# GGE NEWSLETTER - FALL 1989

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NOTE FROM THE CHAIRMAN
Frank R. Karner

I would like to take this opportunity to wish everyone a happy and fulfilling New Year and New Decade!

We are completing the last year of the 1980's decade which has brought many changes including the name change to the Department of Geology and Geological Engineering in 1985. The Geological Engineering program was accredited in 1986 and currently the School of Engineering and Mines is proposing a Ph.D. in Energy Engineering that could be offered in our Department. Teaching and research emphasis in geology and geological engineering has shifted to include major programs in hydrogeology and environmental geology. A new degree, the B.S. in Environmental Geology and Technology, is being proposed this year. In the '80's new emphasis in geophysics has developed while our major programs in geomorphology, paleontology, petroleum geology, petrology, sedimentology and stratigraphy continue.

This year we hired two new faculty, Nels Forsman in economic geology and Ron Matheney in low-temperature geochemistry and isotope geochemistry. We now have twelve full-time faculty and eight emeritus, adjunct, and temporary faculty. Our number of emeritus faculty reached two with the retirement of Bud Holland after 35 years of service to the department and university. After a special recognition day and conference for Bud, the Geology Library was renamed the F. D. Holland, Jr. Geology Library. Speaking of the library, this past summer it underwent a much-needed, long-awaited, and dramatic expansion. The library was finally double-decked, a project that Bud had been pushing for ten years.

Also this past year, the North Dakota Geological Survey departed from the university and moved to Bismarck, a move that the oil and gas regulatory group had made in 1981. The Survey, under Sid Anderson as Acting State Geologist, shares space and support staff with the Oil and Gas Division under Wes Norton and is administered by the North Dakota State Industrial Commission. The Wilson M. Laird Core Library remains in Grand Forks with a support staff of two, Julie LeFever and Rod Stoa.

In 1983 the Energy Research Center (formerly Bureau of Mines) was transferred to the University from the Department of Energy. It has developed, since 1987 under Gerry Groenewold, into the Energy and Environmental Research Center (EERC) with major grant and contract emphasis in hydrogeology and environmental geology as well as fuel technology of coal and some new areas of oil and gas studies. EERC administers our Natural Materials Analytical Laboratory which is being expanded to the third floor space in Leonard Hall vacated by the Survey.

As you can see, it has been a busy, eventful decade for the Department and 1990 promises more of the same as the new decade begins to unfold. In the '90's we are looking forward to continued development of historically strong teaching and research areas as well as developing new areas of teaching and research in the Department of Geology and Geological Engineering.
NOTE FROM THE DEAN
Thomas C. Owens

It is a pleasure to be able to address alumni and friends of the UND Department of Geology and Geological Engineering. As you probably already know, Alan C. Fletcher, Dean of the School of Engineering and Mines for the past 20 years, retired effective June 30, 1989. His unexpected announcement this past spring did not allow enough time to conduct a search for a permanent replacement, so I am serving as Interim Dean through next June while a national search is conducted. Needless to say, Dean Fletcher presided over many departmental changes within the School, including several in Geology and Geological Engineering, and his influence will be felt for many years to come.

The School has several challenges to meet over the next couple of years including preparing for a visit in 1991 by representatives from the Accrediting Board for Engineering and Technology (ABET), who will examine our engineering programs for new and continuing accreditation. A proposal to implement a doctoral program in Energy Engineering, an interdisciplinary engineering program that takes advantage of the strengths of several departments within the School and of our unique relationship with the Energy and Environmental Research Center, is currently being studied by the administration of the University. Conducting a quality doctoral program with very little, if any, additional state support, while maintaining the traditional UND commitment to undergraduate education, will be a challenge for everyone.

I invite each of you to visit the campus in conjunction with scheduled events, such as Alumni Days, or to drop in when you happen to be in the vicinity. If you are willing to share your experiences with our present students, I suspect that a little advance notice would produce an opportunity for you to visit with interested young people. My experience has been that alums can contribute more than they realize to the education of students.

Best wishes to everyone from UND and the School of Engineering and Mines.
NEW FACULTY MEMBERS

Nels F. Forsman

I'm very pleased to have officially joined the department and am as busy as ever with teaching and advising. I was on loan again to the Integrated Studies program this past fall, and thoroughly enjoyed it! It's a wonderful program for freshman which exposes them to some great ideas through an integration of content from five courses that fulfill general education requirements for all majors. The department benefits by increased enrollments, potential new majors, and great public relations. Being involved in that program has broadened my outlook and has affected my teaching approach in the department's courses.

I'm very impressed with what's happening in the media and in government with environmental concerns. This past semester, my students took the lead in generating a consciousness-raising effort regarding recycling. Their efforts were reported in the student newspaper. I also served on a three-member panel to discuss global warming as a representative of the Union of Concerned Scientists. Of course, I'm still interested in planetary geology: in August I served as a commentator during live receipt of images from the Voyager Neptune encounter at the CAS atmosphereium. Graduate student Mitch Schulte is hunting unstudied specimens of the Richardton meteorite and I'm expecting record enrollment in Views of Earth and Planetary History this spring.

Research with the White River Group continues, with new evidence suggesting that Miocene rocks are not present in North Dakota after all. That stratigraphic-age ball is back and forth and needs the geochemical data and radiometric age data provided by our USGS-NDGS COGEMAP study. The study also maintains a research link between the NDGS (now in Bismarck) and the department. With expanding enrollments, I hope to generate more student interest in field research with the Cretaceous and Cenozoic surface section. Hello to all alums! We'd love to hear from all of you.
Ronald K. Matheney

I am delighted to have joined the department faculty as a geochemist this past August. I came via the stable isotope geochemistry lab at Arizona State University (Ph.D., 1989), the Rb-Sr geochronology lab at the University of New Mexico (M.S., 1984), and the Geology Department at California State University, Hayward (B.S., 1981). My mission at UND is to take over teaching the geochemistry curricula, and to build a stable isotope geochemistry program to be housed in Leonard Hall's existing geochemistry lab. Along the way, I will try to make a contribution to the swelling hydrogeology program which Phil Gerla and others are heroically leading, and I will teach some of the other undergraduate geology courses. This semester, I am teaching Common Rocks and Minerals (the first two-thirds of Mineralogy 318), and about half of one of the Intro. Geology sections. So far, I am enjoying myself, and keeping very busy.

I must comment that the department is a very pleasant place to work, and I have enjoyed my contacts with all of the faculty and staff. Also, the campus is quite attractive—close to my ideal of what a university should look like. The city of Grand Forks, too, has made a good impression. Many of the neighborhoods are charming, and almost anything you could ever want to buy is available in one store or another. Those of you who moved away must not know what you're missing! The only thing absent here (besides a few dozen degrees C in winter) is my wife, Karen Katinak, who is working on her Ph.D. in geology at Arizona State University. She will be joining me in about a year, and then she will seek a job on campus or in the community. Till then, your MCI stock is safe, and my home phone is busy.
I am spending the 1989-90 school year on instructional developmental leave at UC-Berkeley. This past summer was a hectic one as I was trying to finish some papers, pack up our apartment, put most of our belongings in storage, and pack up my office because when I come back I will have a new office on the third floor. Somehow everything got done and Toni, Mark, and I left for Berkeley in late August. Wow, are things ever expensive here! We ended up finding an apartment in Fremont, near San Jose. I ride BART (the subway) 80 minutes one-way to Berkeley! Fortunately, I was home when the big earthquake hit the area, otherwise I would have been stranded when BART shut down. We suffered no injuries or property damage, for which we are thankful.

The objectives of my developmental leave are to conduct geothermal waste disposal research work and to develop parts of the teaching materials for a proposed new course entitled, "Subsurface Disposal of Liquid Wastes." Because this course may be the first of its kind offered in college degree programs in the U.S., I hope to develop some teaching materials through my work at Berkeley. For example, I will conduct laboratory experiments to investigate the effects of injection water temperature on injectivity of geothermal disposal reservoirs. I plan to attend a three-day short course entitled, "Collection, Treatment and Disposal of Liquid Wastes," at the University of Texas at Austin, and to take a field trip to the Imperial Valley geothermal fields in southern California to visit geothermal disposal facilities and operations. And, last but not least, I hope to sample some great Chinese cooking in San Francisco's Chinatown! I have already been there twice! Good food for good people!
The F. D. Holland Symposium
John Hoganson

The geological symposium held in honor of Prof. F. D. ("Bud") Holland, Jr. was a tremendous success. The event, in recognition of Bud's 35 years of service to the Dept. of Geology and Geological Engineering and the University of North Dakota, was held in Leonard Hall, UND campus, on April 14, 1989.

The big event began the evening of April 13 with an informal reception in the lobby-museum area of Leonard Hall. The symposium convened at 9:00 a.m. with introductions by Thomas Clifford, UND president, Frank Karner, and J. Mark Erickson, St. Lawrence University geology department chairman and one of Bud's former students. Sixteen papers were presented by Bud's former students and colleagues covering the results of some of their recent research. Eleven of the presentations dealt with research conducted in North Dakota. A symposium volume will be published by the North Dakota Geological Survey this fall.

Over 125 people registered for the symposium although at different times during the day it was obvious that many more people were in attendance. This was especially true during the keynote address by the renowned dinosaur expert, Dr. John R. Horner, who presented a talk on "Transgression, Regression, and Evolution of Dinosaurs." During that presentation, the Leonard Hall lecture bowl, with a seating capacity of over 200, was completely filled. Participants travelled here from all parts of the U.S. and included many of Bud's 20 former masters students and eight of his nine doctoral students. One of the highlights of the event was a special surprise recognition ceremony during which the UND geology library was renamed in Bud's honor; it is now the F. D. Holland, Jr. Geology Library. At the conclusion of the symposium, a reception was held in the F. D. Holland, Jr. Geology Library, where a large plaque with Bud's portrait was unveiled. The plaque will be mounted in the library.
The annual Sigma Gamma Epsilon banquet topped off the event. Dr. Horner gave a very entertaining talk on dinosaur ecology. In recognition of his many years as advisor to Sigma Gamma Epsilon, Bud was presented with a 15-foot-long mounted mural depicting mammal evolution. The mural will be displayed in Leonard Hall. John Bluemle also presented Bud with a plaque on behalf of the North Dakota Natural Science Society for his many years of involvement with that organization. The banquet ended with former students showing slides (many of Bud in compromising positions) taken over the years on field trips organized by Bud.

As co-conveners of the symposium, Mark Erickson and I would again like to take this opportunity to thank those who participated and attended the event and the many people who made the symposium a success. If you are interested in obtaining a copy of the symposium volume, please contact me.

Bud Holland with eight of his nine Ph.D. students.
Standing, left to right: Frank Caramanica, Rod Feldmann, Jeremy Reiskind, Nancy Perrin, Fred Lobdell, Jim Grenda.
Seated, left to right: John Hoganson, Bud, Mark Erickson.
Talks Given at the Holland Symposium

N. F. Forsman  Volcanic tuffs in North Dakota
G. L. Bell    Zoned crystals
C. G. Carlson Petroleum Development in North Dakota A Stratigraphic and Historical Review
O. D. Christensen Stratigraphic controls on gold mineralization, Carlin trend, Nevada
J. Kume       Characterization of water percolation in tuffs in the unsaturated zone, Yucca Mountain, Nye Co., Nevada
J. P. Rousseau
J. R. Horner   Transgression, regression, and the evolution of dinosaurs
F. P. Caramanica Ordovician corals of the Red River-Stony Mountain Province
N. Ferrin      Algae in the Winnipegosis Fm. (Middle Devonian), Williston Basin, North Dakota
R. M. Feldman The paleoecology of Echinocaris randallii Beecher from the vicinity of Drake's Well, Titusville, PA.
J. T. Hannibal
D. J. Mullett
B. A. Schwimmer
D. Tshucy
A. B. Tucker
R. W. Weider
R. L. Webster Petroleum source rocks and stratigraphy of the Bakken Formation in North Dakota
J. C. Grenda   Tylericaris hollandi n. gen., n. sp. (Malacostraca: Teallicaridae) from the Tyler Fm. (Pennsylvanian) of North Dakota
J. Reiskind    Biostratigraphy and taphonomy of the calcareous nanno-plankton of the Niobrara Fm., northeastern North Dakota
J. M. Erickson Paleoenvironments and stratigraphy of the Fox Hills Fm. (Maastrichtian: Late Cretaceous) of the Missouri Valley - toward a more holistic view
J. W. Hoganson Vertebrate fossil record, age and depositional environments of the Brule Fm. (Oligocene) in North Dakota
G. E. Lammers
A. Ashworth
D. Schwert
M. W. Scott
J. Lerud

The impact of F. D. Holland, Jr. on geological literature
That was quite an event that was put on for me. It all began Thursday evening with a reception in the lobby, hosted by Joan and Frank Karner. The next morning, Mark Erickson, Frank, and UND President Tom Clifford opened the symposium with kind words about me. Papers by colleagues, former colleagues, and former students were read throughout the day. Late in the day, the symposium was capped by a ceremony led by Mark and John Hoganson (symposium co-convenors), Frank, and SEM Dean Alan Fletcher, who announced the naming of the Geology Library for me. This was followed by another reception in the library and the unveiling of a handsome plaque mounted on a large slab of Red River Formation (Tyndall stone). At the Spring departmental banquet that night, Beta Zeta Chapter presented to the Department, in my honor, a framed reproduction of the Yale, Zallinger mural of Cenozoic life; and the North Dakota Natural Science Society presented me with a plaque for past service. Saturday was spent visiting at home with our two sons and eight of my nine doctoral students (and attending wives). What fun and excitement! It was an extensive celebration. I'm very grateful to all who had a hand in this affair, and I thank those of you who sent a card, letter, telegram, or who called with kind wishes. I was very touched by the whole affair!

I am greatly enjoying retirement; I can do just what I want to when I want. We have bought a bigger pickup and a 21-ft., fifth-wheel RV, so we are anticipating some traveling in addition to my working on the paleo collections and doing some writing I want to do. We've traveled some this summer, but not much. We hope to do more later.

With the Survey gone to Bismarck, I'm to get to have an office in the former assistant state geologists' office. This will allow Dr. Ron Matheney to have Rm. 207 next to the geochem lab. However, I don't have to accomplish the move until Christmas. But then you know how much junk I have . . . .

While North Dakota celebrated its 100th birthday it also celebrated the centennial of the address by Major John Wesley Powell, first Director of the USGS, to the North Dakota Constitutional Convention on 8 August, 1889. He urged action to protect public control over water.
The summer of 1989 was a busy one for the F. D. Holland, Jr. Geology Library. After years of trying to get the library double-decked, this mission was accomplished beginning the first week of June. This task was no small feat and required a tremendous amount of hard work. Special thanks goes to Kris Brummer, who filled in for Mary Sand while Mary was in graduate school in Alabama. Kris supervised the organization of the project and her crew of work-study students. The project had to be completed in a very limited time frame, and Kris handled the task admirably.

When you visit the library, you will notice changes immediately. The check out - return - reference desk is next to the door. This desk is usually occupied by Kori Forest, the new library work-study. We now have an ODIN Online terminal which eventually will phase out the card catalog. Study tables are up front plus individual study areas are along the east wall of the second deck. The steel shelving was painted white and together with new lighting, makes the library very bright. The back room, in addition to being double-decked, contains all of the topographic maps. There are two staircases, one in each room, with a doorway cut on the upper deck to join the two rooms.

Please stop by and visit the library. You'll be amazed at the changes!
THE GEOLOGICAL SURVEY HAS MOVED

As a result of Legislative action this past spring, the North Dakota Geological Survey has been moved to Bismarck! The Department's position on this has been unchanged....we did not believe it would be in the best interest of the Survey to leave Grand Forks. Be that as it may, the Governor and the Legislators were convinced of the merits of such a move, especially as most other state agencies are located in Bismarck. The move has thoroughly changed the composition of the Survey. Of the geologists, Dave Brekke (M.A. 1979) has left to accept a position with the Energy and Environmental Research Center here at UND. Ken Harris (M.S. 1973, Ph.D. 1975) has left to continue his surficial mapping program with the Minnesota Geological Survey. Mark Luther (M.A. 1988) has been hired by the Survey to take Ken's place. Dave Lechner has also accepted a position with the EERC. Dave Fischer (M.S. 1980) has taken a one year leave of absence, and Tom Heck (M.S. 1979) is taking his place on the Survey for a year. Sid Anderson (Ph.B. 1951) continues as Acting State Geologist and John Blueale (Ph.D. 1971) as Assistant State Geologist. Randy Burke (Ph.D. 1989) and John Hoganson (Ph.D. 1985) are the only other ones to move to Bismarck. Julie LeFever will remain in Grand Forks and will be in charge of the core and sample library. Ed Murphy (B.S. 1979, M.S. 1983) had moved to Bismarck earlier in the year as had Marv Rygh (BSGE, 1982). Ed still works for the Survey whereas Marv is now employed by the Oil and Gas Commission. Most of the clerical and service staff have either resigned or retired early. It has been a difficult time for many of these people and we already miss their presence.

We have fielded many questions about the move, such as, "Does this mean an end to the relationship between the Survey and the Department?" We do not expect this to occur because we will continue to call upon the Survey for data and other help. In return, we expect to continue to work with the Survey in its research activities related to oil, gas, and lignite by providing students to work on projects and faculty to provide their expertise. "What will happen to the Survey?" We do not know the answer to this, but there is a fear that it will become less research-oriented. As an arm of the State Industrial Commission, the needs are in issuing permits and monitoring oil and gas and lignite activities. "What will happen to the space on the third floor of Leonard Hall?" Already, plans are underway to expand the Department office and research space into rooms formerly occupied by the Survey. Our combined Departmental/EERC Natural Materials Analytical Laboratory facilities are to be moved there. Kurt Eylands (M.A. 1989) has been hired to oversee the NML. Three additional faculty offices (Bud Holland, Min Chu, and Pat Videtich) will also be on the third floor. Expansion of the now double-decker F. D. Holland, Jr. Geology Library will also occur, with a proposed map room in the location of the Survey drafting room. Finally, there will be office space for visiting faculty or researchers, something which has been needed for a long time.

While we regret the decision to move the Survey to Bismarck, we will continue to support Sid and his staff in meeting their task of understanding the geology of North Dakota and transferring this knowledge to the public.
GOLDEN GRADUATE
Margaret O. Oros

On May 24-26, the Department and the School of Engineering and Mines celebrated UND alumni days. We were delighted to see many of our alums at a special breakfast in Swanson Hall. Special invitations went out to the classes of 1929, 1934, and 1939, and we were especially honored that one of our department's 50-year graduates, Margaret O. (Erickson) Oros, was in attendance.

Margaret received her B.A. in geology from UND in 1939. As a student, she worked very hard and held several jobs. She noted that she very much appreciated receiving a $50 scholarship while at UND. (This was at a time when full-time, undergraduate resident tuition was $20!) During World War II, Margaret worked as a spectrographer for Alcoa in southern California. From 1948 to 1952 she was a Chemical Engineer for Alcoa, working as both a spectrographer and a chemist. For the rest of her professional career, Margaret has worked as a geologist. She joined the Illinois Geological Survey in Urbana in 1953, and remained until 1962. She then joined the Kansas Geological Survey in Lawrence, where she was employed as a Petroleum Geologist in the Oil and Gas Division. She retired in 1978, and is now an Associate Scientist, Emeritus, for the Kansas Survey.

We are duly proud that Margaret has been very active in professional organizations since leaving UND. She is a fellow of the Geological Society of America, and holds memberships in the American Association of Petroleum Geologists and Sigma Xi (the Scientific Research Society). For many years, she was a member of the American Institute of Professional Geologists, and has worked on committees for AAPG and the American Petroleum Institute.

Margaret Oros is now living in Lawrence, Kansas. We are very pleased that she could join us in celebration of her 50 years as a UND Geology graduate. We look forward to seeing her again in the near future!
An accident may have left Darren Haddeland blind, but it did not leave him without scientific curiosity, a sense of humor, strong determination, and the will to succeed. Darren, a 27-year old Geological Engineering junior from New Town, North Dakota, decided to go to college after his accident in July of 1986. Because he had enjoyed working since 1980 for various petroleum well-servicing companies, he decided to go into petroleum engineering. After a semester at Fort Berthold Community College, where he distinguished himself as "Student of the Month" and was named to the President's List as an honors student, Darren entered the University of North Dakota. He has carried a heavy academic load here ever since then. Currently, he is taking Mineralogy 318, Physics 205, Calculus 212, Sociology 102, and an independent-study course on
the use and misuse of natural resources. To get through all of these courses, Darren relies on typists, readers, and notetakers. Although some textbooks are available on computer disk or audio tape, many others are not. "I figure I spend about 40 hours a week with tutors, readers, and in classes. That doesn't include studying or time with typists," Haddeland said. This semester is the first time Darren has taken tests in the classroom along with other university students. In the mineralogy class, Darren's exams are prepared on a computer disk, and by using a special voice-synthesizing computer, Darren is able to read the questions and type his own answers.

As a result of his hard work, Darren has received four scholarships in the past two years. In 1988 and 1989, Darren was awarded scholarships from the Western Basin Section of the Society of Petroleum Engineers. In July, 1989, he received the Charles H. Waldren Memorial Scholarship from the UND Geology Department. In July, 1988, he received a scholarship from the National Federation of the Blind.

Darren lives in the university-owned Princeton Trailer Court with his Great Dane guide dog, Ajax. "Ajax was a pet before the accident; I trained him to be a guide dog myself," Darren said. "He will be five years old in February, and I've been working with him for about a year." Darren also enjoys fishing, especially at Lake Sakakawea, and horseback riding. This summer, he spent a week riding the Cascades of Washington state. After graduation, Darren hopes to work in petroleum exploration and production in western North Dakota, Colorado, or Alaska, with special attention to habitat conservation.
Mission and Professional Opportunities: Students, faculty and staff are committed to applying scientific and engineering principles to study the energy and mineral resources, environment, and geological history of the Earth and other planets and satellites of the solar system. Geoscientists study the earth outdoors and in the laboratory. They investigate earth processes and materials and work out earth and planetary histories. Many studies focus on the needs and problems of society. Demand is high for professionals to study water, oil, coal and critical mineral resources. Career opportunities are also available in environmental science related to pollution, natural hazards, and environmental planning and regulation.

General Areas of Departmental Emphasis:

- **Environmental Geology and Technology**: Hydrogeology, Environmental Geology, Geological Engineering
- **Economic Geology and Engineering**: Petroleum Geology and Engineering, Mining Geology and Engineering, Coal Geochimistry, Fuel Technology
- **Earth and Planetary Surface Systems**: Geomorphology, Pleistocene Geology, Glacial Geology, Planetary Geology
- **Sedimentary Geology, Stratigraphy, Paleontology**: Basin Analysis, Cenozoic Stratigraphy, Carbonate Geology, Paleontology
- **Petroleum, Geochemistry, Geophysics, and Tectonics**: Igneous Petrology, Metamorphic Petrology, Low-temperature Geochemistry, Mineral Thermodynamics, Isotope Geochemistry, Paleoclimatology, Geothermal Systems and Resources, Great Plains Crustal Studies, Precambrian Petrology and Tectonics

**Academic Programs**

Twelve full-time professors are joined by six allied faculty to provide the following programs for non-majors and majors seeking to gain a greater understanding of earth and planetary environments, resources, and history.

- General Education Laboratory Science tracks in Environmental Geology, Earth Science, and Planetary Science
- Minors in Geology with areas of concentration in Environmental Science, Earth Science, and Planetary Science
- B.A., B.S., M.A., M.S., Ph.D. degrees in theoretical and applied geological studies
- B.S., M.Ed., and Ed.D. degrees in Earth Science Education
- Proposed B.S. in Environmental Geology and Technology
- Proposed M.S. in Mineral Engineering and Ph.D. in Energy Engineering

**Facilities**

- **Leonard Hall**, a modern, four-floor, 50,000-square-foot building houses classrooms, teaching and research laboratories, a large lecture hall, and departmental offices.
- **The Natural Materials Analytical Laboratory (NMAL)** in Leonard Hall contains extensive equipment for scanning electron microscopy, microprobe analysis, and other geochemical and petrographic analysis.
- The 13,000-volume F. D. Holland, Jr. Geology Library on the third floor of Leonard Hall also houses complete U.S.G.S. topographic maps, and more than 750 periodical titles.
- **A Lobby-Museum** in Leonard Hall contains North Dakota dinosaur and fossil exhibits as well as other geological displays.
- **The North Dakota Geological Survey Wilson M. Laird Core and Sample Library** is located on-campus adjacent to Leonard Hall and contains about one-half million feet of core samples from the subsurface of North Dakota's oil- and mineral-rich Williston Basin. These samples and related information are used extensively in geological research.
- **The Energy and Environmental Research Center (BERRC)** with 150 professionals and staff, located on-campus east of Leonard Hall, provides major research, analytical and engineering capabilities for the School of Engineering and Mines in addition to opportunities for faculty and students in ongoing contract research.
- **The Mining and Mineral Resources Research Institute (MMRRI)** of BERRC conducts basic and applied research related to mining, minerals, groundwater and energy resources. Many faculty and students are involved in sponsored research projects conducted by MMRRI.
**Personnel**

- Faculty members represent major fields of geology, geophysics, and geological engineering.
  - Alan M. Owancara. Ph.D., Michigan, 1965; paleoecology, paleontology, stratigraphy.
  - Philip J. Gerla. Ph.D., Arizona, 1983; hydrogeology, geological engineering, environmental geology.
  - F. D. Holland, Jr. Ph.D., Cincinnati, 1958; paleontology, stratigraphy, micropaleontology (Professor Emeritus).
  - Wilson M. Laird. Ph.D., Cincinnati, 1942; petroleum and groundwater geology (Professor Emeritus).
  - Dexter Perkins. Ph.D., Michigan, 1979; metamorphic petrology, mineralogy, geochemistry, tectonics.
  - John R. Reid. Ph.D., Michigan, 1961; glacial geology, geomorphology, environmental geology.
  - Patricia E. Widetich. Ph.D., Brown, 1982; carbonate geology, petroleum geology.

- Additional faculty have professional positions in the EERC and NDGS.
  - Sidney B. Anderson. Ph.D., North Dakota, 1951; subsurface and petroleum geology (NDGS).
  - Frank W. Beaver, Jr. Ph.D., North Dakota, 1986; hydrogeology, engineering geology (EERC).
  - Steven M. Benjamin. Ph.D., Penn State, 1986; coal geochemistry, fuel technology (EERC).
  - Gerald H. Groenewold. Ph.D., North Dakota, 1972; hydrogeology, environmental geology (EERC).
  - Marvin R. Rygh. B.S., North Dakota, 1982; petroleum engineering and petroleum geology (NDGS).

**Staff**

- Glorita A. Pederson, Administrative Secretary
- Mary A. Sand, Librarian
- Kurt Nylands, Research Associate, EERC
- Ralph Lindblad, Custodial Supervisor
- Beverly Cariveau, Custodian

**Cooperative Programs**

- The Center for Aerospace Sciences
  - Earth Systems Science Project
  - Center for Lunar Materials Research
  - Earth and Planetary Science Education

- The Center for Teaching and Learning
  - Field Studies Workshop for Earth Science Teachers

- Department of Biology - NSF EPSCOR Program
  - Frontiers of Geoscience Lecture Series

- Department of Civil Engineering
  - M.S. Graduate Program in Surface Mining

- Department of Geography
  - North Dakota Studies Project
  - Institute for Remote Sensing

- The Division of Continuing Education
  - College for Kids
  - Groundwater Concepts with Application to North Dakota

- Energy and Environmental Research Center
  - Coal Geochemistry
  - Mineral Matter Transformations in Combustion

- Integrated Studies Program - UND
  - Geology and Environmental Science

**Further Information**

Additional information may be obtained from Dr. Frank R. Karner, Chairman, Department of Geology and Geological Engineering, Box 8068, University Station, University of North Dakota, Grand Forks, ND 58202, (701) 777-2811. University information and enrollment information for undergraduate programs may be obtained from Enrollment Services, Box 8135, University Station, University of North Dakota, Grand Forks, ND 58202, (701) 777-4463. Call toll free from within North Dakota, 800-732-4374 and from contiguous states, 800-437-5379.
While Bud Holland's retirement, the hiring of Nels Forsman and Ron Matheney, and the departure of the Survey are the headline news in Leonard Hall, there have been many other things going on as well. There were times during the summer, for example, when Leonard was full of geologists from other institutions.

The Carnegie Institute of Washington used the old MMRRI offices as a base this summer. They used passive seismic techniques to study the structure of the midcontinental crust and mantle. Dr.'s Paul Silver and David James and technicians Randy Kuhnel and Ben Pandit were running the project with Bob Meyer of the University of Wisconsin. They had many seismographs set up all over the plains states and Canada, and hired one of our students, Erik Harvey, to help them out with field work.

Frank Karner, with the help of Don Halvorson (Ph.D. 1979) and Gordon Jenner (M.S. 1984), spent much time preparing a field guide and leading a field trip in the Black Hills-Devil's Tower area (July 1-7) for the International Geological Congress. Participants included people from Finland, France, Germany, Japan, and the U.S.

Will Gosnold, and student assistants Alex Zang and Jay Brekke logged 27 holes in South Dakota this summer. As usual, Will was interested in studying heat-flow anomalies. In addition, Will has recently shown that temperature profiles can be used to look at modern climatic changes and global warming. In September, Will went to the Soviet Union where he discussed some of his recent studies with scientists from many different countries.

Students willing to help with field work were scarce in Grand Forks, but Dex Perkins found some at NDSU and at Bemidji State University to help with his continuing studies of Precambrian rocks in northern Saskatchewan. After returning from a four week vacation to the Arctic National Wildlife Refuge, Dex spent three weeks in the north country. He and a six-man crew dodged forest fires as they collected samples from a 40,000 km² part of the Trans-Hudson Orogen. Dex is planning to write up the results of the two year study while he is in France on developmental leave (January - December, 1990).
Dex isn't the only one taking a leave this year. Min Chu will be gone until August, 1990. He is taking a developmental leave at the University of California, Berkeley. Most of Min's research has involved computer programs lately— he has published several programs and papers, and given one talk during the last year. He is also involved in writing a chapter for a book entitled *Applied Microcomputer Programs for Petroleum Engineers*.

John Reid worked on Lake Sakakawea projects this summer. Besides the shoreline recession studies that he is completing, John was looking for material for radiocarbon dating. It seems that the lab lost the last samples he sent them! John found bison bone fragments at one key site, and some intriguing buried organic horizons. John also spent some time in Glacier and Yellowstone Parks, and at the Hebgen (1959) earthquake site.

Alan Cwancara worked hard this past summer to complete his third book *Sleuthing Fossils: The Art of Investigating Past Life*. He continues to work with Tim Kroeger (Ph.D. candidate) on the palynology of a part of the Paleocene Fort Union Group in North Dakota and Montana, with John Hoganson (NDGS) on Cannonball vertebrates, and with Brian Silfer (M.S. student) on selected Cannonball snails. He recently took some terrific photos of the triceratops skull in our museum that were then printed up as postcards for the Department.

Phil Gerla's work this past summer was supported by a summer professorship awarded to him by the Graduate School. Most of his time was spent near Kelly Slough (15 miles west of Grand Forks) with the intent to better characterize the regional groundwater discharge system which underlies most of the central Red River Valley. Analysis of the data collected are underway. Phil also was involved in a three day short course/workshop on groundwater hydrology in Bismarck. Most of the attendees were from the Health Department and lignite mining companies.

Rich LeFever continues his studies of the stratigraphy and sedimentation of the Williston Basin. During the summer he was collecting more data on the Cretaceous stratigraphy of western North Dakota. He and Jay Crasbelle (M.S. student) are studying the evolution of the Williston Basin. Two other M.S. students, Wes Peck and Larry Quandt, are also involved in Williston Basin strat/ed projects. In late August Rich, along with Nels Forsman, John Reid, Ed Murphy, Kelly Carlson, and Allen Kihm (Minot State) led a joint Department/ND Geological Society/Minot State field trip in western North Dakota.

Sundar Saluja earned the most frequent flyer award for the department. His many professional and personal trips have taken him to India and England during the last year. In addition, he travelled to Rapid City, Calgary, Edmonton, and Fairbanks, Alaska, to present papers and exchange information about blasting mechanics and computer applications to mine development. Sundar also visited MIT, Princeton, and Harvard Universities as part of his work on a national energy policy and to gather information for his new course "Energy and World Peace."
Pat Videtich also travelled overseas during the last year. She took two
trips to Dubai, United Arab Emirates, where she studied carbonates for Dubai
Petroleum Company. Some of her Dubai work was presented in the October 1988
AAPG Bulletin in Dubai, and at a poster session at AAPG in San Antonio in
April. Another paper was published in the October 1989 AAPG Bulletin on
carbonates from England. Pat also took a trip to Wilmington, Delaware, and
visited former UND student Paul Schiffelbein (MSE 1979) and his wife, Cathy.

Not only have the faculty been very busy as of late, but our support staff
have been busy also. In May, Librarian Mary Sand received one of UND's ten
Meritorious Service Awards ($750) for 1989. She once again attended graduate
school at the University of Alabama over the summer. She is now two-thirds
of the way to having completed her Master's in Library Service. Mary and husband,
Tom, are currently putting the finishing touches on their new home and plan to
"settle in" over the winter.

Secretary Gloria Pederson is not usually allowed to stray further than two
feet from her desk or put in less than 10-hour-long days, but she did manage to
break away for a few trips - California, the Black Hills, and the Minnesota
Lake country. But even on vacation she still did some work -- while in the
Black Hills she checked on the hotel reservations and other arrangements for
the IGC field trip participants and had a good time meeting all of them at a
dinner one evening.

In addition to all the comings and goings of our own staff, last year was
a banner year for guest speakers. We received support from the EERC and from
the UND EPSCOR Program for our Frontiers of Geoscience lecture series. We also
received support for earth system science projects from the UND EPSCOR program.
When combined with a few other sources, we used the funds to bring in over 20
speakers! We included the list here so you can see just how diverse and
outstanding our guests were.

Visiting Lecturers

John W. Valley, University of Wisconsin-Madison - FOG
September 30, 1988
"Siljan Ring Complex-Black Gold or Fools Gold?"

Christopher J. Hunter, Canadian Industries Ltd. and NuWest Explosives, Inc.
Winnipeg, Manitoba - Great Plains Forum and AIME
November 18, 1988
"Explosive Products and their Application"
"Design Considerations for an Open Pit Mine with Emphasis on Blasting"

Tom Stevens, Water Well Associates, Minneapolis, MN - FOG
December 2, 1988
"Advances in Water-Well Drilling Technology"

Alistair Brown, AAPG Distinguished Lecturer, Dallas, TX
December 7, 1988
"Stratigraphy from 3-D Seismic Data"
David Hastings, National Geophysical Data Center in Boulder, CO
January 10, 1989
"Geographic Information Systems and Image Processing"

Paul Morgan, University of Northern Arizona - FOG
January 20, 1989
"Archean Heat Flow, or Why is Archean Crust so Old?"

John Sepkoski, University of Chicago - FOG
February 9, 1989
"The Periodicity of Mass Extinctions"

Jim Richardson, North Dakota State University, Fargo
February 22, 1989
"Effects of Saline Ground Water on Soils of Eastern ND"

Bryan C. Johnsrud, Environmental Protection Engineer, Springfield, IL
March 2, 1989
"My Work with the Illinois EPA"

Crawford Elliott, Case Western Reserve University, Cleveland, OH
April 3, 1989
"Origin of the Clay Minerals at the Cretaceous-Tertiary Boundary in Denmark"
"Kinetics of the Smectite to Illite Transition: Two Examples...the Denver Basin and Southern Appalachian Basin"

John Ferry, Johns Hopkins University, Baltimore, MD - FOG
April 7, 1989
"A Petrologist's View of Fluid Flow in the Crust"

John Horner, Museum of the Rockies, Bozeman, MT - FOG, Sigma Gamma Epsilon
April 14, 1989
"Transgression, Regression and the Evolution of Dinosaurs"
"The Social Behavior of Dinosaurs"

Radko A. Kuhnel, Delft University of Technology, Netherlands and Natural Materials Analytical Laboratory, UND - Geochemistry and Materials Science Seminar
April 20, 1989
"Generation of Artifacts During Sample Preparation"
June 7, 1989
"Underground Coal Gasification Test at Centralia, Washington: Heat Impact on Host Rocks"

Randy Bassett, National Water Well Association Darcy Lecturer, University of Arizona
April 21, 1989
"The Utility of Chemical Modeling in Natural and Environmentally Stressed Hydrologic Systems"

Gary Bennett, Sigma Xi Research Society National Lecturer, University of Toledo
April 21, 1989
"Hazardous Waste: Bury, Burn or Recycle"
Gary Strathearn, University of California—Los Angeles
April 24, 1989
"Stromatolite Ecology"
"Pollution of Los Angeles Drinking Water"

Larry Edwards, University of Minnesota—Minneapolis - FOG
April 25, 1989
"High Precision 230Th Ages of Corals and the Timing of Quaternary Sea Level Fluctuations and Tectonic Uplift"

Nels Forsman, Dept. of Geology and Geological Engineering, UND
May 3, 1989
"The COGEOOMAP Project: An Evaluation of the White River Group in North Dakota"
May 5, 1989
"Some Selected Opportunities for Study of Surface Rocks in North Dakota"

Ardyth Simmons, Department of Geology, State University of New York—Buffalo
May 8, 1989
"The Mohon Mountain Volcanic Field as a Microcosm of Events in the Development of the Colorado Plateau—Basin and Range Transition Zone in Middle Tertiary Time"
"The Nature of Alkaline Enrichment in Dacites and Andesites of the Mohon Mountain Volcanic Field"

Oscar Manz, Coal By-Products Utilization Laboratory, UND—Geochemistry and Materials Science Seminar
May 10, 1989
"Worldwide Production of Fly Ash and Utilization in Concrete"

Ronald Matheney, Arizona State University
June 12, 1989
"Investigation of the Low-temperature SiO2—H2O Oxygen Isotope Fractionation"
"Future Research Directions in Paleoclimatology and Environmental Aquaeous Geochemistry"

NEW THESIS/DISSERTATIONS


RECENT FACULTY AND STUDENT PUBLICATIONS


Perkins, D., 1988, Geothermometry and geobarometry: not as precise as we wish and unlikely to get any better: Ter. Cognit.


A NEW SCHOLARSHIP ENDOWMENT

The Emil and Audrey Stoltz Geological Engineering Scholarship Endowment

Our heartfelt thanks go to Emil and Audrey Stoltz who started a new scholarship fund, the Emil and Audrey Stoltz Geological Engineering Scholarship Endowment, which has been established with the University of North Dakota Foundation. Their generous gift to start the endowment was matched by the Olin Corporation. The Stoltz's gift is in appreciation for the education Emil received at the University of North Dakota, and to help assist others in receiving a quality education.

Emil Stoltz, a Mandan native, received his Bachelor of Science degree from the University of North Dakota in 1942. After graduation, he went to work for DuPont, U.S. Rubber, and then for the Blockson Chemical Company, both in Joliet, Illinois. In 1956, Blockson Chemical Company was acquired by the Olin Corporation and Stoltz continued with them until he retired in 1977. His career was spent in such positions as manager of project engineering, manager of quality assurance, and as assistant plant manager at the time of his retirement.

Audrey E. Thanepohn was born on a farm near the little town of Plattville, Illinois. She, along with eight classmates, attended a one-room grade school. She later attended Yorkville High School and McCormack Business College. After a brief time spent with the General Motors Acceptance Corporation, Audrey, like her husband Emil, went to work for the Blockson Chemical Company. She started out in the accounting department and after eight years became secretary for the process, product, quality assurance, and environmental affairs departments. She then transferred back to the accounting department, as the assistant cost accountant. Audrey was honored on her 30th year of service with being the first woman at the Joliet plant to join the "Olin 30 year Club."

Emil and Audrey Stoltz wish to strengthen the geological engineering programs at the University of North Dakota by providing scholarships to advanced students who are majoring in Mining Engineering. Scholastic ability and personal character will be considered in selecting the scholarship recipients. Financial need may be a criteria in the selection process, especially deciding between two or more candidates with nearly identical scholastic records.

Again, we thank Emil and Audrey for generously helping both current and future generations of mining engineering students, and we invite others to add to the endowment now or in later years.
HONOR ROLL OF PATRONS
DEPARTMENT OF GEOLOGY AND GEOLOGICAL ENGINEERING

In order to recognize and honor contributors to the Department of Geology and Geological Engineering, the Geology Alumni Advisory Committee has designated the following categories: Life Patron—$10,000; Honor Patron—$5,000; Sustaining Patron—$1,000; Patron—$500. All contributions to the Department are accumulative and applicable toward the next larger category. Many companies match, or double or triple match your contribution. Gifts may be sent directly to the Department or channeled through the UND Alumni Office to any Department fund, or the Geology Development Fund and may be designated for a specific purpose, if the donor so chooses. You may be assured that your donation will be used for the purpose you designate. 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.

**Life Patron ($10,000):**
- Bernold M. Hanson
- James W. McKee
- Hugh and Ruth Palmer

**Honor Patron ($5,000):**
- Andrew G. Alpha
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- Dr. Wilson M. Laird
- Joseph Sabo
- Emil & Audrey Stoltz

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- Olin Corporation
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THANKS FOR YOUR HELP!

The following people and corporations have made generous donations to the Department of GGE during the last twelve months. We sincerely appreciate your help. You can be assured the money will be well spent.

Personal Contributors
11/11/88-11/1/89

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The following people and organizations contributed to the Reba A. Laird Scholarship Fund in Reba's memory:

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Hugh & Ruth Palmer Awards: Jonathan M. Campbell
Ryan R. Hieb
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Charles H. Waldren Awards: Darren J. Haddeland
Erik W. Harvey
Jay R. Kleven

DuPont Award for Outstanding Part-time Teaching by a Graduate Student
Brian E. Silfer

Stanley A. Erickson Environmental Science Award
Mark C. Elliott

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CONTRIBUTIONS INVITED

As we have indicated elsewhere in this Newsletter, we are very grateful for the generous donations by so many alumni. We are the envy of other departments at UND for having such a loyal alumni who contribute so much toward the continued success of the Department. Because our funding is low, we are in great need of your support. This does not help the low faculty salaries, but it does help the morale greatly, allows us to carry on the day-to-day operations of the Department, and encourages good students to continue their hard work.

We do have specific needs which continue to be sidetracked because of other priorities and lack of funds. Bud, for example, has for several years now deciend the lack of funding for library materials (books, maps, etc.). Others have been concerned about the antiquated and often faulty equipment in our labs. Although we continually seek outside funding for these, we still fall far short of what we ought to have to teach effectively and undertake the kind of research needed. We make do with what we have, but you can help in many of these areas by contributing to various accounts including the following:

Department Funds

Department Development Fund
F. D. Holland, Jr. Geology Library Endowment Fund
Geology Field Studies Fund (field trips and meetings)
N. N. Kobanowski Memorial Fund (professional activities of students and faculty)
Carbonate Geology Studies Fund
Sedimentology Lab Fund
Stable Isotope Geochemistry Lab Fund

Scholarship Funds

Joel Degenstein Field Scholarship Fund (field camp)
C. B. Folsom Memorial Fund in Petroleum Engineering
Bernold M. Hanson Scholarship Fund (petroleum geology)
Henry Hinds Scholarship Fund (junior or senior geology major)
Reba A. Laird Fund (scholarships for women)
Hugh and Ruth Palmer Scholarship Fund (petroleum geology)
Harold J. Polta Memorial Scholarship Endowment Fund (junior or 17 hours of geology completed)
Emil and Audrey Stoltz Geological Engineering Scholarship Endowment Fund (mining engineering majors)
Ernest Tisdale Memorial Scholarship Fund (senior, petroleum geology)
GSA (1989) – ST. LOUIS

It was good to see the following friends and alums at get-togethers at the all-alumni night and in Will Gosnold and Dex Perkins' room at the Sheraton Hotel.

Allan Ashworth  
Tom Bjerstedt (DOE, Las Vegas)  
Rae Ann Brown  
Randy Burke  
Kevin Cornwell (U. Nebraska)  
Dwight Deal  
Joe Downey  
Crawford Elliott  
Mark Erickson  
Rod Feldmann  
Lori Ferguson  
Will Gosnold  
Tom Gustavson  
Bud Holland, Mardi and Erik

James K. Huber (U. MN-Duluth)  
Bryan Johnsrud  
Frank Karner  
Wilson Laird  
Joanne Lerud  
Rod Norby  
Wes Peck  
Darryl Pederson  
Dex Perkins  
Mitch Schulte  
Don Schwert (NDSU)  
Brian Silfer

In addition, the following alums and friends were seen at GSA but were not able to attend one of our gatherings.

Sid Anderson  
Steve Chipera  
Dan Daly  
John Hoganson  
R. Al Larsen  
Fred Lobdell  
Jeremy Reiskind  
Gary Strathearn  
John Utgaard
Among the former students working in hydrogeology and related projects in the Twin Cities area are Dave Brown (MS '83), Mark Millsop (MS '85), Jim Nordstog (BA '86), Cammie Pederson (BSGE '89), Tim Huber (MS '86), Dave Ronnei (MS '87), and Brian Sandberg (MS '85). (Who have we missed?) The companies, Delta Environmental and Conestoga Rovers, obviously like our product as they continue to call for more of our students. Keep up the good work!

Palmer Bailey (BS '70, BSGE '80, MS '80), relinquished command of the 4th Engineer Battalion at Fort Carson, CO, in July, 1989, and now teaches geology at the U.S. Military Academy in West Point, NY. He wrote, "Our big adventure (in 1988) was a trip back to Alaska during August. What fun it was to visit old friends and see how the 'last frontier' has changed during the past several years." Six-year old Laura and two-year old Sara keep Bonnie and Palmer busy!

Dana Barbie (BSGE '76) works for the USGS in Houston as a Supervisory Hydrologist - Groundwater Section. His job includes groundwater and land subsidence data collection and he has a project proposal to study aquifer recharge using refractive and EM geophysics and natural tritium concentrations. Dana presented a paper in April, 1988, on groundwater quality within the recharge area of the Houston Metro Area and on March 30, 1989, he gave a presentation to the Harris-Galveston Coastal Subsidence District on groundwater levels, changes in levels, and land subsidence within the Houston-Galveston region.

Jim Bauer (BS '77), with the BLM in Casper, is one of the authors of an article on stratigraphic nomenclature in Wyoming in the Wyoming Geologic Study guidebook for September, 1989.

Rod Baumert (MA '85) wrote, "After working for the Defense Mapping Agency in St. Louis as a computer programmer for 3 1/2 yrs, I finally landed a job with Terracon Consultants in Omaha as an Environmental Geologist. It feels good to be back in geology. Christi and I are planning to buy our first house." Their son, Quinn, is 2 1/2 years old.

Doug Beckwith (BS '84) is currently with U.S. Pollution Control Inc. in Blaine, MN as a Project Supervisor/Hydrogeologist. His position includes making health and safety plans, supervision of on-site work and decontamination procedures, and technical support to Remedial Services Division in geology and hydrology as it relates to hazardous waste sites. He and wife, Ruth, have three children, Astrid (8), Erik (6), and Cyrus (1).

Gail Bergan (BS '79) is currently a geologist with a small oil-industry consulting firm, Reservoirs, Inc., of Houston. She finished her master's at the University of Texas-Arlington in Dec. '87, moved to Seattle to be nearer family and look for a job in hydrology only to land a job four months later back in Houston!

Scott Binde (BSGE '84) received his MS in math at the spring commencement. He's now working for the USDA in Washington, D.C.
Randy Burke, having successfully defended his dissertation this early summer, has gone with the NDGS to Bismarck although Meg continues to teach biology at UND.

Barry Burkhardt (BS '72) is working for the USDA Forest Service, Custer National Forest in Billings, MT as a Forest Geologist. His current project is a proposed expansion of the Stillwater Mining Company's platinum/palladium mine located on the Stillwater complex in south-central MT. Barry also expects a proposal to develop a chromium mine in the same area. He is also working in the oil & gas leasing program in the National Forest and implementation of the Oil & Gas Leasing Reform Act of 1987. Oil & gas activities on federal surface and private minerals has also occupied a lot of his time this past year.

Brad Burkholder (BS '87) is working for HTI Lab in Fargo while he attends graduate school at NDSU working toward an MBA.

Frank Caramanica (PhD '73) is back in Houston working for Res-Tech, a petroleum engineering consulting firm. July is librarian at a Catholic elementary school and Al is a sophomore in high school. (Would you like to speculate with us how long it'll be before Frank lets Al drive that maroon 'Vette?)

Tim Cross, together with Maggie, Jonathan (13), Cameron (7), and Avonne (5), will travel extensively in Europe next semester as he teaches in such places as Strasbourg, Freiburg, and Nice.

Bart Ekren (BS in Geol. '49) is a self-employed, metallic-minerals exploration geologist in Evergreen, CO. After retiring from the USGS in 1984, he staked five areas in Nevada for possible bulk-minable gold deposits. Three of these areas are leased to a mining company and some drilling was to start in the spring. Bart is currently exploring in southern Nevada.

Bob Ensminger (PhB '58) says he could have retired three years ago but keeps working along until he "very likely will toss in the Porifera in about two years."

Kurt Eylands (BA '81, MA '89) finished his thesis on Mississippian forams and is running the SEM/microprobe in the Natural Materials Analytical Laboratory on the second floor of Leonard Hall.

Howard Fischer wrote last Christmas that he was working hard teaching at St. Petersburg Teachers College, but he clearly pointed out to us northerners that he and Andrea still take time for walks on the beach.

Harlan Friestad (BS in Geol '66, MS '69) guided Maxus to one of the largest discoveries made in Indonesia in some time.

Charlie Frye (PhD '67) visited the Department this summer to see the dinosaur skull he'd found in 1963. By the Triceratops mounted in the lobby-museum, he cut a tape with Frank Karner of stories and reminiscences regarding the finding and leading Bud to the site.
Bill Geiermann (BS '47) is a self-employed consultant. He says he feels like a traitor — having graduated in geology and immediately entering the FBI where he spent 30 years in non-geology pursuits. Bill is semi-retired now. "Although I strayed from the field I have fond recollections of Doc Laird, Bob Aaker, Earl Perkins, Ray Sinkbeil, Sid Anderson, and others."

Lee Gerhardt, now State Geologist of Kansas, received the Distinguished Service Award from the AAPG in 1989. Congratulations, Lee! A warm and informative biography and citation, written by Tim Cross, was published in the May number of the AAPG Bulletin. We didn't get to see Lee at the GSA meeting, because he (always with his head on straight and priorities in line) was off elk hunting in Colorado.

Henry Gertje (BSGE '85) received his MSEG from Michigan Tech in 1987 and is currently living in Adams, MA, working for Dunn Geosience Corp. of Albany, NY as a Geological Engineer. He has done mostly geotechnical work — subsurface investigations in New York and Pennsylvania, as well as dynamic compaction, caisson inspection, and design of remediation of a 3000-cubic-yard sinkhole in eastern PA. Now he is becoming more involved in hazardous waste remediation. He recently did some interesting computer work on the famous Love Canal. Henry and wife Gretchen are the proud parents of Hans Peter Gertje, born Jan. 21, 1989.

Steve Giddings (MS '86) is working as a pollution control specialist in the Division of Air Quality, Minnesota Pollution Control Agency in Minneapolis, working with hazardous air pollutants, standards enforcement, negotiation of penalties, etc. He and Lynn were looking for a house to buy when we last heard from him.

Eric Graney (BS '87) married Diana French of Milton on 19 August. The Graney's are in Casper, Wyoming, where he is employed by Inberg-Miller Engineers, and she works for the Wyoming Medical Center in Casper.

Tom Hamilton (MS '67, PhD '70) included some personal info in a long letter from his home in East Horsley, Surrey, England; he wrote, "My current job [for BP], Region General Manager East Asia, Australasia, and Latin America, keeps me in the air a fair amount of the time. In addition, I am concluding an assignment of restructuring the BP upstream and gas business worldwide. The continuing industry shakeout has found me involved in such activity several times in the past few years. The new organization, just announced last week, is designed around a global strategy which I also had a hand in. When fully implemented in a few weeks, the "new" BP will handle its upstream and gas business through three regional operating companies one of which I will look after. With the title Chief Executive, Frontier and International I will be responsible for global frontier exploration, E&P activities in established countries in the Mid East, Africa, Asia, and Australasia, and all Eastern Hemisphere liquified natural gas developments and sales. Looks like I will continue to spend time on the plane."

John Harju (BS '86) is a lab technician for the Energy & Environmental Research Center (EERC, formerly EMERC) on campus.
Ken Harris (MS '73, PhD '75) has resigned from the NDGS to accept a position with the Minnesota Geological Survey where he will initiate a surficial mapping project similar to that underway in ND. He hopes to be able to develop interstate cooperative mapping projects. Ken will be missed by the Department, as he had taught logging, as needed, through cooperative arrangements with the Survey.

Randy Hawbaker (Ex '89) has moved from Fargo to Denver and married Genevieve Robinson on 11 November; both are employed by HTI Laboratories in Denver.

Terry Henderson (PhB '70) works for the Kaiser Aluminum & Chemical Corp. Trentwood plant in Spokane, WA as a Personnel Manager. He recently completed the design and installation of a 13-workstation computer-network system for the Human Resource Dept. Terry is responsible for all hourly workers (1300) which includes insurance/benefits, manpower/seniority system, complete medical staff, full record keeping, hiring, etc. He received his Master's in Business Administration in June. Terry has spent twelve plus years with the U.S. Naval Reserves with the rank of Lieutenant Commander. He and Emily are very proud of their two daughters -- Jennifer, who will graduate from high school in June, 1990, and Christina who is a freshman.

Kyel Hodenfield (BSCE '84) is working for Schlumberger Well Services in Sacramento, CA, as a Petroleum Engineer. He and wife Kim are enjoying their one year-old-son, Brady.

Jean Hoff, having successfully defended her dissertation this summer, is continuing to teach at the Univ. of Wisc., Eau Claire and she says she loves it.

Bill Hofer (BS '77) is Area Geologist with Williford Energy Corp. in Tulsa. He wrote, "I was fortunate to find another job in the oil business after my old employer, Tenneco, decided to get out of the business. The adjustment from big corporation to independent is challenging and exciting. We remain Okies, having relocated from Oklahoma City, but still get up to the Dakotas and Minnesota at least twice a year." (Stop in and visit, sometime, Bill.)

Bob Huberty (MST '73) is employed by New Berlin, Wisconsin, Public Schools as a science teacher teaching chemistry to 10th and 11th graders, and earth science to 9th graders. Bob received an Associate Degree in Electronics from WCTC, Pewaukee, WI. He hopes to retire from teaching in June of 1992 at age 55 with 30 1/2 yrs as a science teacher.

Last March the hockey program featured a special page on Ray Huot (BS in Geol '55) cited as a "hustling Sioux winger" skating for "Fido" Purpur from 1951-54. Ray worked five years as a petroleum geologist in Alberta before attaining his degree in education from the University of Calgary. This past June he retired from Calgary Catholic schools where he served 27 years as teacher and administrator. Now he plans to relax with his wife, Rita, and enjoy their four children (two boys and two girls) and their first grandchild while finding more time for bowling, golf, and his favorite past time, carpentry. Congratulations on a successful career, Ray; and best wishes for a long and happy retirement.
Nate (MS '89) and Jeanette Hunke's son, Zachery is a professional TV actor already, having been shown nationally on a Comet cleanser commercial. "The money has been placed in a college education fund for when he is ready," says Jeanette. That's planning ahead, folks!

Floyd Iljana (MSt '65), now retired after many years teaching high-school chemistry and physics, visited at homecoming time, with his wife, Betty, also retired from teaching. Floyd and Betty still work, all year 'round they say, on their 23-acre orchard in north-central California.

Scott Jacobson (BSGE '82) works for the National Park Service - Denver Service Center as a Construction Engineer. His job involves construction project supervision and contract administration at National Parks in the central U.S. During the past two years he's worked at Voyageurs Nat'l. Park (Minn.), Capulin Volcano Nat'l. Monument (New Mexico) and Buffalo Nat'l. River (Arkansas). Scott spent this past summer in Michigan's Upper Peninsula at a road-rebuilding project along Lake Superior at Pictured Rocks Nat'l. Lakeshore.

Bryan Johnsrud (BSGE '84, BS '84) gave a seminar to the Department on 3/2/89 on his work as an environmental protection engineer with the Illinois EPA. He also donated a slide viewer and petroleum engineering books to the Geology Library.

Charlie Kerans (ExMS '80) has done it again. For the second year in a row, Charlie's had a photo (this one of a famous Upper Cambrian stromatolitic bioherm) on the cover of the AAPG Bulletin (Mar., 1989). Good work, Charlie!

Rob Kerian (BSGE 1981) has relocated with Enscher to Dallas.

Mary Jo Klosterman (BS '78) works for Exxon Company International as a Senior Petroleum Geologist on Active Ventures, Latin America. She has been responsible for active contracts in Guatemala, Ecuador, and offshore Argentina and is thoroughly enjoying the challenge of exploration in frontier areas. With both Jim (banking operations officer, Bariven Inc. a subsidiary of Petroleos de Venezuela) and Mary Jo concentrating on work in Latin America they continue to try to improve their Spanish. Their two children, Andrea (4) and William (born 1/6/88) keep them very busy as they continue restoring their 80-year-old house.

Mike Koch (BS '85) was employed at Cave & McKay (attys.-at-law) as a law clerk and attended Southern University Law Center in Baton Rouge, LA. He planned to graduate in May '89 and establish his domicile in the south.

Fred Krieg (PhB '70), according to Ned and Polly Noble, is Exploration Manager for Union of Texas in Pakistan. Union is the second most significant producer there.

Jack Kume (BS '58, MS '60) is a hydrologist for USGS Water Resources Division at the Denver Federal Center in Lakewood, CO. Jack has been in Denver five years with the Nuclear Hydrology Program, assigned to Yucca Mtn. Project (NV); he works on an unsaturated-zone hydrology study characterizing percolation from surface-based borehole investigation. His wife, Dianna, continues her work with stained glass.
Wilson Laird was accompanied on his return to Texas following Reba's death by his daughter, Dorothy Kaatz of Wadena, Minn. After taking care of Reba's personal possessions, Doc busied himself with attending an elderhostel and took several geological field trips (including one to the bioherm photographed by Charlie Kerans, see elsewhere herein). He attended the GSA meetings in St. Louis before visiting his youngest son, Don, who is executive vice-president of the Chamber of Commerce in Columbia, MO. Doc was planning Thanksgiving with son David in Washington, DC, where he is Federal accounts manager for 3M and was looking forward to hosting Dorothy and her family in Kerrville at Christmas.

Jeff Lambrecht (BSGE '89) is working for the North Dakota State Health Department, Waste Management Division in Bismarck.

Joanne V. Lerud (BS '71, MS '79) is back in Colorado as Director of the Arthur Lakes Library, Colorado School of Mines, Golden. Her husband, Jeff, "is still doing antiques" and their son Jesse is in first grade.

Congratulations to Rosanne Lindholm (BS '81, MS '84) for her article, in the Jan. 1989 GSA Bull., on Cambrian trace fossils from allochthonous clastic units in western Newfoundland. Good way to start the GSA out on its second century Rosanne!

Fred Lobdell (MS '84, PhD '88), having filled in for Jim Van Alstine at U. of Minn.-Morris last year, is teaching at U. of Wisconsin, Oshkosh this year while looking for a permanent position.

Mark (MA '88) & Katie (MS '88) Luther until recently, both worked for the ND State Dept. of Health, Water Supply and Pollution Control Division, in Bismarck, ND as Environmental Scientists. Mark has now filled the position vacated by Ken Harris at the NDGS in Bismarck. However, Katie's position remains the same. She is in the groundwater group currently working on the Wellhead Protection Program for the state. This program will help ND communities to set aside wellhead protection areas in order to protect their public drinking water from various forms of contamination. A proposal for this program will be submitted to EPA. Daughter Megan (5) is adjusting to full-time daycare and Mark and Katie are the proud parents of 9 lb. 5 oz. Charles Jedidiah born Aug. 2, 1989.

Jim McKee (PhB '53) retired from Exxon in 1986 following 30 years of international assignments (Libya, Indonesia, Iran, and England). He joined GAP'S Geological Consultants (in London) as Director of Geoscience in January 1988. They currently employ 41 people with their head office in London and branch offices (with core analysis labs) in Holland and Egypt. He lives with his wife, Jeannine, and son Harry (13) in Weybridge.

Rob Meek (BS '85) sent a Christmas card last year that he was still working on his PhD while he worked for Mobil. In 1988 he gave a paper on seismic data restoration at the SEG convention in LA and also visited Washington to visit field experiments that Mobil was doing on the Columbia River Basalts.

Mark Millsop (MS '85) and wife, Joni, incorporated "Beyond the Horizon Adventures, Inc." in Prior Lake, MN, December, 1988. Mark writes, "Our computer system is in and we're working hard on vacations for '89 & '90. We
have been hired to guide Minnesota Zoo naturalist tours to the Arctic, among
other ventures. Need an adventure? Call 612-447-0000 for a brochure." 
Environmental work at Barr Engineering Co. in Mpls., where Mark is a
Hydrologist/Project Manager, continues to be challenging as does Joni's
designing and sewing of custom clothing. Their children are Lee (14), Luke
(8), Adam (6), and Libby (3).

Randy Neerveld (BSGE '81) is still employed as an Associate Reservoir Engineer
with Phillips Petroleum Co., but he has been transferred to Houston.
"Ironically, after moving 1200 miles to the south, my new area of
responsibility is North Cook Inlet, Alaska."

Tom Obelenus (MS '85) is still with the Defense Mapping Agency in the east
where he's been teaching photogrammetry, when not visiting historical places
(Monticello, Gettysburg, etc.) with Shanna who works for an international
banking consultant.

Ben Olien (BS in Geol '58), mayor of Mott, N. Dakota, received the City
Official of the Year award at the annual meeting of the League of Cities in
Bismarck in September. Congratulations, Ben!

Fred O'Toole (BS '78, MS '81), as development geologist for Chevron USA in
Denver has been working the largest CO₂ flood in the Rockies (Rangely Field,
CO) and in the corporation. He and Karen keep busy "raising two healthy,
rambunctious boys," Daniel (3) and Andrew (1 1/2).

Jim Pappas (ExMS '88) is stationed at Minot Air Force Base now that he has
completed navigator's training. He's picked up on his conodont research for
his thesis, in his off hours.

Mike Parsons (MS '80) joined Science Applications International Corp. (SAIC) in
Las Vegas, NV, as a Licensing Engineer (Geotechnical) in April, 1988. He works
on regulatory compliance for a radioactive waste repository site at the Nevada
test site. "Trying to adjust to Las Vegas summers will be tough." He and his
wife, Sandy, now live in Henderson, NV.

Canie Pederson (BSGE '89) is an environmental/geological engineer for GME
Consultants, Inc. in Plymouth, MN. Canie writes assessments and does remedial
investigations, likes her job and loves Mpls! She lives about 10 miles (or 25
minutes) from her work.

Nancy Perrin (PhD '87) is teaching physical, historical, and environmental
geology in the Dept. of Natural Sciences, Chapman College, Orange, Calif.

Wayne Pound (BS '70, MS '85) is enjoying junior high school teaching more and
more. He started a Science Club which is fieldtrip-oriented with at least one
fieldtrip a month. They spend a weekend camping and mineral collecting,
visiting caves, touring the Denver Museum of Natural History, etc. Parents
drive on these trips which cuts the costs and makes them possible. "It's very
satisfying to watch students interact with their parents on these 'family'
outings." Wayne and his wife Dana have acquired a home in Frederick, CO, that
has kept them busy; Dana has also been attending Front Range Community College.
Roger Reede (BS '59, MS '67, PhD '72) continues in teaching at Southwest State Univ., Marshall, MN, where Karen is still in OT for the Marshall School System. Roger gets 1/3 release time to operate the planetarium (with record-breaking shows). During the summer of 1988 they spent four weeks in China and Roger taught a one-week adult workshop on an island in Rainy Lake. He hopes to attend a Planetarium conference in Scandinavia next summer.

Chad Sanderson (BSGE '85) and wife, Rita, are living in Rochester, MN where he is working for IBM as an Electrical Engineer in the Communications Department. Chad worked for Sun Oil in Dallas and Tenneco Oil in Bakersfield CA, returned to UND in 1986 and received his BSEE in 1988. He married Rita Nichols (BS in Elementary Ed. and Special Ed. from UND) in May, 1988, and they have recently purchased a new home; she is vision consultant for a co-op of school districts south of Rochester.

Carrie Schimelfenig Krause (BS '83) keeps the accounts receivable at KDAL radio in Carrington, ND, and schedules all commercials that are aired, plus cutting a few herself. "It's a real learning experience." Tim Krause and Carrie were married June 13, 1987. Tim keeps busy with his job as owner/operator of a semi. Carrie says, "Someday maybe I'll learn how to drive and we'll tour the states."

Mary Scott (MS '72) worked two part-time librarian jobs during the past year while she finished her Masters in Library Science at Pitt in April. Mike has 3-year-old Abigail speaking both English and German. (Not Lakota, Mike?)

Bob Sigsby (PhD '66) and Connie stopped by the Department this summer while on vacation from Houston, but found the place nearly deserted.

Wayne Smith (BSMIE '59) is Special Project Manager for Amoco Co. after transferring back to Denver, CO, from Anchorage, AK, where he was District Manager for Amoco Production Co's Anchorage District. In addition to enjoying "some of the best salmon and halibut fishing in the world," he was project manager for Amoco Mars Ice Island project which consisted of building a "sprayed ice" island and drilling from it in 25 feet of water in the Beaufort Sea. He also served as president of the Alaska Oil & Gas Association in 1987, where he was actively involved in advocating opening the Arctic National Wildlife Refuge to oil and gas exploration and development. "Working in Alaska was a great experience, but winters are just too long." Wayne and Simone are enjoying Colorado and their two-year-old grandson. He is son of their son Troy (32) and his wife Kathy of Englewood, CO; their daughter Terri (now 26) and her husband Brian live in Ft. Morgan, CO.

Jeff Solheim (BSGE '89) is a geological engineer for Terracon Environmental, Inc. in White Bear Lake, MN.

Randy Stephen (MS '86) is a senior geologist with Exxon Corp. in New Orleans, LA, and is currently working field studies of Jurassic carbonates in Florida.

Ray Sullivan (BSMIE '28), as chipper as ever, came to our alumni reception at homecoming time.
Larry Thrasher (MS '85) and Karin report that along with her 16-month-old brother John, their baby daughter, Sarah Anne, born 7/4/89, has added a noticeable amount of chaos to their house in Safford, Arizona, where Larry became geologist with the BLM beginning in March, 1989. He is spending a lot of time inspecting precious and base metal mines for "undue or unnecessary degradation of the environment."

John Tinker (MS '68, PhD '70) published a review of his approach to Undergraduate Education in Hydrogeology in the January issue (1989) of J. Geol. Educ.

Bert Tiss (BA '39) is employed at Collin County Community College Spring Creek Campus in Plano, Texas, as Adjunct Professor of Geology and writes, "Teaching geology, watching eyes open and dawn break is fun! It is not as hectic as the bedeviled oil business. The kids of new suburbia are well based in science and are sharp."

Sam Tuthill (MA '63, PhD '69) served on the GSA Committee on Geology and Public Policy that prepared the pamphlet "Guide to USA Legislative Information and Contacts" available from the GSA.

Jeff Valvik (ExMA '86) is employed by Ground Water Associates, Inc. of Bridgewater, NJ, as Senior Project Geologist. Jeff says he is busy at work and fixing up the Valvik's new home. Jeff and Janet have three children, Melissa (7), Jennifer (4), and Gregory, born Feb. 8, 1988.

Jim Van Alstine (MS '74, PhD '80), Associate Professor and Chair of Geology at U. Minn., Morris, on leave during the 1988-89 academic year, worked as a consulting geologist doing comprehensive water planning and analysis for eight northwest Minn. counties. After assessment the county is helped with a plan for water resources for the future.

Juliann VanNest (BS '83), having finished her MS at U. of Iowa, continues working toward her doctorate there.

Chuck Waldren's (BS '54, ExMS '56) division manager with Exxon wrote (in part) to Delores at the time of Chuck's death in 1986, that he wanted the family, "...to know what a privilege it was to have Chuck in our company, and particularly in our division, over the past thirty years. Chuck developed a large portion of the seismic stratigraphic concepts that gave us a sound understanding of the Atlantic offshore regional geology. Although the area was not commercially successful, his work provided us with the critical technical information we needed to evaluate our level of activity. More recently, Chuck's mapping generated a prospect that led to a gas discovery which has the potential to become one of the larger fields in the offshore Gulf of Mexico. These are just two samples of the numerous contributions he made to our team efforts." Chuck's family, together with Exxon, support the Charles Henry Waldren Memorial Scholarship in the Department in Chuck's honor. This bit of history that Delores shared with us adds to Chuck's honor and memory.
Janice Weinlaeder Sowokinos (Ex 73) received her MS in Special Ed. in 1984 and has been employed off and on by the ND School for the Blind since 1974 as a Vision Technology Specialist. She has a few students (math, science, and computer) but works mainly with staff and students in public schools as a part of the Instructional Resource Center. In 1980 she married Joseph Sowokinos, biochemist at the Potato Research Lab., East Grand Forks.

Mark Wetzel (BS '88) is employed as an Environmental Scientist in Bismarck by the Division of Waste Management and Special Projects, ND Dept. of Health.

Kent Wiken (BSGE '84; BS '86) stopped by since the last Newsletter to report that he has moved into a new home (address, Kent?). His work as a geological engineer for Rone Engineers in Dallas keeps him busy evaluating foundations for new structures. His wife, Lisa, enjoys working for Xerox Corp. Kent bumped into Fred Kelly (BSGE '84) who reported that he and his wife, Jodie (Stiening) (BSGE '84), are expecting, but we have no news yet. Fred works for Alan Plummer Assoc.

Laramie Winczewski (MS '77, PhD '82) and Donna reported (some time ago) that "except from the occasional panic that comes with having normal, healthy children, (T.J. 13 and Rachel 5) nothing exciting has happened" to them in Houston.

Fred Wosick (Bs '74, MS '77) continues as geologist with Williston Basin Pipeline in Bismarck where Beth is administrator of children's protection programs for the ND Department of Human Services.

We'd like to hear from you.

Please tear out the last page, fill it out, and mail it to us!
NECROLOGY

Allison F. Heather (BSMIE '37) 2/23/89
Reba A. Laird 7/21/89
Joel Piehl (BS '84) 8/24/89
Terrance F. Anstett (BS '73) 9/22/89

To the family of each of these we extend our sincerest sympathy.

We were sorry to learn of the death of Terry Anstett (BS '73) who died following an accident in his home in Vermillion, South Dakota, on September 22. Terry had just visited the Department in April in an examination of regional science departments with other faculty members from USD. He attended UND on a four-year scholarship in track and obtained his B.S. degree in geology in 1973. He received his M.S. in 1976 from the U. of Wisconsin, Madison, with research on a trace-fossil paleoenvironment problem in a sandstone near the Baraboo Range. Following work with the Bureau of Land Management in Boise, Idaho, he returned to UW for PhD work on grade-tonnage models of ore deposits and resource economics. He worked for the USGS Minerals Availability Field Office and received his PhD in 1986. Terry then worked for the U.S. Bureau of Mines in Denver, Colorado, before becoming an Assistant Professor of Earth Science at the University of South Dakota in January, 1989 and a volunteer Assistant Coach for the USD men's track team. We extend our condolences to his wife, Christine Meier, whom he married this past summer, and to his family, while we mourn this personal loss and loss to our profession.

It is with sadness that we report the death of Lt. Joel Piehl (B.S. Geology, '84) who died on August 24, 1989, in the crash of an OV-10A reconnaissance plane in the mountains of southern California. Joel, a Marine Corps Captain, was riding in the plane as observer while on a training mission over the desert for the 3rd Marine Aircraft Wing out of Camp Pendleton. Joel was buried in Bismarck with full military rites performed by a Marine honor guard and saluted with a ND Air National Guard flyover of F-4Gs. To the eulogy, composed by his commanding officer, that cited Joel's leadership ability, bright personality, and selflessness, we would add our memories of his pleasant nature and sense of humor. He will be remembered as a dedicated, disciplined student who was well-liked by faculty and peers. Our sincere sympathy to his wife, Bonnie, daughter, Sarah (6 yrs.), and his parents, Mr. and Mrs. Howard Piehl of Bismarck. Joel was 31.

Allison Heather (BSMIE '37) died of congestive heart failure in Winnipeg, 2/23/89. We extend our sincere sympathy to his family, especially his son, Ian, who kindly informed us of his passing.
A TRIBUTE TO REBA

Reba Latimer Laird of Kerrville, Texas, and Bemidji, Minnesota, died of complications resulting from cancer on July 21, 1989, at Bemidji.

Reba A. Latimer was born in Marysville, Ohio, and grew up in Bremen, Ohio. She was a graduate of Muskingum College where she was a classmate of Wilson M. Laird, former State Geologist and Head of the Geology Department. They were married soon after college, while he was a doctoral student at Cincinnati, and they spent more than fifty years together, rearing four children and enjoying a full and happy life.

Many of you will remember Reba as being a large part of what made the geology family at UND so warm and welcoming. Always cheerful, she welcomed both students and faculty to her home. She had the knack of knowing the functions and activities that should be attended and by taking young faculty wives to these made them feel, almost at once, that Grand Forks was going to be a good place. She will be missed whenever former UND geology students, faculty, or staff and their wives get together anywhere in these United States.

--Mardi Holland
Aaker, Robert K. (BS Geol 1949)
Aase, Glenn D. (BSMIE 1941)
Achtien, Donald B. (BSMIE 1953)
Ackerman, Daniel J. (BS Geol 1971)
Adams, Jimmie L. (MST 1969)
Adolphson, Donald G. (BS 1957)
Alberts, Daniel C. (BSMIE 1960)
Alexander, Deborah J.
Alkoffe, Ron (BS 1958 MS 1969)
Allen, Joseph G. (BSMIE 1929)
Alpha, Andrew G. (BS 1934 MS 1935)
Ames, Richard W. (BS 1979)
Anderson, Alan R. (BSMIE 1982)
Anderson, Ben A. (BSMIE 1938)
Anderson, Curtis A. (MS 1976)
Anderson, Curtis R. (BSMIE 1982)
Anderson, Douglas B. (BS 1975 MS 1988)
Anderson, Garth S. (MS 1980)
Anderson, Orin J. (PhD 1961)
Anderson, Richard J. (BS 1981)
Anderson, Robert O. (BS 1981)
Anderson, Rolf C. (BSMIE 1933)
Anderson, Sidney B. (PhD 1951)
Anderson, Jr., Henry W. (BS Ed 1953)
Archbold, Michael F. (BS 1966)
Armentrout, Howard D. (PhD 1954)
Armentrout, Ralph H. (BSMIE 1970 BS 1977)
Arndt, Michael B. (PhD 1975)
Arnold, Arthur B. (BS Geol 1950)
Badley, David A. (BSMIE 1983)
Bailey, Palmer K. (BS Geol 1970 BSE 1980 MS)
Bailey, Terrence P. (BS 1970)
Bakke, Arne A. (BS Geol 1982)
Bakken, Wallace E. (BS Geol 1958 MS 1960)
Balco, Robert J. (BA 1976)
Ballard, Frederick V. (MA 1963)
Barrie, Dana L. (BSMIE 1976)
Barke, Walter B. (BS Geol 1950)
Barnes, John G. (BSMIE 1951)
Barcelos, Robert D. (MST 1969)
Bass, Louis L. (BSMIE 1922)
Baudais, Frederick W. (BS 1971)
Bauer, A. Gordon (BS Geol 1951)
Bauer, James A. (BS 1977)
Beakol, Kay M. (BSMIE 1946)
Beaurn, Rodney (MA 1985)
Baxter, Charles M. (MST 1976)
Beaver, Frank W. (MS 1984 PhD 1986)
Beck, Holly M. (BS 1979)
Becker, Donald A. (MS 1965 PhD 1968)
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1356 Cambridge Road San Marino CA 91108
1813 16th Street N.W. Rochester MN 55901
Walsh Co, Agric. School Park River ND 58270
2873 Chumash Way Hesper CA 92343
1101 Monaco Parkway Denver CO 80220
1307 11 Street N #2 Wahpeton ND 58075
620 Saunders Circle Evanston WY 82930
6817 Calverton Drive Hyattsville MD 20782
3635 S Flanders Street Aurora CO 80013
18053 E Kentucky Ave. 201 Aurora CO 80017
5248 South Lewis #1095 Tulsa OK 74105
730 Alexander Sodo Wooley WA 98284
606 Bryn Mawr N.E. Albuquerque NM 87106
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1018 4th Ave. North Wahpeton ND 58075
2934 Chestnut Street Grand Forks ND 58201
4105 Brigadoon Drive St. Paul MN 55112
PO Box 39 Ma'Adi Cairo PCN EGYPT AR
6315 Gilton, Suite 3 Houston TX 77080
17818 Terranova W Drive Houston TX 77373
2394 S Lima Circle Aurora CO 80014
650 Greenwich Lane Foster City CA 94404
901 River Park Lane #827 Ft. Worth TX 76116
1980
247A Lee Rd. West Point NY 10996
411 Reintree Trail LaFayette LA 70507
PO Box 83183 Fairbanks AK 99708
520 Denver Club Bldg. Denver CO 80202
16181 Cairo Circle Plectasia CA 92670
3412 E 57th Street Tulsa OK 74135
1381 Glade Hollow Drive Houston TX 77014
123 N.W. 41st Seattle WA 98107
3001 Seawind Anchorage AK 99516
1514 Lehman Blvd. Colorado Springs CO 80915
Box 631 Newport WA 99156
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5623 Brighton Place New Orleans LA 70114
1740 Begonia Casper WY 82604
1213 Lincoln Drive Grand Forks ND 58201
3321 N 106 Plaza #1215 Omaha NE 68134
7747 Ideal Ave. S Cottage Grove MN 55016
736 Princeton Court Baton Rouge LA 70806
2703 Oak Street Grand Forks ND 58201
1730 23rd Street N. Bismarck ND 58501
21706 Edgevale Place Elkhorn NE 68022
Deal, Dwight E. (PhD 1970)
Deats, Steward A. (BS 1988)
Degenstein, Joel A. (BS 1976 MS 1978)
Delimitis, John J. (MS 1969 PhD 1975)
Delling, Thomas (BS 1980)
Delzner, Francois (BA 1954 BSME 1958)
Delzner, Louis C. (PhD 1961)
Derschke, Kenneth N. (MS 1973)
Desautels, Henman J. (PhD 1949)
DeVanegger, Wilfred M. (BS 1956)
Diele, Loren L. (BA 1974)
Dietz, Mary E. (BS 1984)
Diving, Robert L. (BS 1971)
Dockter, Craig A. (BSGE 1983)
Dow, Wallace G. (MS 1964)
Ducarme, Paul J. (BSME 1940)
Dukart, Thomas X. (BSGE 1978)
Dumonzeaux, Gayle (MS 1984)
Duncan, Joseph (BSME 1959)
Dunsworth, Robert A. (BSME 1955)
Durali, Rebecca (MS 1987)
Dykema, Merrill E. (MST 1970)
Eastwood, David K. (BS 1987)
Efteland, Jon N. (MA 1973)
Elfeldt, Robert T. (BSGE 1981)
Ekren, Einar B. (BS Geol 1949)
Ellers, Richard R. (BS Geol 1963)
Elschaug, Angles (BS 1983)
Emmons, Dale C. (MST 1975)
Endere, Joel A. (BS 1972)
Engbrecht, Eric F. (BS 1949)
Englerth, Edward (BS Geol 1958)
Ensinger, Robert H. (PhD 1958)
Ericksen, A. Kirth (BS Geol 1967 MS 1970)
Ericksen, J. Mark (MS 1968 PhD 1971)
Ericksen, Jerald J. (BS Geol 1976)
Ericksen, Margaret O. (BA 1939)
Ericksen, Ronald L. (BSGE 1959)
Ericksen-Bique, Stephen (BSGE 1983)
Everson, Leif E. (BS BSGE 1987)
Faccia, Fosco V. (BS 1970)
Fahlke, Richard R. (BS Ed 1975 MA 1979)
Fajile, George A. (MS 1964)
Falcone, Sharon K. (MA 1983)
Falkenstein, George (BA 1931 MS 1945)
Farquharson, Philip (BS 1975)
Farringer, Dale (BA 1938)
Fariss, Robert S. (MA 1984)
Fashbaugh, Earl F. (MS 1979)
Feldman, Robert H. (BA 1962)
Feldman, Rodney M. (BS 1961 MS 1963 PhD 1967)
Fender, Thomas J. (BS 1982)
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1509 E Warren Kingsville TX 78363
922 2nd Ave. West Williston ND 58801
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9140 Gulfshore Drive Naples FL 33963
11554 Babitt Ave. Granada Hills CA 91344
3516 Varal Rd. NW Calgary AB T3A 0A5 CANADA
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415 Belmont Ave. East Seattle WA 98102
19029 W 60th Pl. Golden CO 80403
PO Box 182 Elmwood IL 61529
8860 Roseville Dr. Richmond BC V7A 2K3 CANADA
4910 Russell Midland MI 48640
23835 Ram River Blvd. #725 St. Francis MN 55070
136 Maleykem Winnebago IA 52945
200 Sugarwood Drive Knoxville TN 37922
1715 Gilmore Ave. Winona MN 55987
32082 Horseshoe Drive Evergreen CO 80439
30908 5th Place S. Federal Way WA 98003
SEE CHAPERO
401 6th Ave. N.E. Oaseo MN 55369
2155 Northridge Drive N. Mankato MN 56001
1526 N Yesso Circle Hobbs NM 88240
1214 N 1st Street Bismarck ND 58501
4523 Alton Place N.W. Washington DC 20016
5990 S St. Paul Way Littleton CO 80121
15 Church Street Canton NY 13617
PO Box 158, 800th CMC APO NY 09061
SEE GROS
Box 51754 Lafayette LA 70501
3403 W Ohio Midland TX 79703
SEE MILLER
529 Miller Street Yuba City CA 95991
17533 151st Ave. SE #8-3 Renton WA 98058
5303 Garner Street Springfield VA 22151
958 S Vine Denver CO 80209
5327 Nodaway Spring TX 77379-8025
2942 Belvedere Drive Billings MT 59102
7544 Skyview Drive Kent OH 44240
415 23rd Street S.W. Minot ND 58701
Fendt, Paul (BSCE 1981)
Fenner, William (MS 1974 PhD 1976)
Ferdener, David A. (BS 1982)
Ferguson, Lori H. (MA 1984)
Fischer, David W. (BS 1980)
Fischer, Howard J.
Flewitt, William E. (BS Geol 1957)
Fohr, Deborah K. (BA 1973)
Folkesdahl, Jonathon S. (BS Geol 1987)
Forsgren, Frank M. (BS Geol 1980)
Forsman, Nels P. (BS Geol 1974 PhD 1985)
Foss, Craig (BS 1983)
Foss, Stuart B. (BS 1973)
Fossen, Bret (BSCE 1982)
Foster, Henry J. (BS 1986)
Fredrickson, Dean (BSCE 1985)
Friesihan, Harlan K. (BS Geol 1966 MS 1969)
Friesihan, Mark B. (BS Geol 1970)
Freeman, Margaret (BA 1989)
Froehlich, Charles (BSME 1960)
Froehlich, Lawrence (BS 1964)
Frye, Charles J. (PhD 1967)
Fulcher, Thomas C. (BS 1980 MS 1982)
Fultron, Clark (BS 1976)
Furman, Marvin J. (BS 1970)
Fyten, Alice E.
Gableman, Paul D. (BS Geol 1954)
Gadken, Norman Eugene (BS 1987)
Gelman, William E. (BS Geol 1958)
Garas, Howard (BS 1942)
Garsee, Jay T. (BS Geol 1957)
Garske, Jeffrey W. (BSCE 1976)
Garr, LeRae (BS 1986)
Gatheridge, Alan K. (BS 1979)
Geiermann, William J. (BS Geol 1947)
Gerhardt, Lee C.
Gertje, Henry (BSCE 1985)
Gessner, Charles J. B. (BS Geol 1959)
Gibbs, James F. (PhD 1956)
Gibbs, Mackintosh J. (BSME 1958)
Giddings, Steven D. (MS 1986)
Gilbert, Holly Beers
Giles, Timothy F. (BS 1972)
Gillin, Donald S. (BS Geol 1958)
Gillis, David (BSCE 1984)
Giltner, Eric (BSCE 1982)
Gjestvang, Rory D. (BSCE 1984)
Goebel, Dean R. (BS 1986)
Goertzen, Lorena (BS 1987)
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4706 Briar Bend Road Houston TX 77035
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RR 1 Box 139 Bismarck ND 58501
2604 S Emerson #A Gillette WY 82716
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1646 28th Ave. South #2 Grand Forks ND 58201
320 Joel Drive Carrington ND 58421
545 North Grotto St. Paul MN 55104
1422 Crossfield Katy TX 77450
817 Walnut Street Grand Forks ND 58201
1048 Lincoln Ave. Bismarck ND 58504
Diam. Shamrock Poly 650202 Dallas TX 75265
RR 1 Box 106 Brinsmade ND 58230
616 Princeton Park Grand Forks, ND 58201
1833 Green Oak Drive Gretna IA 50630
815 10th Street N.E. Bismarck ND 58523
212 North Avenue Mayville MO 64468
7700 Newington Forest Ave Springfield WA 22153
1104 NW Columbia Street Bend OR 97701
PO Box 544 Mukilteo WA 98275
3479 Ross Road Palo Alto CA 94303
201 E 8th Street Superior WI 54880
Box 11 Alamo ND 58830
2549 E Caramillo Colorado Springs CO 80909
5702 S Havana Court Englewood CO 80110
3248 Jellison Wheat Ridge CO 80033
427 W Reno Avenue Bismarck ND 58501
SEE SCHMID
1515 S 17th Street Grand Forks ND 58201
PO Box 3967 Evergreen CO 80439
4105 South 3340 East Salt Lake City UT 84124
1628 Alvarado Drive Lawrence KS 66046
PO Box 7 North Adams MA 01247
2129 W St. Anne Rapid City SD 57701
6892 Chiala Lane San Jose CA 95129
PO Box 156 Toronto ON M5J 2J4 CANADA
10120 Lyndale Court #115 Bloomington MN 55420
115 E Broadway #1 Montesano WA 98563
2421 Spruce Street Boulder CO 80302
1620 11th Street Lewiston ID 83501
2524 Oxford #113 Gretna LA 70056
515 17th Ave. South Grand Forks ND 58201
993 Kelly Drive Washburn ND 58777
820 S 19th Street Grand Forks ND 58201
Box 19A Barney ND 58008
1013 Durango Drive Great Falls MT 59404
2610 S. McKinley, #D Casper WY 82601
110 Voyeur Ave Winnipeg MB R2Y 0H9 CANADA
5225 Strickland Ave. The Colony TX 75056
Griffin, John A. (BSCE 1977)
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Grilley, Nina L.
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Grossman, I.G.
Grove, Jr., Clayton (PhB 1950 MA 1959)
Grundseth, Arland C. (PhB 1954)
Grygo, Roland (BS 1957)
Guenther, Kenneth M. (BS 1971)
Gullikson, David M. (BA 1955 BSME 1956)
Gustavson, Thomas C. (MS 1964)
Haahr, Jerry D. (BA 1975)
Haake, Ellis V. (BS 1969)
Haberlach, Anthony F. (BA 1960)
Haerter, James F. (BS 1981)
Hagen, Gregory D. (BA 1979)
Hagmeier, J. Ladd (MS 1967 PhD 1971)
Hall, Gary O. (MS 1958)
Halvorson, Corey W. (BS 1977)
Halvorson, Don L. (MST 1971 PhD 1979)
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Hamilton, Robert W. (BS 1970)
Hamilton, Thomas N. (MS 1967 PhD 1970)
Hanneson, James H. (BS Geol 1957)
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Hanson, Berndt M. (BS Geol 1951)
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Hanson, Mark S. (BS 1982)
Hanson, Roy E. (BS Geol 1947)
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Harkins, Vernen (BSCE 1984)
Harris, Kenneth L. (MS 1973 PhD 1975)
Harris, Robert M. (BSCE 1960)
Harris, Steve
Harris, Terry L. (BA 1985)
Harrison, Samuel (MS 1965 PhD 1968)
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Hayes, Michael D. (MS 1984)
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Heiser, John R. (BSCE 1985)
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8668 E Soland Drive / Scottsdale AZ 85253
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21916 50th Ave. Langley BC V3A 3T3 CANADA
455 S Nelson / Denver CO 80226
PO Box 1269 / Midland TX 79702
SEE MELSTAD
1370 Eapes #206 / Lakewood CO 80215
208 Salisbury St. Rhobah Beach DE 19971
207 Sunset Drive / Northwood ND 58267
PO Box 5002 Grand Forks ND 58206
821 2nd Street W. / West Fargo ND 58078
659 Del Prado Drive / Boulder City NV 89005
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9641 Lakeside Trail / Champlin MN 55316
16319 70th Place West / Edmonds WA 98020
1120 N 1st Street Bismarck ND 58501
6243 Pasteur New Orleans LA 72702
Road 1 Maple Lane Acres / Saegertown PA 16433
6774 East 66 Place / Tulsa OK 74133
314 28 Ave. North / Fargo ND 58102
1607 Bedford Drive / Midland TX 79701
NDGS Bismarck ND 58505
8261 S Monaco Court / Englewood CO 80112
1101 W Stevens Ave #209 / Santa Ana CA 92707
HC 1 Box 72 Bisbee ND 58517
3020 Flint Drive / Lawrence KS 66044
2334 Louise Lane / Norman OK 73071
S. 4019 Hogan / Spokane WA 99203
7187 S Vine Circle West / Littleton CO 80122
1950 S 34th St., Apt. 214 / Grand Forks ND 58201
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Hill, Richard R. (BSME 1957)
Hillman, Kurtwood S. (BSCE 1977)
Hinebaugh, John P. (BS 1974 MS 1979)
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Hobbs, Howard C. (MS 1973 PhD 1975)
Hoddenfield, Kyrle R. (BSCE 1984)
Hofer, William A. (BS 1977)
Hoff, Jean (PhD 1989)
Hoffman, Patrick R. (BSCE 1984)
Hogan, John W. (PhD 1985)
Hole, Raymond (BSME 1934)
Hollem, James W. (BS Geol 1964)
Honeyman, Leslie R. (PhD 1969 MS 1973)
Horner, Donna L. (BSCE 1978)
Hossein Ali, Farough (BSCE 1987)
Houck, Duane A. (BSME 1949)
Howard, Steven J. (BA 1985 BS 1985)
Howatt, Tracy M. (BS 1981)
Hubby, Thomas H. (BA 1974)
 Huang, Yue-Chien (MS 1988)
Huber, Timothy P. (MS 1986)
Huberty, Robert L. (MST 1973)
Huffman, Robert L. (PhB 1957)
Humphreys, John T. (BSME 1939)
Hunke, Nathan T. (MS 1989)
Hunt, Gerald L. (BSCE 1982)
Hurt, Raymond E. (BS Geol 1955)
Hviden, David C. (BA 1982)
Hyde, Donald E. (BSME 1947)
Iljana, Floyd (MS '65)
Iverson, Gary W. (BSCE 1978)
Iverson, Henry G. (BSME 1929)
Iverson, Walter D. (PhB 1953)
Iverson, Wayne C. (BS 1972)
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Jeffcoat-Sacco, Paul C. (MS 1979)
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Jelleberg, Scott H. (BSCE 1981)
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Johnson, Hume T. (PhB 1950)
Johnson, Irwin S. (BS Geol 1957)
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7814 S Harrison Circle Littleton CO 80122
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3844 Chicago Ave Minneapolis MN 55407
517 Houston West Sacramento CA 95691
10510 S 84th East Ave. Tulsa OK 74133
2408 Sessions Street #3 Eau Claire WI 54701
1909 Catherine Drive Bismarck ND 58501
722 Belmont Grand Forks ND 58201
518 SW Colony Drive Portland OR 97219
2934 Mirret Street San Diego CA 92117
3806 Crestdige Midland TX 79703
9515 Keegens Wood Drive Houston TX 77083
4151 McCaughlin Ave. #3 Los Angeles CA 90066
1410 Beech Cove La Porte TX 77571
900 Peppertree Lane #1711 Santa Clara CA 95051
11991 Amul Road #1102 Dallas TX 75243
215-7 Street N,E. #302 Minneapolis MN 55413
PO Box 9-81 Feng Shan, Kaoshing TAIWAN
8009 82nd Ave, North Brooklyn Park MN 55445
S-59A W2165 Meadowview Lane Big Bend WI 53103
14219 Clear Creek San Antonio TX 78232
772 Bittersweet Place El Paso TX 79922
2703 Flag Avenue New Hope MN 55427
Hallock MN 56742
916 17th St. N.E. Calgary AB T2E 4V1 CANADA
1318 Mohawk Street Bismarck ND 58501
H726 Box 3112 Loweron ID 83637
2690 Newcastle Rd. Newcastle, CA 95658
Granenstreet 98 Roysenber, 4052 NORWAY
PO Box 438 Bandon OR 97411
1605-4th Street S.E. Minot ND 58701
Box 153 Cooperstown ND 58425
7786 S Trenton Court Englewood CO 80112
Rural Route Keef ND 58747
11707 O syrupwood Drive Houston TX 77070
PO Box 2278 Bismarck ND 58502
5975 S Fairfax Court Littleton CO 80121
1080 N Holly Drive Liberal KS 67901
2106 W Missouri Ave. Midland TX 79701
1420 Harmon Ave. Bismarck ND 58501
Geoscience Dept NM Tech Socorro NM 87801
2164 Prospect Street Penfield NY 14526
7 Legend Lane Houston TX 77042
205 S Whitney Marshall MN 56258
1025 10th Street N.W. Minot ND 58701
931 Witzel Ave. Oakshott WI 54901
7862 Valentina Way Englewood CO 80112
410-A Noren Hall Grand Forks ND 58202

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Johnson, Robert C. (PhB 1967 BSCE 1973)
Johnson, Robert P. (PhB 1970 MS 1973)
Johnson, Ronald M. (BS 1985 BSCE 1985)
Johnson, Terry L. (BSCE 1987)
Johnsud, Bryan C. (BSCE 1986 BS 1984)
Johnstone, Kenneth W. (PhB 1940)
Joyce, James L. (BSCE 1986)
Jun, Charles H. (BS Geol 1951)
Kalberer, William A. (BS Geol 1950)
Kena, Darrell W. (BSME 1959)
Kasper, Roland J. (PhB 1954)
Keaveny, Guido W. (BSCE 1984)
Kehow, Alan E.
Kelley, Lynn I. (MS 1980)
Kelly, Fred Baker (BSCE 1984)
Kenaley, Douglas S. (MS 1982)
Keogh, James P. (BA 1938)
Kerans, Charles E. (BS 1979)
Kichline, Robert D. (PhB 1968)
Kiefer, Duane J. (BSCE 1984)
Kiefer, Paul L. (MST 1973)
Kingsman, Paul D. (BS 1972)
Kirby, Deborah
Kjelmyr, John P. (BS 1971)
Klaudt, Elmer J. (BS Geol 1957)
Kleesattel, David R. (MS 1985)
Kleer, John N. (BS Geol 1952)
Klosterman, Mary Jo (BS 1978)
Klotzkin, Charles E. (BA 1963)
Knauss, Wayne L. (BS 1950)
Knudson, Benjamin D. (BS 1979)
Knudson, Bruce E. (BS Geol 1975)
Koch, Charles A. (BSME 1958)
Koch, Michael S. (BS 1985)
Koehele, Patrick M. (MST 1973)
Kohendowski, Igor Frank (BSME 1951)
Kohendowski, Mrs. N. N.
Kohendowski, Nicholas M.
Koons, Robert R. (BS Geol 1957)
Kornbrath, Richard W. (MS 1975)
Koromo, Neil R. (BS 1984)
Korwin, David J. (PhB 1959)
Kostelecky, Lewis E. (BS 1954)
Kovar, Mark (BSCE 1979)
Kraft, Leonard S. (BSCE 1958)
Kramlich, Kerry E. (BSCE 1985)
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Kreel, Ronald J. (BS Geol 1955 MS 1964)
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8313 Shadowood Lane Broken Arrow OK 74012
310 Linden Lane Bismarck ND 58501
2801 Walnut Bend Lane #323 Houston TX 77043
6083 Evergreen Street Portage MI 49002
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3713 W Pioneer Drive #1904 Irving TX 75061
8103 Twining Oaks Spring TX 77379
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TX Bur. of Economic Geol Austin TX 78712
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1420 N 13 Street Bismarck ND 58501
13 Bon Price Lane St. Louis MO 63132
16813 126th Ave. S.E. Renton WA 98058
726 Oak Street Grand Forks ND 58201
8251 Arrowhead Way Littleton CO 80124
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1385 Creekside Drive #149 Walnut Creek CA 94596
Box 411 Bismarck ND 58501
429 Bayland Houston TX 77009
65 Norman Avenue Lake Hiawatha NJ 07034
PO Box 230785 Tigar OD 97223
Box 158 Hardin MT 59034
PO Box 1646 Soquel CA 95073
1520 Country Lane Bismarck ND 58501
8070 Sholar Drive Baton Rouge LA 70809
5757 Standish Ave. South Minneapolis MN 55417
2821 N Park Drive Milwaukee WI 53222
3532 10th Ave. North Grand Forks ND 58201
515 1/2-30 Ave. S. #19 Moorhead MN 56560
9431 S Wasatch Place Tucson AZ 85749
SR Box 9812 Hiland Road Eagle River AK 99577
521 Reserve Ave. Hot Springs AR 71901
140 NW 22nd Street Gresham OR 97030
7709 Bellerwood Drive Houston TX 77055
7230 Rocking R Road Casper WY 82604
8781 Templeton Drive Omaha NE 68134
8587 W Hampden #5-105 Lakewood CO 80227
RR1 Box 2A Heaston ND 58450
2421 Mathews Fr. Collins CO 80621
PO Box 2120 Union TX Pet. Houston TX 77252
52 Fir Circle Rebbitt MN 55706
PO Box 643 Dickinson ND 58601
Box 926 Beach ND 58620
9702 Godstone Lane Spring TX 77379
7289 Mt. Holy Cross Littleton CO 80127
Kuttes, Robert J. (BSCE 1982)
LeBarre, Lee S. (BS 1970)
Laird, Wilson M.
Laird, Wilson M. (summer)
Lalim, Dale E. (WA 1959)
Lambrecht, Jeffrey (BSCE 1989)
Lampman, Theodore I. (BSME 1951)
Land, Cooper B.
Langlie, Gordon C. (BS 1973)
Langley, Tina M. (MA 1982)
Larsen, Kenneth A. (BSCE 1988)
Larsen, R. Al (BS 1983 MS)
Larsen, Laurin R. (BS 1980)
Lassila, Pentti A. (BS Geol 1966)
Lay, David L. (BS 1972)
Lee, Arnett J. (BSME 1930)
Lee, Gordon W. (BSME 1939)
Lee, Kathleen A. (BS 1984)
Leier-Engelhardt, Paula (BS Geol 1982)
Lenz, Joanne (BS 1941 MS 1979)
Lindberg, Russell A. (BSME 1942)
Lindbo, Donald A. (BSME 1961)
Lindholm, Rosanne M. (BS 1981 MS 1984)
Lindvich, Milton O. (BSCE 1961)
Listoe, Bruce K. (PhB 1958)
Lobdell, Frederick K. (MS 1984 PhD 1988)
Lohr, Charles (MS 1983)
Lockrem, Timothy M. (BS Geol 1980)
Loeffler, Peter (MS 1982)
Logan, Katherine J. (MA 1981)
Lokken, Brown O. (BSME 1931)
Lord, Mark L. (MS 1984 PhD 1988)
Lowe, Donald F. (BSME 1956)
Lowe, Robert D. (BSME 1954)
Ludwig, Richard D. (BS Geol 1970)
Lund, Steven P. (BS Geol 1972)
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Luther, Mark R. (MA 1968)
MacArthur, Ronald F. (Ex MS 1971)
Madenwald, Kent A. (MS 1962)
Maexner, Louise A.
Majkrzak, Gregory D. (BSCE 1974)
Maldonado, Cheryl (BS 1981)
Malick, Kenneth C. (MS 1977)
Malmquist, Kevin L. (MA 1979)
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Manning, Dean E. (BS 1976)
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6804 Luella Anne Dr. N.E. Albuquerque NM 87109
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McDonald, Gerald B. (BS Geol 1965 BSBA 1966)
McDonald, Malcolm H. (PhB 1943)
McDonald, Mark R. (BSCE 1986)
McDonald, William F. (BSME 1922)
McFarlane, Paul E. (BA 1971 BS ED 1972)
McGowen, LaVerne L. (BS 1955)
McGurran, James D. (BS 1986)
McKeachnie, Daniel (BA 1980)
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McKee, Robert L. (BS Geol 1953)
McLean, William (BSME 1961)
Meek, Robert A. (BS 1985)
Meins, Monte C. (BS 1974)
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Mellon, James C. (MA 1960)
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Melstad, Marcella
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Mickelson, Kermont B. (BS Geol 1950)
Mikkelsen, Dean H. (BS 1956)
Mikkelsen, Dwight (PhB 1960 BS 1973)
Miller, Arthur C. (PhB 1960)
Miller, Daniel J. (BA 1984)
Miller, James (BSCE 1983)
Miller, Kerry E. (BSCE 1977)
Miller, Sharon K.
Millette, Millard M. (BSME 1935)
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Minzeman, Roger (BSME 1958)
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Moe, Thomas A. (BSCE 1982)
Mohs, David P. (PhB 1978)
Monroe, Richard G. (PhB 1956)
Moore, Richard B. (MS 1970)
Moore, Walter L.
Morgan, Douglas H. (MS 1964)
Morin, Kevin A. (MS 1979)
Mosser, Jayne (BSCE 1984)
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1431 Mohican Drive Pittsburgh PA 15228
1909 N. Jones Blvd. Apt. 1-203 Las Vegas NV 89108
2560 Carson Way Sacramento CA 95821
1742 N Park #8 Chicago IL 60614
PO Box 59 Colusa CA 95932
2126 Washington St. N. #1 Bismarck ND 58501
398 Green Street Flin Flon MB CANADA
"Churchfields" Ave. Weybridge Surrey KT13 9ZA ENGLAND
8125 186th Street S.W. Edmonds WA 98020
4012 Verdell Road N.W. Calgary AB CANADA
Route 1 PO Box 657-6 Sanger TX 76266
601 1 Ave. East Williston ND 58801
PO Box 1225 Lakewood CO 80201
3237 Flora Ave. Billings MT 59102
20492 S.E. 155 Harrah OK 73045
Route 2 Wellesley Way Greenville SC 29607
RR 1 Box 57 Edinburg ND 58227
6275 E Fair Ave Englewood CO 80111
Box 88 Saatika ON POK 1TO CANADA
6761 Sherwood Ave. Anchorage AK 99504
740 131 Ave. N.E. Minneapolis MN 55434
9020 Drumcliffe Lane Dallas TX 75231
3022 NW Expo Suite 413 Oklahoma City OK 73112
1662 Glenhill Lane Lewisville TX 75067
1 Dorset Road St. Paul MN 55118
Route 1 Borup MN 56519
1203 6th Street S.W. Minot ND 58701
309 Rayburn Elwell TX 79336
2015 Mary Ellen Lane State College PA 16803
5819 Cambridge Circle #5 Racine WI 53406
16051 St. Francis Lane Prior Lake MN 55372
3522 Brookside Drive Bishop CA 93514
502 Bellwood Ave. St. Paul MN 55117
SEE SAWATKE
504 Chestnut Street Grand Forks ND 58201
7601 17th Ave. South Richfield MN 55423
3647 E 67th Anchorage AK 99507
801 Ballantine Road Golden CO 80401
7334 Sam Ramon Drive Houston TX 77083
PO Box 693 Tripoli LIBYA
1706L1-1600 Beach Ave. Vancouver BC V6G 1Y6 CANADA
SEE HARKINS
2123 11th W. Seattle WA 98119
135 Pressley Kellogg ID 83347
205 E. Arbor Ave., #303G Bismarck ND 58501
Route 5 Thief River Falls MN 56701
PO Box 78 Devils Lake ND 58301

51
Neitzke, Richard C. (MST 1970)
Nelson, David O. (BS 1975)
Nelson, Donald K. (BSME 1950)
Nelson, John F. (MS 1981)
Nelson, Kenneth (BS 1959)
Nelson, Lyle S. (BS 1970 MS 1973)
Nelson, Maynard A. (PhB 1938)
Neeper, John P. (BSME 1953)
Nesemender, Bradley D. (MS 1981)
Ness, Carl E. (BSCE 1984)
Ness, Thomas F. (BS Geel 1962)
Nestavil, Jerry E. (BS Geol 1962)
Neuvold, Randy L. (BSGE 1981)
Nielsen, Dennis (MS 1969 PhD 1973)
Nill, Gregory T. (BS 1986)
Noble, E. A.
Noone, Patricia L.
Norby, Robert D. (BS 1967 MS 1971)
Nordegraaf, Arlen D. (BS 1978)
Nordeen, Harold J. (BSME 1954)
Nordestog, James A. (BA 1986)
Nordestog, Paul (BSCE 1952)
Noren, Charles R. (BSME 1943)
Norstedt, David L. (BS 1984)
Norton, Wesley D. (BSME 1960)
Novak, Richard L. (PhB 1959)
Novak, Robert M. (MA 1971)
Nusich, Lee C. (BSCE 1972)
Nye, James D. (PhB 1959)
O'Neill, Stephen E. (PhB 1969)
O'Toole, Frederick S. (BS 1978 MS 1981)
Oberhans, Thomas J. (MS 1965)
Oberst, Robert J. (BSCE 1986)
O'Connell, Howard D. (BS 1978)
O'Connell, Linda E. (MS 1978)
Olsen, Benjamin N. (BS Geol 1958)
Olsen, Beatrice W. (BS 1946)
Olsen, Bruce A. (BS 1974)
Olsen, Gerald L. (BSCE 1976)
Olsen, Lance (BSCE 1982)
Ong, Robert J. (BSME 1961)
Opy, Albert G. (BS Geol 1953)
Opaszi, Claire M. (BSGE 1969)
Orndorff, Wendell R. (BSME 1931)
Orso, Margaret O.
Orsch, James A. (BS 1970)
Osees, William M. (BS 1978)
Oseen, Lars (BSME 1959)
Oster, Courtney B. (BA 1964)
Oty, John W. (BS Geol 1955)
Owens, Terrance H. (BS Geol 1956)
Owen, Wallace M. (Bsmie 1958)
Palmer, Hugh
Pepe, James M. (BSMS 1988)
4945 Dominick Drive Hopkins MN 55343
3917 Larchmont Ave. N.E. Tacoma WA 88422
8223 Bronte Court Orlando FL 32819
7704 Queens Street Wyomso PA 19118
2112 St. Claire Brentwood MO 63144
MU Box 272 Fairfield IA 52556
1440 Beaumont Drive N.W. Salem OR 97304
9826 Hartman Omaha NE 68134
850 Creekside Drive Louisville KY 75067
201 Lake Street Mandan ND 58554
Box 6161 Bismarck ND 58502
1311 Floyd Kelso WA 98626
St. 30 Box 260 Missouri City TX 77459
1601 Circle Drive Winona MN 55987
Monango ND 58471
Island (I.D.) Dept. of State Washington DC 20520
7505 Glenn Highway, # 124 Anchorage AK 99504
2321 Winchester Drive Champaign IL 61821
4160 Amber Place Boulder CO 80302
5316 Whisperwood Drive Birmingham AL 35226
3613 47th Ave. N. Brooklyn Center MN 55422
1711 Iris Lane Billings MT 59101
1049 Woodland Way Hagertown MD 21740
13545 SW Powell Court Beaverton OR 97005
338 Saturn Drive Bismarck ND 58501
3437 Blaisdell Avenue S. Minneapolis MN 55408
Route 2 Thorpe WI 54771
RR 1 Box 178 Chisholm MN 55719
3618 31st Ave. N. Robbinsdale MN 55422
13453 Marble Chantilly VA 22021
8482 S. Sunflower St. Highlands Ranch CO 80126
7915 Charles Thomas Ln. # 4 Annadale VA 22003
302 Remington Drive Bismarck ND 58501
2702 McKenzie Drive Anchorage AK 99517
2702 McKenzie Drive Anchorage AK 99517
302 2nd Street East Mott ND 58646
SBE PTSAR
RR 1 Box 32-C Apt #1 Wellalla ND 58282
2212 Rose Creek Drive Gillette WY 82716
410 Elm P.V. 162 Hallock MN 56728
5647 York Road Helena MT 59601
1811 Stirrup Lane Alexandria VA 22308
6721 E 86th Place South Tulsa OK 74133
6815 Santa Maria Lane Dallas TX 75214
913 Madeline Lane Lawrence KS 66044
PO Box 224 Corner King Lensdowne ON KORILLO CANADA
HBB 3d BN 67th ADA APO New York NY 09701
RR 7 Box 567 Joplin MO 64801
1317 1st Ave. North Beavish ND 58523
6204 Ridgwood Amarillo TX 79109
3103 E Boulder Leyton UT 84041
412 W Turnpike Ave. Bismarck ND 58501
40-137 Sand Dune Road Rancho Mirage CA 92270
PSC 1 Box 1267 Minot AFB ND 58705-5361
Vickers, Jeffrey P. (BSCE 1978)
Vig, Reuben J. (BSMIE 1937 MS 1963)
Voight, Harold E. (BSCE 1984)
Walderen, Dorel (Mrs. C.H.)
Walker, Daniel M. (BS 1979)
Walker, Thomas F. (MA 1967)
Wallick, Brian (MS 1984)
Walsh, Robert G. (BAS 1975)
Wangerud, Kenneth W. (BS Geol 1974)
Warburton, Stanley M. (BS Geol 1951)
Wartman, Brad L. (MS 1983)
Waters, Douglas L. (MS 1984)
Wekirch, John N. (BS Geol 1965)
Weaver, James G. (PhD 1967)
Webster, Mark H. (BSCE 1984)
Webster, Rick L. (BS 1980 MS 1982)
Wehrfritz, Barbara D. (MS 1978)
Weinlader, Janice (BSc 1973)
Welander, James D. (PhB 1970)
Weller, Jay A. (BS 1985)
Wenner, Richard V. (BSMIE 1956)
West, Edward G. (BSMIE 1959)
West, Roger G. (MS 1969)
Wetzel, Mark O. (BS 1987)
Wheeler, Raymond D. (PhB 1964)
White, Stanley P. (MS 1980)
Wiken, Kent W. (BSCE 1984 BS 1986)
Wilkie, Kenneth G. (PhB 1953)
Wilkinson, Michael (MS 1982)
Williams, Barrett J. (BS 1958 MS 1960)
Williams, David (MS 1984)
Willson, Robert G. (MS 1967)
Wilson, Berry J. (BS Geol 1983)
Wilson, Everett B. (BS Geol 1956 MS 1958)
Wilson, James W. (BSCE 1976)
Winbourn, Gary D. (BS Geol 1978)
Winczenski, Lorraine M. (BS Ed 1972 MS 1977)
Winterer, Timothy R. (BSMIE 1959)
Wokovich, Marvin R. (PhB 1953)
Wold, Paul D. (BS 1949)
Wolf, Robert A. (BSCE 1982)
Woods, Mary L.
Woolsey, Earl (BSCE 1989)
Wosick, Frederick D. (BS 1974 MS 1977)
Wyborny, Sylvestre J. (BSMIE 1958)
Wylie, Jan O. (BS 1971)
Yearous, Jenny D. (BS 1985)
Young, Daniel R. (MA 1980)
Zabel, Dean A. (MS 1979)
Zednik, Roger C. (BS Geol 1957)
Zich, Terrance J. (BSCE 1977)
Zieber, Harold C. (MS 1962 PhD 1972)
Zimmerman, James T. (BS Geol 1955)
Zodrow, David M. (BS Geol 1950)
Zygierlacke, Christopher J. (MS 1987)

723 14th Street W. Williston ND 58801
230 S Canyon Road Rapid City SD 57702
Halliday ND 58636
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416 Asher Street Lafayette LA 70504
Rte. 6 Country Club Box 124 Minot ND 58701
8854 W Quarto Avenue Littleton CO 80123
2225 Orchard Street Lake Charles LA 70601
583 Pearl Street Monterey CA 93940
12211 Woodchase Drive Anchorage AK 99516
5401 Wilcox Tavern Fairfax VA 22030
909 Iowa Street Dunlap IA 51529
905 32nd Ave. South Grand Forks ND 58201
7727 Kleingreen Spring TX 77379
29495 Golden Ct. Cyn Rd. RRG-498 Golden CO 80403
SEE SOWKINDS
919 East Mount Faith Fergus Falls MN 56537
6793 Overton Drive Fridley MN 55432
15982 77th Street South Haven MT 59090
57620 Ramona Road Spokane WA 99204
2601 Fairway Drive Moorhead MN 56560
420 North 15th St. Bismarck ND 58501
Road 1 Box 25 Dolgeville NY 13329
8412 S Timberwood Street Highland Ranch CO 80126
7364 Parkridge Blvd. #355 Irving TX 75063
2636 Laurel Crescent SW Calgary AB T2E 6B3 CANADA
1450 Palisades Ave. Fort Lee NJ 07024
2757 Aridowne Drive Tucker GA 30084
1839 61st Ave. North St. Cloud MN 56301
1614 Ritzky Road Charlottesville VA 22901
15935 Wingdale Drive Houston TX 77082
6404 Kensington Court Oklahoma City OK 73132
1133 Henry Road Billings MT 59102
1915 N Kavanaugh Drive Bismarck ND 58501
PhD 1982)
12614 Vindon Houston TX 77024
45 Verbalee Lane Hillborough GA 94010
3104 Hamilton Way Casper WY 82601
1061 E Sandpiper Drive Temple AZ 85283
4415 Crown Point Road Mandan ND 58554
SEE SCOTT
2816 17th St. S. Grand Forks, ND 58201
220 E Brandon Drive Bismarck ND 58501
1021 Oak Grove Detroit Lakes MN 56501
1805 Country Club Road Cleburne TX 76031
39 Pleasant Drive Oxford MS 38655
2507 W 43rd Court Anchorage AK 99503
320 Felspar Ridgecrest CA 93555
Attn: CSOS 6500 Brooks Lane Washington DC 20315
1709 E Omaha Drive Bismarck ND 58501
7352 S Delaware Street Littleton CO 80120
6905 Edenvale Blvd. Eden Prairie MN 55344
1112 South Main Minot ND 58701
2880 22 Ave. South Grand Forks ND 58201
ALUMNI NEWS INFORMATION 1989-90

Name: __________________________________ Degree/Class ______

Residence address: ______________________________________

_______________________________________________________

Telephone: ______________________________________

_______________________________________________________

_______________________________________________________

Date ____________________

-----------------------------------------------PLEASE FOLD-----

Employer's Name: ______________________________________

Job Title: ______________________________________

Business address: ______________________________________

_______________________________________________________

Business telephone: ______________________________________

_______________________________________________________

FAMILY: Spouse Name: ________________________________

Spouse Activity News: ______________________________________

Children (birthdates): ______________________________________

_______________________________________________________

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