonathan, is still at Lockheed-Martin, but is considering graduate schools for Math; Cameron is majoring in Italian and History at Colorado University, and daughter, Avonne, is enrolled at Northern Colorado University. tim@platte.com tacross@mines.edu

Alan Cvancara (BS ‘55, MS ’57, 1963-1991, Professor Emeritus) mentioned two of his books in the publishing process in the December 2003 GGE News. These books, Bare Bones Geology: For the Geologically Challenged and Wildflower Personalities, have now been published. He submitted his first novel, Prairie Crocus, for publication recently. Alan’s pen and ink sketches introduce each of the 17 chapters. He is the second of three co-authors of an article on Wyoming freshwater mussels published in the July 2004 issue of Wyoming Wildlife. Eight of Alan’s photographs help illustrate the article. Seven species of mussels are presently known for the state, investigated by Alan and a local consulting archaeologist in collaboration with the Wyoming Game and Fish Department. Alan and his wife, Ella, made photographic trips to southeastern Utah, central Idaho, and the southern Black Hills. Ella continues her editing and publishing of the poetry chapbook, Voicings From the High Country. She and Alan continue to perform music in the Casper community via the Casper Fiddle Club of which Ella is currently President. Their latest books include Back Trip: A Journey into Persever-

ance (the story of Alan’s continued back pains) and Windows into Legacy (a poetry-photography book; Ella’s poetry, Alan’s photography). Alan reports that he is working on more books despite his back pain! acvan@coffeey.com

John Reid (1961–1998, Professor Emeritus) and Barbara grieved over the passing of their youngest daughter, Linda, this summer. Only 38 years old, she left four teenage children who were devastated by the sudden loss of a mother. All of us are adjusting. John is busy as a volunteer geoscience teacher at two high schools, as a state-appointed ombudsman at two nursing homes, and, with Barbara, as a volunteer for the Senior Nutrition Program. Church activities are many and rewarding, too. Hiking remains important and the opportunities endless in the northern Rockies of Colorado. john_reidjr@yahoo.com
Frank Karner (1962–2000, Professor Emeritus) writes that retirement is great, but tempered some by missing teaching, especially by Geology 101 and Petrology, but also the opportunities to develop new courses. I’m especially enjoying landscaping, handball, reading, collecting, and more time for family and friends.

A special geology/family note is that our son Jim is back on ice, in a new setting in Antarctica. He’s one of 16 members of a NHSA/NSF meteorite search expedition of the Lapaz glacier where he’ll spend a month in geologic reconnaissance for next year’s team and a month with a search team. In Antarctica summer conditions (essentially like North Dakota winter, if not windier), they search with four, two-person snowmobiles that converge and collect when one team sees a meteorite, usually grey.

Then meteorites are typically centimeter-size but can be seen from a snowmobile in the ablating ice from a distance of up to 100 miles. They range from typical asteroidal micrometeorites to much rarer martian and lunar types that have been seen secondarily blasted from their parent bodies into Earth-crossing orbits. Much of his current research is on such meteorites.

Bud Holland’s news is given this year under Faculty Corner. However, I thought I would had a vintage photo would be appropriate to include.

So, who is this guy?
When was this photo likely shot?
What beds are “exposed?”

CAN YOU AGE THESE PHOTOS? CAN YOU DETERMINE WHAT SOME OF THE FACULTY ARE LIKELY DOING?

Provide a caption for a subsequent posting on GGE’s upcoming image Web site (with caption credit, of course).
Ed Murphy (BS 79, MS '83), as Acting Director of the North Dakota Geological Survey, provides the following report on NDGS alums. John Bluemle (PhD '71) retired at the end of June after having worked for the North Dakota Geological Survey for 42 years, the last 15 as State Geologist. John is the longest serving employee in the history of the Geological Survey. John joins Sid Anderson (PhB '51), who retired with 38 years of service (the second longest serving Survey employee), and Kelly (C.G.) Carlson (MS '60), who retired after 27 years with the Survey and 12 years with the Oil and Gas Division, as valuable sources of institutional memory, as well as overall knowledge of the geology of the Williston Basin. Although I have not researched it carefully, the last few years likely marks the first time in the history of the Survey that there were five geologists on staff with more than twenty years of service (John Bluemle, John Hoganson [PhD '85], Julie LeFever, Randy Burke [PhD '89], and me).

The high price of crude oil and interest in the Bakken Formation have resulted in a level of activity at the Wilson M. Laird Core Library that has not been seen in more than seven years. Technological advances that enable horizontal wells to be fracture stimulated have made it possible to recover large quantities of oil from a thin pay zone within the middle member of the Bakken Formation. Jack Kume (BS Geol '58, MS '60) was the first UND graduate student to study the Bakken Formation. A Bakken oil play in the 1980s led to additional studies by Rick Webster (BS '80, MS '82), Mike Hayes (MS '84), Larry Thrasher (MS '85), Tim Huber (MS '86), and Wayne Freisatz (MS '91). Rick Webster’s thesis was one of the most requested departmental manuscripts during the 1980s. Julie LeFever has been studying the Bakken Formation on and off for the past twenty years. A collection of her Bakken reports, posters, and PowerPoint presentations were downloaded from the Geological Survey Web site more than 1700 times in September and October of this year. In September, Julie presented a core workshop in Denver, Colorado, where registration was more than double what had been anticipated.

Randy Burke recently began work on the Birdbear Formation and the Ratcliff interval of the Mission Canyon Formation, two important oil plays in the Williston Basin. The interest in these plays, along with the middle Bakken, resulted in a record bid of $1400 per acre during a North Dakota State Land Department lease sale this fall. Although this bid was later dropped on appeal, it demonstrates the level of interest in oil-producing horizons in the Williston Basin.

The North Dakota Geological Survey is a partner in the Energy & Environmental Research Center’s Plains CO₂ Reduction (PCOR) Partnership. PCOR is one of seven regional (carbon) centers funded by the U.S. Department of Energy. As fulfillment of Phase I requirements for this program, Randy and Julie coauthored a half dozen reports on the Williston Basin with EERC scientists and the Director of the North Dakota Oil and Gas Division. It is anticipated that PCOR will eventually lead to an enhanced oilfield recovery demonstration project in western North Dakota.

Geologists Lorraine Manz and Fred Anderson are currently mapping the surface geology in and around the towns of Devils Lake, Fargo, and Grand Forks. Next year they plan on mapping four quadrangles in the Minot area. I plan on completing mapping of eight quadrangles between Glen Ullin and Dickinson. I have been mapping in this area for the past several years to identify the quality and extent of the kaolinite-rich lower member of the Golden Valley Formation. The Hebron Brick Company requested our assistance in searching for a new clay pit. Hebron Brick, which celebrated its 100th anniversary
this summer, is the only one of three dozen or so brick plants that have survived in North Dakota. It is no accident that this company survived when none of the others did, because they are utilizing the best source of brick clay in North Dakota.

The North Dakota and Minnesota Geological Surveys, along with several other state and federal agencies, have been cooperating on a Red River Valley Water Supply Project. We have been supplying geologic data from the North Dakota portion of the valley to the Minnesota Survey to enable 3D modeling of the subsurface stratigraphy. Fred Anderson and Julie LeFever have been working with Ken Harris (MS ‘73; PhD ‘75) of the Minnesota Survey. Ken is the foremost geologist in the country on the Quaternary units in the Red River Valley, having mapped the Minnesota side of the valley for the last 15 years and the North Dakota portion of the southern Red River Valley while working for the NDGS from 1977 to 1989.

Last year the North Dakota Geological Survey, Natural Resources Conservation Service and North Dakota State University entered into a cooperative project with the U.S. Geological Survey to collect 4000 soil samples from 700 localities in North Dakota. All of the samples have been collected and more than half have been submitted for analysis. Lorraine Manz has been involved in the planning and collection of these samples. This project is part of a nationwide effort to create a geochemical database of more than 20 trace elements including arsenic and selenium.

Outreach is an important part of the service component of the Geological Survey’s mission. As it has been for the past ten years, paleontology is our primary source of outreach. Much of this outreach is accomplished when John Hoganson gives tours of the Johnsrud Paleontology Laboratory in the Heritage Center or gives presentations related to North Dakota paleontology. Highlights over the past year include excavation of a giant sea turtle (Archaeodons) from the Pierre Formation near Cooperstown, completion of a fossil exhibit in a visitor center in Watford City, and donation of a cast of Mesohippus, an Eocene horse, to the North Dakota Cowboy Hall of Fame. In addition, over the last two months John Hoganson and I gave 12 presentations on the geologic observations of the Lewis and Clark Expedition in North Dakota. We also coled a three day fieldtrip along the Missouri River Valley in North Dakota. The fieldtrip and four of the talks were held in conjunction with the Circle of Cultures, a Lewis and Clark Signature Event held in Bismarck from October 22–31. John and I have given 27 presentations since our book on the geology of the Lewis and Clark trail came out in August 2003. We have spoken to numerous groups and service clubs. The highlight has to be our October 15 presentation in the Leonard Hall lecture bowl (Room 100) in recognition of Gerry Groenewold (MS ‘71, PhD ‘72) receiving the A.G. Leonard Award. The other end of the spectrum was a presentation we gave on a Saturday afternoon in the middle of Kirkwood Shopping Mall in Bismarck. We would not recommend the latter experience of being surrounded by noisy shoppers.

Ed also provided us with some fun hockey shots. Dave Brown makes a leg save sending the puck into the crowd during an intramural hockey game in the old Englestad Arena; Ed Murphy looks on. We tried to stay away from Dave because about the only time the other team scored was when one of our defenseman screened him. Add Al Larson on the right in the lower photo. Photos courtesy Patty Dorsher, circa 1985.

MORE NEXT TIME.
In Memoriam

We are always saddened when we have to report the passing of one of our friends and alumni. We extend our sincere sympathies to the families and friends of those mentioned here. Please let us know of anyone missed in the present listing or if you wish to add information.

Michael L. Quigley (BS Geol ‘58). We learn from Sherrill Quigley of the passing of her husband. It is with sad regret that I have to notify you of the death of my husband, Michael L. Quigley (BS Geol ‘58) on May 6, 2003. Mike died from pancreatic cancer. Mike received his Law Degree from Catholic University, Washington, DC in 1971 and practiced general law in Prince William County, Virginia until his retirement in 1997. He continued to do legal work for many of his long time clients from our home until shortly before his death. He leaves behind his wife, Sherrill, his son, Barry Patrick Quigley, his daughter, Robin Quigley Judge and her husband, Michael T. Judge along with two beautiful grandchildren; Michael Carden Judge and Madison McKenzie Judge. He had served in the US Marine Corps and was buried, with military honors, at the Quantico National Cemetery, Triangle, Virginia, on May 9, 2002. He is also survived by his sisters, Phyllis Quigley Stoa of Fargo, North Dakota, and Patricia Quigley Baldwin of Blaine, Washington, and his brothers, R. Neil Quigley of Denver, Colorado, and Patrick Quigley of Blaine, Washington, along with many nieces and nephews.

Ralph A. Lindblad died on January 26, 2005, he was 78 years old. His wife, Jean, died December 7, 2002. Ralph was Custodial Supervisor of Leonard Hall for many years. Much of the credit for the fine appearance of Leonard Hall today, 40 years after being built, is due to the care lavished on the building by Ralph and his coworker, Bev Cariveau. Many students and staff may remember Ralph. He retired April 30, 1993.

James Patrick Keogh's (BA ‘38) passing was previously briefly noted, but a little more information has become available along with a photo. Mr. Keogh died at the age of 88 in Grand Forks on March 30, 2002. He was born September 1, 1913, in Starkweather, North Dakota, he moved with his family to St. Paul, Minnesota, and then to Grand Forks, where he attended school and UND. He received his Bachelor’s in Geology in 1938. He pursued careers as a milkman and postal carrier until his retirement in 1973. He then sold real estate until 1986. Mary Ann Keogh died April 6, 2000.
This newsletter was delayed for all of the right reasons, but being late is never good, so I apologize for myself and on behalf of the Department. I will not belabor the reasons, but there are only a few windows of opportunity to produce this document and for important reasons they closed and never opened after November. I (we) will make a concerted effort to do better next time. You can see from this issue that attention has been paid to engaging students in the process of contributing to the newsletter and to documenting events in the Department. I hope to continue this effort with more student essays.

I have again tried to make this newsletter more photograph-rich, a format style I hope you enjoy. Please feel free to submit images for future newsletters at any time. We are sure that your photos will be appreciated by all alums. If you have photographs of "past times," both of people and activities, I am sure these would be especially be treasured and enjoyed. We are developing a way to have these posted on the Web through our Friends and Alums password (Triceratops1964).

Digital images can be sent by e-mail (the higher the resolution the better), but it is frequently best to receive them on a CD, diskette, or zip disk (all media will be returned as requested). We will be happy to scan slides and prints, which will be returned or archived, as requested. Photos not otherwise attributed in this newsletter were taken by me or are unknown. Send alumni information and images to Joseph Hartman at the University of the North Dakota, Department of Geology and Geological Engineering, Box 8358, Grand Forks, ND 58202, or through the departmental Web site. Please report any errors or additions to this newsletter to Joseph Hartman at joseph_hartman@und.nodak.edu.

I wish to again specifically thank Bud Holland and John Reid for passing along many alumni updates. Feel free to send updates directly to the Department. Receiving them by October 10 greatly facilitates a pre-Christmas mailing. I also want to thank the student assistants Beth Mittet, Michael Braget, and Lindsay Barta for the general help they routinely provide and in the final mailing of the beast. I also wish to thank Richard LeFever for his long-term data management of the alumni database. Thanks also to Bud Holland and Will Gosnold for proofing copies of the newsletter in advance of printing. Thanks also to Dexter Perkins for his record keeping of various departmental activities. Finally, Connie Larson puts up genially with my frequent queries about this or that when her plate is perfectly full with PeopleSoft. Thanks, Connie. Cheers, Joseph

Lindsay,
Michael,
and
Beth

Connie says, "I have enjoyed another year with the Geology and Geological Engineering Department and they seem to fly by faster all the time. My year has seen some changes, Will Gosnold is now the Chair of the Department and the transition seemed to go very smoothly. The University is implementing a new software program, PeopleSoft and sometimes it can be very challenging. I moved into the adjoining office, which seems to be working out quite well. But as always, visiting with the students is still one of the highlights of my job.

We were able to do some traveling again this past winter. Owen and I went to Las Vegas for a couple of days and Playa Del Carmen, Mexico. It was extremely nice to get out of the cold weather for a short period of time. We also have an addition to our family, my daughter, Trish was married last December so we have gained another son. I truly enjoy when our whole family is able to get together."
The New Alumni and Friends Address Database

To help alumni and friends of the Department better communicate with each other and to let alumni know of upcoming departmental activities, we have made the change to a Web-based address database. You may now access the address, telephone number, or e-mail of a friend or departmental colleague by visiting the GGE Web site at www.geology.und.edu and clicking on “Our Alumni.” At the bottom of the screen you may log in as a “Member” with the following password: Triceratops1964. You can 1) search for folks you think likely to be in the database, 2) modify your information to make it more current (as e-mails or other data changes), and 3) post messages for others to read.

If you do not wish to have your address information available online, let us know and it will remain confidential. You may e-mail us from the Web site, e-mail us directly at gge@pterosaur.und.edu, or drop us note (our address is on front of this issue). Only our alumni and friends listed in newsletters will have access to the database.

If you would prefer a paper copy of the address list, please contact us and hard copy will be forwarded to you.

Modifications and posted messages to the database will be handled as follows. When you make a modification or post a message, an e-mail with the suggested change or post will be sent to the Department. The modification or post will be completed by Departmental staff to ensure consistency in format, etc.

As we are just beginning this system, we know users will find “bugs.” Feel free to to point them out without mercy to Joseph Hartman at joseph_hartman@und.nodak.edu. The database project was conceived by me, but the program implementation was by “Balu” Balaji V. Prasad Yarlagadda, a graduate student in Computer Science (with a B.S. in Mechanical Engineering). With technical assistance from Ron Matheney, the alumni database was developed through the course of the spring semester.

The New Alumni and Friends Listing

The new listing includes names and degrees. I have added faculty names that were previously omitted and added years of service. Please note omissions directly to joseph_hartman@und.nodak.edu. Changes can be made through the new address database server.

As this year’s listing was being reviewed, I decided to examine the various degree titles listed in our “address book.” Frankly, a number of them were unfamiliar to me and I thought the exercise might prove worthwhile to list those related to geology here.

<table>
<thead>
<tr>
<th>Degree</th>
<th>Program</th>
</tr>
</thead>
<tbody>
<tr>
<td>BA</td>
<td>Bachelor of Arts (Major in Geology)</td>
</tr>
<tr>
<td>BA Geol</td>
<td>Bachelor of Arts in Geology</td>
</tr>
<tr>
<td>PhD</td>
<td>Bachelor of Philosophy (in Geology)</td>
</tr>
<tr>
<td>BS</td>
<td>Bachelor of Science (Major in Geology)</td>
</tr>
<tr>
<td>BS EGT</td>
<td>Bachelor of Science (Environmental Geology and Technology)</td>
</tr>
<tr>
<td>BS Geol</td>
<td>Bachelor of Science in Geology</td>
</tr>
<tr>
<td>BSA</td>
<td>Bachelor of Science Associate</td>
</tr>
<tr>
<td>BS GE</td>
<td>Bachelor of Science Geological Engineering</td>
</tr>
<tr>
<td>BS MIE</td>
<td>Bachelor of Science Mining Engineering</td>
</tr>
<tr>
<td>MA</td>
<td>Master of Arts (in Geology)</td>
</tr>
<tr>
<td>MS</td>
<td>Master of Science (in Geology)</td>
</tr>
<tr>
<td>PhD</td>
<td>Doctor of Philosophy (in Geology)</td>
</tr>
<tr>
<td>HON</td>
<td>Honorary Doctorate</td>
</tr>
</tbody>
</table>

Folks holding other degrees that are included in our list are:

<table>
<thead>
<tr>
<th>Degree</th>
<th>Program</th>
</tr>
</thead>
<tbody>
<tr>
<td>BBA</td>
<td>Bachelor of Business Administration</td>
</tr>
<tr>
<td>BS BA</td>
<td>Bachelor of Science Business Administration</td>
</tr>
<tr>
<td>BSC</td>
<td>Bachelor of Science in Commerce</td>
</tr>
<tr>
<td>BS Ed</td>
<td>Bachelor of Science Business Education</td>
</tr>
<tr>
<td>BS PA</td>
<td>Bachelor of Science Public Administration</td>
</tr>
<tr>
<td>MBA</td>
<td>Master’s of Business Administration</td>
</tr>
<tr>
<td>MEd</td>
<td>Master’s of Education</td>
</tr>
<tr>
<td>MST</td>
<td>Master of Science Teaching</td>
</tr>
<tr>
<td>EdD</td>
<td>Doctor of Education (Teaching and Learning)</td>
</tr>
</tbody>
</table>
Aaker, Robert K. (BS Geol, 1949)
Aarnes, Sherry (BS EGT, 1999)
Abercrombie, Harry (BS EGT, 1964)
Achtien, Donald B. (BS MIE, 1953)
Ackerman, Daniel J. (BS Geol, 1971)
Adams, Jimmie L. (MST, 1969)
Adams, Melvin (MST, 1968)
Albers, Daniel C. (BS MIE, 1960)
Alexander, Debra J. (Ex-MS)
Alkofer, Anton R. (BS, 1958; MST, 1969)
Allen, DeAnn (BS EGT, 1998)
Alme, Karyn (BS Geol, 1994; MS, 2001)
Alpha, Andrew G. (BS, 1934; MS, 1935), Deceased 11/1/1997
Ames, Richard W. (BS, 1979; PhD, 1986)
Anderson, Alan R. (BS GE, 1982)
Anderson, Ben A. (BS MIE, 1938), Deceased
Anderson, Carrie Jo (BS EGT, 1998)
Anderson, Curtis A. (MS, 1976)
Anderson, Curtis R. (BS, 1978)
Anderson, Douglas B. (BS, 1975; MS, 1988)
Anderson, Garth S. (MS, 1980)
Anderson, Henry W., Jr. (BS Ed, 1953)
Anderson, Orin J. (PhD, 1961)
Anderson, Rolf C. (BS MIE, 1933), Deceased
Anderson, Sidney B. (PhD, 1951)
Anderson, Walter D. (BS MIE, 1961)
Archbold, F. Michael (BS, 1968)
Armbruster, Joseph S. (BS MIE, 1960)
Armentrout, Howard D. (PhD, 1954)
Armentrout, Ralph H. (BS GE, 1977; BS, 1977)
Arndt, Michael B. (PhD, 1975)
Arnesen, William T. (BS, 1953)
Arnold, Arthur B. (BS Geol, 1950)
Auch, Dustin J. (BS EGT, 2002)
Babcock, Earle J. (Faculty, 1891–1902), Deceased
Backes, Brent L. (BBA, 1983)
Badley, David A. (BS GE, 1983)
Bailey, Palmer K. (BS Geol, 1970; BS, 1980; MS, 1980)
Bailey, Terence P. (BS, 1970)
Baker-Demaray, Twyla B. (BS EGT, 2002)
Bakke, Arne A. (BS Geol, 1982)
Balcom, Robert J. (BA, 1976)
Baldwin, Rae Ann
Ballard, Frederick V. (MA, 1963)
Barbie, Dana L. (BS GE, 1976)
Barke, Walter B. (BS Geol, 1950)
Barnes, John G. (BS MIE, 1951)
Barry, John G. (Faculty, 1907–1909), Deceased
Bartelma, Robert D. (MST, 1969)
Bass, Louis L. (BS MIE, 1922), Deceased
Baudais, Frederick W. (BS, 1971)
Bauer, A. Gordon (BS Geol, 1951)
Bauer, James A. (BS, 1977)
Baumann, Rodney (MA, 1985)
Baxter, Charles M. (MST, 1976)
Beal, William A. (BS GE, 1983; MS, 1986)
Beaver, Frank W. (BS GE, 1984; MS, 1984; PhD, 1986; Faculty, 1995–2004)
Beck, Deborah (MS, 1998)
Beck, Holly M. (BS, 1979)
Becker, Donald A. (MS, 1965; PhD, 1968)
Beckman, Michael W. (BA, 1939), Deceased
Beckwith, Douglas C. (BS, 1984)
Bednar, Jesse (BS Geol, 1992)
Beeks, Clifford H. Jr. (BS, 1966; MBA, 1978)
Beeks, Wayne R. (BS MIE, 1962)
Behrbaum, Ruben N. (PhB, 1955)
Beiers, Jan C. (BS GE, 1960)
Bekker, Kristjan F. (MS, 2001)
Befik, Shannon (BS EGT, 1996)
Bell, Gordon L. (Faculty, 1953–1957)
Benson, Bradley T. (BS GE, 1988)
Berg, James A. (BS, 1979)
Berg, Larry D. (BS Geol, 1960)
Bergan, Gail R.
Bergerson, Cheri (former GGE Librarian)
Berglund, Almit D. (BS Geol, 1970)
Bergstrom, John R. (Faculty, 1955–1959)
Berkey, Jennifer S. (BS EGT, 1993)
Bertram, Ronald E. (BS GE, 1970), Deceased 10/2001
Best, Carmen (BS EGT, 1997)
Betcher, John T. (BS, 1971; MS, 1989)
Beyers, Ron H. (BS, 1958)
Bickley, William B. Jr. (MS, 1970; PhD, 1972)
Binde, Scott (BS, 1984)
Binegar, Randall D. (BS GE, 1983)
Bingle, Marlon J. (MS, 2005)
Bique, Stephen F. SEE ERICKSON-BIQUE
Birk, Emmet C. (BA, 1937), Deceased
Bisbee, Marcia (Faculty, 1900–1901), Deceased
Bjorlie, Peter F. (BS, 1976; MS, 1978)
Bjorlie, Sidney C. (BS Geol, 1973)
Black, John N. (BS MIE, 1958)
Blain, William S. (BS Geol, 1955; MS, 1968)
Bleau, Dale J. (BS, 1972)
Bleth, Craig J. (BS GE, 1988)
Block, Douglas A. (PhD, 1965)
Bluemle, John P. (PhD, 1971)
Bluemle, Mary E. (MST, 1967; EdD, 1975)
Blum, Raymond L. (BS Geol, 1957), Deceased
Boettger, William M. (MA, 1986)
Bohan, Timothy W. (BS, 1981)
Bohn, James D. (BS MIE, 1961)
Bohn, Paul D. (BA Geol, 1987)
Bohrer, Mark F. (BS GE, 1985; BS, 1985)
Bolinske, Jean M. (BS, 1984; BSGE, 1984) SEE LILLICH
Bolles, Bethany (MS, 1998)
Bolstad, Erling M. (BS MIE, 1939), Deceased
Bonneville, John W. (BS Geol, 1956; MS, 1961)
Borg, David G. (BS MIE, 1959)
Borgschatz, Erin E. (BS Geol, 2004)
Botnen, Barry (BS EGT, 1994)
Gibbs, Mackintosh J. (BS MIE, 1958)
Giddings, Steven D. (MS, 1986)
Gilbert, Holly Evers
Giles, Timothy F. (BS, 1972)
Gilles, Jon (BS EGT, 1999)
Gillett, Lawrence B. (Faculty, 1959–1962)
Gillin, Donald S. (BS Geol, 1958)
Gillis, David (BS GE, 1984)
Giltner, Eric (BS GE, 1982)
Gjestvang, Rory D. (BS GE, 1984)
Goebel, Dean R. (BS, 1986; MS, 1992)
Goehringer, Arlhow J (BS, 1960)
Goerger, Lorena (BS, 1987)
Goetz, Gregory (BS EGT, 2001)
Gordon, Keith A. (BS MIE, 1961)
Gosnold, William (Faculty, 1982– )
Govien, Gerard (BS Geol, 1996)
Gram, Bridget
Graney, Eric T. (BS Geol, 1987)
Gray, Lockhart R. (BS Geol, 1959)
Gregoire, Loel J. (BS GE, 1982)
Grenda, James C. (PhD, 1977)
Griffin, Barbara J.
Griffin, John A. (BS GE, 1977)
Griffin, Leonard F. (BS, 1942)
Grilley, Nena L.
Grinolds, Donald (BA, 1983)
Groenewold, Gerald H. (MS, 1971; PhD, 1972)
Grossman, I.G. (Faculty, 1946–1949)
Grovier, Jamie (BS Geol, 1998)
Grunseith, Arland C. (PhB, 1954)
Grygo, Roland (BS, 1957)
Guenther, Kenneth M. (BS, 1971)
Gullikson, David M (BA, 1955; BS MIE, 1956)
Gunderson, Lori (BS GE, 1998), SEE KAYS
Gunderson, Randy (BS Geol, 1998)
Gunkelman, Andrew (BE Geol, 2003)
Gustavson, Thomas C. (MS, 1964)
Haahr, Jerry D. (BA, 1975)
Haake, Ellis V. (BS, 1969)
Haberlach, Anthony F. (BA, 1960)
Haddeand, Darren (BS GE, 1992)
Haerter, James P. (BS, 1981)
Hagen, Gregory D. (BA, 1979)
Hagmaier, J. Ladd (MS, 1967; PhD, 1971)
Hall, Gary O. (MS, 1958)
Hall, James E. (MST, 1971)
Halvorson, Corey W. (BS, 1977)
Halvorson, Don L. (MST, 1971; PhD, 1980; Faculty, 1979–1988), Deceased 3/18/2003
Halvorson, Joseph Gene (BS, 1957; MEd, 1965), Deceased 7/2002
Hamilton, Robert W. (BS, 1970)
Hamilton, Thomas N. (MS, 1967; PhD, 1970; HON, 1993)
Hannesson, James H. (BS Geol, 1957), Deceased
Hansen, Dan E. (BS Geol, 1950; MS, 1955)
Hanson, Bernold M. (BS Geol, 1951), Deceased
Hanson, Marcella, SEE MELSTED
Hanson, Mark S. (BS, 1982)
Harju, John A. (BS, 1986)
Harki, Ahmed (BS GE, 1983)
Harkins, Jayne M.
Harkins, Vernon (BS GE, 1984)
Harrer, Jo Ann (BS EGT, 1995), SEE JOHNSON
Harriss, Kenneth L. (MS, 1973; PhD, 1975; Faculty, 1981–1988)
Harris, Robert M. (BSGE, 1960)
Harris, Steve, Friend, Deceased
Harris, Terry L. (BA, 1985)
Harrison, Samuel (MS, 1965; PhD, 1968)
Hartman, Joseph H. (Faculty, 2001– )
Harvey, Erik (BS Geol, 1991)
Harwell, Stacy (BS EGT, 1994)
Haugan, Kenneth P. (BS Geol, 1952)
Haugen, Jason (BS Geol, 2000)
Hauser, Robert (BS MIE, 1947)
Hayes, Michael D. (MS, 1984)
Heck, Thomas J. (MS, 1979)
Heimdal, Monica R. (BS GE, 1987)
Heinle, Allan R. (BS GE, 1974)
Heinle, Shannnon M. (BS ES, 2005; BS Geol, 2005)
Heiser, John R. (BS GE, 1985)
Held, Robert J. (BS, 1977)
Heigeseen, John O. (BS GE, 1965)
Hemish, LeRoy A. (MS, 1975)
Henderson, Terry B. (PhB, 1970)
Hendrickson, Jamie D. (BS EGT, 2000)
Hendrickson, Richard D. (BS Geol, 1965)
Henke, Kevin (MS, 1984; PhD, 1997)
Henrick, Michael P. (PhB, 1970)
Hensrud, John I. (BS, 1971)
Hickey, William K. (MA, 1973)
Hicks, Bruce E. (BSDGE, 1980)
Hill, Richard R. (BS MIE, 1957)
Hillesheim, David (BS GE, 1996)
Hillman, Kurtwood S. (BS GE, 1977)
Himebaugh, John P. (BS, 1974; MS, 1979)
Hines, Renae (BS EGT, 1996)
Hirst, Michael W. (BS EGT, 2002)
Hobbs, Howard C. (MS, 1973; PhD, 1975)
Hochhalter, Daryl (BS EGT, 1997)
Hodenfield, Kyel R. (BS GE, 1984)
Hofer, William A. (BS, 1977)
Hoff, Jean L. (PhD, 1989)
Hoff, Lisa S (BS EGT, 2000), SEE BOTNEN
Hoffman, Patrick R. (BS GE, 1984)
Hoganson, John W. (PhD, 1985)
Holder, Bobby (BS Geol, 1996)
Holland, F.D., Jr. (Faculty, 1954-1989)
Hollarn, James W. (BS Geol, 1964)
Holth, Constance (BS EGT, 1995)
Holweger, Todd (BS Geol, 1995)
Holmes, Chauncey D. (Faculty, 1938–1940), Deceased
Honeyman, Leslie R. (PhB, 1969; MS, 1973)
Hopfauf, Scott (BS GE, 1993)
Hopman, Donna L. (BS GE, 1978)
Hossein Ali, Faroukh (BS GE, 1987)
Houkom, Duane A. (BS MIE, 1949)
Howard, Steven J. (BA, 1985; BS, 1985)
Howatt, Tracy M. (BS, 1981), SEE VASQUEZ
Hruby, Jeff (BSGE, 1999)
Hruby, Thomas H. (BA, 1974)
Huang, Yue-Chain (MS, 1988)
Hubbard, Trent (MS, 1997; PhD, 2002)
Huber, Timothy P. (MS, 1986)
Huberty, Robert L. (MST, 1973)
Huffman, Robert L. (PhB, 1957)
Humphreys, John T. (BS MIE, 1939)
Hungness, Darren (BS EGT, 1997)
Hunke, Nathan T. (MS, 1989)
Hunt, Gerald L. (BS GE, 1982)
Huot, Raymond E. (BS Geol, 1955)
Hvinden, David C. (BA, 1982)
Hyden, Donald E. (BS MIE, 1947)
Ijana, Floyd (MS, 1965)
Iverson, Cary W. (BS GE, 1978)
Iverson, Wayne C. (BS, 1972)
Jacob, Arthur F. (Faculty 1969–1980)
Jacobson, Scott A. (BS GE, 1982)
Jaeger, Christine
James, Martin A. (BS MIE, 1949)
Jeffcoat-Sacco, Paul C. (MS, 1979)
Jefferies, Robert L. (BS MIE, 1949)
Jelleberg, Scott H. (BS GE, 1981)
Jenner, Gordon A. (MS, 1984)
Jewett, J.M. (Faculty Member, 1968–1969)
Joersz, Richard W. (BS Geol, 1973)
Johnson, Brett (BS EGT, 1996)
Johnson, Bruce (BS GE, 1990)
Johnson, David B. (Faculty, 1978–1980)
Johnson, Hume T. (PhB, 1950)
Johnson, Irwin S. (BS Geol, 1957)
Johnson, James R. (BS MIE, 1947)
Johnson, Jeffrey (BS GE, 1983)
Johnson, Jo Ann
Johnson, Jon W. (BS, 1973)
Johnson, Karl D. (BS GE, 1982)
Johnson, Kent A. (BS GE, 1969; MS, 1971)
Johnson, Kyle (BS Geol, 1994)
Johnson, Linda J. (BS GE, 1980), SEE GAY
Johnson, Melanie H. (MS, 2003)
Johnson, Robert C. (PhB, 1967; BS GE, 1973)
Johnson, Robert P. (PhB, 1970; MS, 1973)
Johnson, Robert R. (PhB, 1967)
Johnson, Ronald M. (BS, 1985; BS GE, 1985)
Johnson, Terry L. (BS GE, 1987)
Johnson, Terry R. (MS, 1990)
Johnsrud, Bryan C. (BS GE, 1984; BS, 1984)
Johnsrud, Clarice
Johnstone, Kenneth W. (PhB, 1940)
Johnstone, Stephen E. (BA, 1995)
Jones, Jon Paul (MS, 1998)
Josephs, Richard L. (Faculty 2001–)
Joyal, Taylor (BA, 1998)
Joyce, James L. (BS GE, 1986)
Juni, Charles H. (BS Geol, 1951), Deceased
Kammer, Alison (MS, 2001), SEE SCHLAG
Kana, Darrell W. (BS MIE, 1959), Deceased
Kangas, Jane
Karner, Frank R. (Faculty, 1963–2001)
Kaspazek, Dean (Ex-MS)
Kays, Glenn (MS, 1999)
Kays, Lori
Keating, Ronald (PhB, 1954)
Keaveny, Guido W. (BS GE, 1984)
Keefer, Mark D. (BS EGT, 1999)
Keheuw, Alan E. (Faculty, 1980–1986)
Kelley, Lynn I. (MS, 1980)
Kelley, Patricia (Faculty, 1992–1997)
Kelly, Fred Baker (BS GE, 1984)
Kelly, Jodie
Kenaley, Douglas S. (MS, 1982)
Keogh, James P. (BA, 1938), Deceased 3/2002
Kerans, Charles (Ex, 1979)
Kerian, Robert (BS, 1979; BS GE, 1981)
Key, L. Sean (BS, 1980)
Kichline, Robert D. (PhB, 1968)
Kiefer, Duane J. (BS GE, 1984)
Kiefer, Paul L. (MST, 1973)
Kimura, John T. (Faculty Member, 1969–1970)
Kingman, Paul D. (BS, 1972)
Kirby, Deb (Former Secretary)
Kishel, Hans (MS, 2000)
Kjelmyr, John P. (BS, 1971)
Klapperich, Ryan J. (BA, 2005; BS Geol, 2005)
Klaudt, Elmer J. (BS Geol, 1957)
Klaus, Christopher (BS EGT, 1996)
Kleesattei, David R. (MA, 1985)
Klemer, John N. (BS Geol, 1952), Deceased
Kleven, Patricia (BA, 1999)
Klipfel, Clarence (BS CE, 1952), Deceased
Klotzkin, Charles E. (Ex, 1963)
Knauss, Wayne L. (BS, 1950)
Knoop, Zachary (BS EGT, 1997)
Knudson, Benjamin D. (BS, 1979)
Knudson, Bruce E. (BS Geol, 1975)
Knudson, John R. (BS MIE, 1950)
Knudsvig, Scott (BS EGT, 1998)
Koch, Charles A. (BS MIE, 1958)
Koch, Michael S. (BS, 1985)
Koeher, Patrick M. (MST, 1973)
Kohanowski, Igor Frank (BS MIE, 1955)
Kohanowski, N.N. (Faculty 1949–1975)
Kong, Lingbu (MS, 1993)
Koons, Robert R. (BS Geol, 1957)
Kombraα, Richard W. (MS, 1975)
Korom, Scott (Faculty, 1994–)
Korsmo, Neil R. (BS, 1984)
Korwin, David J. (PhB, 1959)
Kosteleycky, Lewis E. (BS, 1954), Deceased
Kovar, Mark (BSGE, 1979)
Kraft, Leonard S. (BS GE, 1958)
Kramlich, Kerry E. (BS GE, 1985)
Krause, Carrie
Kresl, Ronald J. (BS Geol, 1955; MS, 1964)
Krieg, Fredric A. (PhB, 1970)
Krier, Michael (BA Geol, 1997)
Kroeger, Tim (PhD, 1995)
Krueger, William E. (BS MIE, 1961)
Kuchera, Andrew (BS, 1994)
Kukowski, John R. (BS, 1983)
Kulland, Roy E. (MS, 1975)
Kume, Jack (BS Geol, 1958; MS, 1960)
Kurz, Marc (BS EGT, 1993)
Kuzmaul, Joel S. (Faculty, 1993–1995)
Kuta, Cindy (BS GE, 1993), SEE JOHNSON
Kuttes, Robert J. (BS GE, 1982)
Kwapisinski, David (BS EGT, 1997)
LaBarre, Lee S. (BS, 1970)
La Bonte, Jonathan (BS EGT, 2004)
LaBore, Henry J. III (BS, 1983)
Lalim, Dale E. (BA, 1959)
Lambrecht, Jeffrey (BS GE, 1989)
Lampman, Theodore I. (BS MIE, 1951), Deceased
Land, Cooper B.
Lang, Jeff (BS, 1971)
Langlie, Gordon C. (BS, 1973)
Langtry, Tina M. (MA, 1982)
Larsen, Kenneth A. (BS GE, 1988)
Larsen, R. Al (BS Geol, 1983; MS, 1988)
Larson, Connie (Administrative Secretary 2002–)
Larson, Grant (BS EGT, 1993)
Larson, Laurn R. (BS, 1980)
Larson, Timothy J. (BS GE, 1999)
Laslila, Pentici A. (BS Geol, 1968)
Laveau, Chris D. (MS, 2005)
Law, David L. (BS, 1972)
Lee, Arnott J. (BS MIE, 1930)
Lee, Kathleen A. (BS, 1984), SEE ROTH
LeFever, Richard D. (Faculty, 1980–)
Leger-Engelhardt, Paula (BS Geol, 1982)
Lenz, Bernie (BS GE, 1995)
Leonard, Arthur Gray (Faculty, 1903–1932), Deceased
Lerud-Heck, Joanne
Levchak, Deborah Fohr
Libby, Heather Durbin
Lillich, Jean
Lilly, James A. (MS, 1977)
Lindberg, Russell A. (BS MIE, 1942)
Lindbo, Donald A. (BS MIE, 1961)
Lindholm, Rosanne M. (BS, 1981; MS, 1984)
Lindvig, Milton O. (BS GE, 1961)
Listoe, Bruce K. (PhB, 1958), Deceased
Livingood, Jamie (BS EGT, 1997)
Lobdell, Frederick K. (MS, 1984; PhD, 1988)
LoBue, Charles (MS, 1983)
Lockrem, Timothy M. (BS Geol, 1980)
Loeffer, Peter (MS, 1982)
Logan, Katherine J. (MA, 1981)
Lopez, Alfred B. (BS Ed, 1973; MEd, 1974)
Lord, Mark L. (MS, 1984; PhD, 1988)
Lowe, Donald F. (BS MIE, 1956)
Lowe, Robert D. (BS MIE, 1954), Deceased
Lucy, Sean (BS Geol, 1994)
Lund, Steven P. (BS Geol, 1972)
Luther, Kathryn C. (MS, 1988)
Luther, Mark R. (MA, 1988)
MacCarthy, Ronald F. (Ex-MS)
Madewald, Kent A. (MS, 1962)
Maixner, Louise A.
Majkrzak, Gregory D. (BS GE, 1974)
Maldonado, Cheryl (BS, 1981)
Maletzke, Jeffrey D. (MS, 1988)
Malick, Kenneth C. (MS, 1977)
Malmquist, Kevin L. (MA, 1979)
Manecke, Thomas (BS GE, 1984; BS, 1987)
Manly, Michelle M. (BS EGT, 2000)
Manning, Dean E. (BS, 1976)
Manson, Harold L. (BS Geol, 1977)
Marafi, Hussein S. (MS, 1969)
Marchell, Karla W.
Marchell, Kirk A. (BS GE, 1981)
Marshall, J. Lyall (BS Geol, 1999)
Martin, Kalvin W. (BS, 1975)
Masson, Andy, Deceased
Matheney, Ronald K. (Faculty, 1989–)
Mathison, David J. (BS Geol, 1971)
Mayer, Gale G. (MS, 1988; PhD, 1992), Deceased 7/2002
McCabe, William J. (PhB, 1953)
McCammong, Richard (Faculty, 1960-1961)
McCloskey, Jerry (MS, 1995)
McCullum, Morris J. (MS, 1962)
McDonald, Gerald B. (BS Geol, 1965; BS BA, 1966)
McDonald, Malcolm H. (PhB, 1943)
McDonald, Mark R. (BS GE, 1986; MS, 1994)
McDonald, Michelle
McFarlane, Paul E. (BA, 1971; BS Ed, 1972)
McGurren, James D. (BS, 1986)
McKeachnie, Daniel (BA, 1980)
McKee, Thomas W. (PhB, 1953)
McKenzie, Robert L. (BS Geol, 1953)
McLean, Steve (BS Geol, 1993)
McLean, William (BS MIE, 1961)
McNaboe, Kate (BS GE, 1994)
McNeil, Ann (BS EGT, 1994)
Mealman, Stephanie (BA Geol, 1997), SEE STUART
Meek, Robert A. (BS, 1985)
Meiers, Monte C. (BS, 1974)
Meldahl, Charles E. (BS Geol, 1962)
Meldahl, Elmer G. (BS Geol, 1955; MS, 1956)
Melik, James C. (MA, 1960)
Melland, Vicky (MS, 1996)
Mellom, Ralph M. (BS MIE, 1957)
Melsted, Marcella (BSC, 1975)
Melvin, Richard L. (BS, 1975; BSGE, 1977)
Merrell, John L. (BS GE, 1962)
Merritt, James C. (MS, 1967)
Mertz, Bradlee (BS EGT, 2002)
Mickelson, Kermit B. (BS GEol, 1950)
Midboe, Brandon (BS EGT, 1998)
Mikkelsen, Dean H. (BS, 1956)
Mikkelsen, Dwight (PhB, 1960; BS, 1973)
Miller, Arthur C. (PhB, 1960)
Miller, Bruce G. (BS CHE, 1981; MS, 1982)
Miller, Daniel J. (BS GE, 1983; BS, 1984)
Miller, Darren (BS EGT, 1996)
Miller, James (BS GE, 1983)
Miller, Kerry E. (BS GE, 1977)
Miller, Sharon K.
Miller, Steve (BS EGT, 1999)
Millette, Millard M. (BS MIE, 1935; MS, 1936), Deceased
Millsop, Mark D. (MS, 1985)
Minerman, Roger (BS MIE, 1958)
Mittel, Robert A. (BS PA, 1974)
Moe, Kimberly M. (BS GE, 1985), SEE SAWATZKE
Moe, Thomas A. (BS GE, 1982)
Mohs, David P. (Ex, 1978), Deceased
Monroe, Richard G. (PhB, 1956)
Monson, Carissa (BS GE, 1996), SEE STROBEL
Monson, Lisa (BA, 2000)
Moore, Richard B. (MS, 1970)
Moore, Walter L. (Faculty, 1960–1981)
Moran, Steve (Faculty, 1971–1976)
Morgan, Douglas H. (MS, 1964)
Morin, Kevin A. (MS, 1979)
Mosser, Jayne (BS GE, 1984), SEE HARKINS
Moultrie, Gerard E. (BS GE, 1920), Deceased
Muhs, Robert A. (BS MIE, 1951), Deceased
Murphy, Edward (BS, 1979; MS, 1983)
Mussetter, Mitchell (BS GE, 2000)
Myerchin, Paul (BS EGT, 1994)
Naplin, Charles E. (PhB, 1967)
Nels, Richard J. (BS GE, 1984)
Nitzke, Richard C. (MST, 1970)
Nelson, David O. (BS, 1975)
Nelson, Donald K. (BS MIE, 1950)
Nelson, Howard E. (BS MIE, 1941)
Nelson, John P. (MS, 1981)
Nelson, Kenneth (BS, 1959)
Nelson, Lyle S. (BS, 1970; MS, 1973)
Nelson, Margaret (BS GEol, 1998)
Nelson, Maynard A. (PhB, 1938)
Nelson, Trika L. (BS GEol, 2002)
Nelson, Wesley D. (BS GE, 1976)
Nepper, John P. (BS MIE, 1953)
Nesemier, Bradley D. (MS, 1981)
Ness, Carl E. (BS GE, 1984)
Nestvall, Jerry E. (BS GEol, 1962)
Nesvold, Randy L. (BS GE, 1981)
Neuharth, Steven W. (BS EGT, 1996)
Nielsen, Dennis (MS, 1969; PhD, 1973)
Nill, Gregory T. (BS, 1986)
Noble, E. A. (Faculty, 1965–1978)
Noone, Patricia L.
Norberg, Kori K.
Norby, Rodney D. (BS, 1967; MS, 1971)
Nordhagen, Arlen D. (BS, 1978)
Nordness, Harold J. (BS MIE, 1954)
Nordstog, James A. (BA, 1986)
Nordstog, Paul (BSC, 1952)
Noren, Charles H. (BS MIE, 1943)
Norstedt, David L. (BS, 1984)
Norton, Wesley D. (BS MIE, 1960)
Novak, Richard L. (PhB, 1959)
Nusich, Lee C. (BS GE, 1972)
Nye, James D. (PhB, 1959)
Nygaard, Scott (BS EGT, 1995)
Obeleneus, Thomas J. (MS, 1985)
Oberst, Robert J. (BS GE, 1986)
Odenbach, Ryahn M. (BS EGT, 1996)
Okland, Howard D. (MS, 1978)
Okland, Linda E. (MA, 1978)
Olien, Benjamin N. (BS GEol, 1958)
Olson, Beatrice W. (BS, 1946), SEE PISAR
Olson, Bruce A. (BS, 1974)
Olson, Erica (BSGE, 2000; BS GEol, 2000)
Olson, Gerald L. (BS GE, 1976)
Olson, Jennifer L. (BS GEol, 2002)
Olson, Lance (BS, 1983; BS Ed, 1989)
Olson, Lee L. (BS GE, 1983)
Omane, Robert J. (BS MIE, 1961)
Opp, Albert G. (BS GEol, 1953)
Opsal, Claire M. (BS GE, 1969)
Oros, Margaret O.
Orth, James A. (BS, 1970)
Osborn, Mark (BS GE, 1996)
Oseles, William M. (BS, 1978)
Osen, Lars (BSMIE, 1959)
Oster, Courtney B. (BA, 1984)
O’Toole, Frederick S. (BS, 1978; MS, 1981)
Oty, John W. (BS GEol, 1955)
Overend, Lynn (BS EGT, 1997)
Overland, Jason (BS EGT, 1999)
Overmoe, Terrance H. (BS GEol, 1956)
Owen, Wallace M. (BS MIE, 1958)
Pagnuc, Darrin (BS GEol, 1995)
Palmer, Hugh, Deceased 9/1995
Pappas, Capt. James M. (Ex-MS)
Parsons, Michael W. (MS, 1980)
Parvey-Bibby, Melanie (BS EGT, 1999)
Patch, Jon C. (BS GE, 1982)
Paulson, Quentin F. (BS GEol, 1949)
Peabody, Timothy (BS EGT, 1993)
Peck, Wesley D. (MS, 1992)
Pederson, Camilla (BSGE, 1989)
Pederson, Cyril A. (BS MIE, 1950), Deceased
Pederson, Darryll T. (MST, 1966; PhD, 1971)
Pederson, Gloria (Administrative Secretary, 1988–2000)
Pederson, Laura (BA GEol, 2004)
Pence, Stan (MS, 1996)
Pender, Carole J.
Perkins, Dexter (Faculty, 1981– )
Perkins, Earl L. (PhB, 1962)
Perkins, Roderic L. (MA, 1977)
Perkins, Rodney Karl (MS, 1987)
Pernichile, Albert D. (MS, 1964)
Perrin, Nancy (PhD, 1987)
Person, Jeff (BS Geol, 1997)
Peterson, Ansel C. (PhB, 1958), Deceased
Peterson, Dr Spencer A (MS, 1967; PhD, 1971)
Peterson, John E. (BA, 1936), Deceased
Peterson, Kenneth E. (BS, 1942), Deceased 9/6/94
Peterson, Lance A. (BS GE, 1982)
Peterson, Robert T. (BS Geol, 1959)
Peterson, Wayne L. (BS GE, 1974)
Peterson, William M. (BS, 1974)
Petter, Charles K. (MS, 1956)
Peyton, Jay O. (PhB, 1956; MST, 1970)
Phillips, Mark A. (BS, 1977)
Pickering, Michael E. (BS GE, 1981)
Pierce, Robert A. (BS MIE, 1962)
Pilatzke, Richard H. (MS, 1976)

Pisar, Beatrice O.
Pitakarnnop, Nara (MS, 1974)
Plunkett, Robert O. (BS MIE, 1940), Deceased 4/2002
Pope, Jerry A. (BSGE, 1968)
Popejoy, Walford L. (BS Geol, 1951)
Pottenger, Lisa (BS Geol, 1999), SEE POWELL-BEAVER
Pound, Wayne R. (BS Geol, 1970; MS, 1985)
Powell-Beaver, Lisa (BS Geol, 1999)
Price, Reed (BA, 2001)
Prichard, Gordon H. (BS, 1975; MS, 1980)
Purpur, David K. (BS GE, 1985)
Pyle, Daniel L. (BA, 1984)
Quandt, Larry MA, 1990
Quigley, Michael L. (BS Geol, 1958)
Quinn, Christopher F. (MA, 1986)
Quirke, Terence T. (M.S., 1913), Deceased
Quirke, Terence T., Jr. (Faculty 1958–1960)
Raabe, Orval J. (BA, 1931), Deceased
Rakow, Francis A. (Ex, 1977)
Ramsey, Bruce L. (BS Geol, 1972; MS, 1974)
Randich, Phillip G. (Ex, 1960)
Rasmussen, Lowell A. (BS Geol, 1952)
Rau, Jon L. (Faculty, 1957–1958)
Rauser, James D. (BS, 1984)
Ray, John T. (MS, 1979)
Redlin, Tim W. (BS Geol, 1975)
Redmond, John C. (BS Geol, 1955)
Reede, Roger J. (BS, 1959; MS, 1967; PhD, 1972)
Reesman, Arthur L. (Faculty 1962–1963)
Regan, Michael (BS EGT, 1997)
Reichart, William F. (PhB, 1957)
Reichert, Raudall L. (BS Geol, 1978)
Reid, John R. (Faculty, 1961–1998)
Reid, Robert J. (MST, 1972)
Reishus, Mark (BS, 1959; MS, 1967)
Reiskind, Jeremy (PhD, 1986)

Reiten, Jon C. (BS, 1973; MS, 1983)
Reith, Howard C. (EdD, 1969), Deceased
Remple, Gary A. (BS Geol, 1987)
Rerick, Mary E.
Rhode, Michael (BS EGT, 1997)
Rich, Mark (Faculty, 1959–1963)
Rich, Thomas B. (BS, 1977)
Richardson, Ronald E. (MS, 1975)
Richter, Krista A. (BS GE, 1984), SEE DOEBLER
Richter, Rodney W. (BS BA, 1975)
Rickford, Randy L. (BSGE, 1981)
Ritter, Gilman C. (BSMIE, 1949)
Rivard, Patrick L. (BSGE, 1982)
Roidston, Robin G. (BS, 1984; BSGE, 1984)
Roberts, Samantha (BS EGT, 1993), SEE TVETER
Robey, Duane A. (MST, 1973)
Robinson, Michael S. (BS EGT, 2002)
Robinson, Scott E. (MS, 1985)
Roddakowski, Harold L. (MS, 1972)
Roerich, Robert D. (BS Geol, 1957)
Rogers, Corliss D. (BS, 1973)
Rolland, Michelle (BA, 1993), SEE MCDONALD
Romans, Rusty (BS EGT, 1998)
Ronnie, David M. (MS, 1987)
Roob, Christine (MS, 1987)
Ross, James D. (BS Geol, 1967)
Rossow, Robert J. (BA, 1975)
Roth, Fritz J. (BS Geol, 1955)
Roth, Kathleen A.
Rott, Gerald M. (MS, 1980)
Rousseau, Christopher (BS GE, 1996)
Rouzi, John, Deceased 5/1995
Rovenko, John M. (BS, 1979)
Rovenko, Ronald J. (BS, 1977; BS GE, 1982)
Rowsell, Malcolm D. (BSMIE, 1958)
Rupp, Gillette E. (BS Geol, 1950)
Rush, David B. (MS, 2000)
Ruska, John H. (PhB, 1958)
Russell, Alice (BA, 1949; MA, 1950), SEE FYTEN
Russell, Dennis L. (BS MIE, 1957)
Rygh, Marin E. (BS GE, 1982; MS, 1990)
Ryland, David (BS GE, 1993)
Rysavy, Dallas (BA, 2000)
Sabby, John M. (BSGE, 1982)
Sabo, Joe (Ex, 1956)
Sackreiter, Donald K. (MS, 1973; PhD, 1975)
Sahl, Barb (MS, 1994)
Sakry, Penny (BS EGT, 1997)
Salander, Henriette (BS EGT, 1994)
Salisbury, Richard A. (MS, 1966)
Salomone, Nena L. (BS Geol, 1974), SEE GRILLEY
Saluja, Sundar S. (Faculty, 1982–1996), Deceased
Samson, Sherry (BS Geol, 1995)
Saud, Mary [Reinertson-Sand] (GGE Librarian, 1984–1990)
Sandberg, Brian (MS, 1985)
Sandef, Jeffrey J. (BS GE, 1984)
Sanderson, Chad M. (BS GE, 1983)
Sandy, Bruce G. (BS GE, 1982)
Sannes, Ross (BA, 2001)
Sanstead, Kenneth A. (BS MIE, 1944)
Sauker, Lawrence E. (BS EGT, 1996)
Savage, Merle J. (BS GE, 1967)
Sawatzke, Kimberly M.
Sawatzke, Thomas G. (BS GE, 1986)
Scardigli, Wayne E. (BS GE, 1968)
Scattolini, Richard (MS, 1972; PhD, 1978), Deceased 4/2001
Schaan, Cory J. (BS, 1985)
Schaner, Ryan (BSGE, 1994)
Schiffelbein, Paul A. (Ex-MS, 1979)
Schimelkenig, Carrie (BS, 1983), SEE KRAUSE
Schlag, Alison
Schlag, Allen (BS EGT, 1996)
Schley, Carleton C. (PhB, 1969)
Schlosser, Stephanie (BS EGT, 1999)
Schmid, Jacqueline S. (BS GE, 1984)
Schmid, Roger W (BS, 1960)
Schmid, William L. (PhD, 2001)
Schmit, Craig R. (BS, 1970)
Schmit, Robert T. (BS, 1983)
Schmutz, Emmett R. (MS, 1955)
Schraecke, Arthur (MS, 1982)
Schneider, Gregory J. (Ex, 1953)
Schneider, Joel D. (BS GE, 1984)
Schofield, Ronald G. (BS Geol, 1958)
Schott, David W. (BS GE, 1981)
Schulte, Frank J. (BS, 1965; MS, 1971; PhD, 1972)
Schulte, Mitch
Schulze, Henry W. (BS MIE, 1951), Deceased
Schumacher, Sara J. (BS, 1984)
Schumacher, Thomas O. (BS GE, 1983)
Schumacher, Tina (BA, 1994)
Schuman, John R. (Ex, 1963)
Schumer, John J. (BS Geol, 2000; BS GE, 2001)
Schwartz, Danny L. (BS Geol, 1975)
Schwartz, Dirk A. (MS, 1987)
Schwartz, Guy L. (BS GE, 1983)
Schweiss, Christopher (BS EGT, 1997)
Schwenn, David D. (BS, 1986)
Schwenn, LaRae J.
Scott, Mary L. (MS, 1972)
Seelig, Keith D. (BS, 1983; BS GE, 1983)
Seidel, Robert E. (PhD, 1986)
Senn, Derek T. (BSGE, 2002)
Seterlund, Richard B. (BS MIE, 1957)
Sevigny, Kevin J. (BS, 1986)
Sharif, MD Salah Uddin (MS, 2003)
Sherrod, Neil R. (MS, 1963)
Shide, Daniel T. (BS GE, 1984)
Short, Harry W. (PhB, 1956)
Short, Maynard P. (BS MIE, 1958)
Short-Azure, Michelle (BS EGT, 1999)
Sickler, Rob (MA, 1995)
Sickler, Scott (BS GE, 1995)
Siebels, Charles J. (BS, 1977)
Sigsby, Robert J. (PhD, 1966)
Siffer, Brian (MS, 1990)
Sillerud, Jerrol G. (BS GE, 1978)
Simonson, Eric J. (BS GE, 1985)
Simpson, Howard (Faculty, 1909–1937), Deceased
Simpson, Howard E. (BA, 1940), Deceased
Sinkbeil, Raymond F. (BS, 1949)
Sjoden, Michael R. (BS GE, 1985)
Skeate, Jeffrey T. (BS BA, 1980)
Skibicki, Michael J. (BS GE, 1986)
Skibicki, Patrick J. (BS EGT, 1993)
Skjærpen, Trevor (BS GE, 1998)
Skubinna, Paul (BS GE, 1998; MS Geol, 2004)
Slama, Louise A. (BS, 1973), SEE MAIXNER
Smallwood, James C. (BS Geol, 1954)
Smith, Carole J. (BS, 1953), SEE PENDER
Smith, Gordon A. (BS MIE, 1958)
Smith, Gregory W. (BS GE, 1987)
Smith, Kori (BS EGT, 1996), SEE NORBERG
Smith, Leonard J. (BS, 1950)
Smith, Louis D. (BS Geol, 1970)
Smith, R. Bruce (BA, 1983)
Smith, Richard D. (BS, 1967)
Smith, Steven A. (BS, 2001)
Smith, Wayne G. (BS MIE, 1959)
Smyers, Larry E. (MS, 1979)
Snare, Erica M. (BS Geol, 2002)
Snyder, Jeff (BS, 1992)
Sogard, Patrick O. (BS GE, 1982)
Solheim, Jeffrey (BS GE, 1989)
Solheim, S. Dale (BS Geol, 1958)
Solie, Kevin (BS, 1987; MA, 1995)
Sonderman, Mike (MS, 1992)
Sondrol, Darla K. (BS Geol, 2002)
Sorensen, James A. (BS, 1991)
Sorensen, Paul (BS EGT, 1997)
Sorun, Jack (BS GE, 1983)
Sowokinos, Janice
Spaeth, Richard N. (BS, 1972)
Sparf, Charles R. (BS MIE, 1943)
Spencer, Eben J. (BS GE, 2003)
Spencer, Kathy (Geology Library, 1990–2003)
Stadum, Mark A. (BS GE, 1983)
Stafford, Brent (BS EGT, 1996)
Staiger, LeRoy A. (BA, 1970)
Stallman, Gerald M. (BS GE, 1982)
Stallman, Tim L. (BA, 1975)
Stancel, Steven G. (BS, 1974)
Steadman, Edward N. (MA, 1985)
Stepanovsky, Gary L. (BS, 1983)
Steig, Wade D. (BA, 1979)
Steiner, Mark A. (MA, 1978)
Steinle, Kirk M. (BS GE, 1985)
Stephens, Randall (MS, 1986)
Stevenson, Robert J. (Faculty, 1981–1988)
Stiem, Alexander M. (BS GE, 1985)
Stieng, Jodie D. (BS GE, 1984), SEE KELLY
Stoltz, Emil and Audrey
Stone, J. Lee (MA, 2002)
Williams, David (MS, 1984)
Wilison, Robert G. (MS, 1967)
Wilson, Barry J. (BS Geol, 1983)
Wilson, Everett E. (BS Geol, 1956; MS, 1958)
Wilson, Garth
Wilson, James W. (BS GE, 1976)
Winbuurn, Gary D. (BS Geol, 1978; MS, 1986)
Winczewski, Laramie M. (BS Ed, 1972; MS, 1977; PhD, 1982)
Winterer, Timothy R. (BS MIE, 1959)
Witt, Ivana (BS EGTP, 1999)
Wockovich, Marvin R. (PhB, 1953), Deceased
Wold, Paul D. (BS, 1949), Deceased
Wolfe, Christopher (BS GE, 1997)
Wolf, Robert A. (BSGE, 1982)
Woods, Mary L., SEE SCOTT
Woolsey, Earl (BS GE, 1989)
Wosick, Frederick D. (BS, 1974; MS, 1977)
Wyborny, Sylvester J. (BSMIE, 1958), Deceased
Wylie, Jan D. (BS, 1971)
Yearous, Jenni D. (BS, 1985)
Young, Daniel R. (MA, 1980)
Zabel, Dean A. (MS, 1979)
Zacher, Eric J. (BS EGTP, 2005)
Zejdlik, Roger C. (BS Geol, 1957)
Zheng-Weng, Zeng, (Faculty, 2005–)
Zich, Terrance J. (BSGGE, 1977)
Ziebarth, Harold C. (MS, 1962; PhD, 1972)
Zimmer-Dauphinée, Susan (MS, 1983)
Zimmerman, James T. (BS Geol, 1955)
Zinda, Bryan (BSGE, 1996)
Zodrow, Dwain M. (BS Geol, 1950)
Zygarlick, Christopher J. (MS, 1987)

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Joseph Hartman, p. 3, 4, 5, 6, 7, 15 (left), 18 (lower), 19 (left), p. 20 (upper), 21 (right), 22, 23, 28 (librarians and Phil), 29 (Will), 30, 32, 33, 34, 35, 36, 37 (except aerial), 38, 40, 41 (except group), 42 (Almont), 43, 44 (Phil), 48 (right), 49, 50 (left), 51, 52 (lower left), 69.
EERC photo, p. 4.
Audrey Stewart, p. 13, Gosnold.
Gerry Olson, p. 13 (Laird group).
Unknown, p. 5, 14, 15 (right), 16 (group), 17 (all except top left), 18 (top), 24, 25, 26, 27, 29 (all except Will), 37 (aerial), 41 (group), 42 (Circle of Life), 45 (Ahmad), 46, 47 (left), 50, 51 (broomball), 52 (group), p. 63, 64 (right), 65, 68 (Keogh).
Ryan Klappertich, p. 16.
Dexter Perkins, p. 16 (right), 17 (top left).
Scott Korom, p. 19 (right), p. 28 (Dr. Xu).
Bud Holland, p. 20 (lower), p. 21 (left).
Mary Sand, p. 28 (of library).
Mr. GeoDIL, by Victoria Swift, p. 31.
Phil Gerla, p. 44 (Ryan), p. 45 group.
Chuck Kimmerle (group), p. 44.
Cartoon, from Punch, p. 50.
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Charnokite, a foliated igneous rocks. The name was given by Dr T. H. Holland from the fact that the tombstone of Job Charnock, the founder of Calcutta, is made of a block of this rock. The charnockite series includes rocks of many different types, some being acid and rich in quartz and microcline, others basic and full of pyroxene and olivine, while there are also intermediate varieties corresponding mineralogically to norites, quartz-norites and diorites. A special feature, recurring in many members of the group, is the presence of strongly pleochroic, reddish or green hypersthene. Many of the minerals of these rocks are “schillerized,” as they contain minute platy or rod-shaped enclosures, disposed parallel to certain crystallographic planes or axes. The reflection of light from the surfaces of these enclosures gives the minerals often a peculiar appearance (see p. 17 for story).
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You may feel there was someone that may have had a lasting influence on your career or for whom you have a short story to tell that others may enjoy. If you have any photos to add, of course, that would be great.

Walt Moore may be just such an inspiration or for whom such stories are available.
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Name ________________________________ Residence Telephone _______________________
Surname First MI. Area Number

Residence Address ________________________________
Street Address City State Zip

Business/ Employer ________________________________ Position ________________________________
Address
Street Address City State Zip

Business Telephone ________________________________ Email ________________________________

Permanent Address (or name and address of parents, nearest relative, or someone who will be able to reach you):

Name ________________________________ Relationship ________________________________ Telephone Number ________________________________
Area Number

Street Address City State Zip

Degree ________________________________ College or University ________________________________ Year ________________________________

Degree ________________________________ College or University ________________________________ Year ________________________________

Degree ________________________________ College or University ________________________________ Year ________________________________

Spouse ________________________________ Name ________________________________ Year of Wedding ________________________________

Children ________________________________ Name Birth Date ________________________________

Children ________________________________ Name Birth Date ________________________________

Children ________________________________ Name Birth Date ________________________________