LETTER FROM THE CHAIR........................................... 1
SEE YOU AT THE GSA?............................................... 2
TOM HAMILTON AWARDED HONORARY DEGREE.................... 2
ANDY ALPHA AND BUD HOLLAND LEONARD MEDAL RECIPIENTS..... 3
GEOLOGICAL ENGINEER JOINS FACULTY.......................... 4
RECENT GRADUATES/THESIS/DISSERTATIONS...................... 5
IMPACT OF UND BUDGET REDUCTIONS............................. 6
ONE SPECIAL OPPORTUNITY...................................... 7
HONOR ROLL OF PATRONS......................................... 7
DONORS AND CORPORATE CONTRIBUTORS.......................... 8
OTHER DONATIONS................................................. 9
SCHOLARSHIPS AND AWARDS..................................... 9
CUSTODIAN, RALPH LINDBLAD RETIRES.......................... 10
ALUMNI NEWS..................................................... 10
ACTIVITIES AT THE EERC........................................ 17
FORMER FACULTY.................................................. 21
FACULTY NEWS.................................................... 30
PALEOCLIMATE STUDY FUNDED.................................... 35
RECENT DEPARTMENT PUBLICATIONS............................... 37
CONSORTIUM FIELDCAMP........................................ 38
SPRING FIELD TRIP................................................ 40
1993 COLUMBIA ICEFIELDS TRIP................................ 41
SEEN AT THE 1992 CINCINNATI GSA MEETING..................... 43
LEEP S LECTURERS................................................ 43
NECROLOGY....................................................... 45
ALUMNI AND FRIENDS ADDRESSES................................. 47
NEWS INFORMATION SHEET

Cover Photo: Loch Agassiz Monster constructed by Sue Carlson (and family), Don Forsman, Todd Holweger, Mark McDonald, Michelle Rolland, Curtis Rockwell, and Leon Vetter
BULLETIN

As we were about to go to press with this ALUMNI NEWS we have received a list of proposed reorganizational changes from the Office of the Vice President for Academic Affairs. Several will affect us greatly.

1. Eliminate or reconfigure the PhD program in Geology.

2. Eliminate the Geological Engineering Program.

3. Combine Geology and Geography Departments into an Earth Science Department within the College of Arts and Sciences.

4. Combine the libraries for Geology and Geological Engineering, Chemistry, Physics, Mathematics, and Engineering into a single library controlled by the Director of Chester Fritz Library and move it to the Medical Sciences Building.

A fifth proposal that may affect us is to eliminate the graduate program in Space Studies, the Chairman, Chuck Wood, being a geologist.

Your written support for the need to continue any of these activities may be critical. If you wish to express your concern on any of these issues please address your letters to Marlene I. Strathe, Vice President for Academic Affairs and Provost. However, please send the letters to Patricia H. Kelley, Chair, Department of Geology and Geological Engineering, so that we may use your letters most effectively. If you plan to write, you may wish to receive further information from the department first. Please call Patricia Kelley at 701-777-2380. The deadline for decisions is within the next month and a half! Help!
LETTER FROM THE CHAIR

Patricia H. Kelley

I am happy to report that, after my first year at UND, I remain pleased with my decision to join the Department of Geology and Geological Engineering as chair. During the past year I’ve become well aware of the Department’s many strengths: its faculty, staff and students; its facilities; and its loyal alumni.

A number of changes occurred last year, including some personnel changes. Despite a major budget cut at UND, we were able to fill the advertised position in geological engineering. We are extremely pleased that Joel Kuszmaul (Ph.D. 1993, Berkeley) has joined our faculty. Joel’s expertise in rock mechanics, computer modeling, and hydrogeology will be an important contribution to our geological engineering program (especially as it comes up for accreditation again next year). After 11 years of faithful service, Sundar Saluja is beginning the first year of a three-year, phased-in retirement plan. We will thus be making plans to fill that vacancy in geological engineering. And, speaking of retirement, custodian Ralph Lindblad retired after nearly 25 years of service (see accompanying article).

Our programs continue to grow in numbers as well as strength. We now have over 100 undergraduate majors (a number that astounds my colleagues at other schools). The Environmental Geology and Technology majors outnumber the others, but all of our programs are healthy numerically. Graduate student applications were up last year, and our graduate programs are strong. Because of the budget crisis, our Graduate Teaching Assistant allotment was reduced slightly this year, but we are able to support as many students, thanks to new Graduate Research assistantships provided by several research grants.

Yes, faculty members had a very productive year in terms of scholarship, publications, and grantsmanship, as you can see from this newsletter. This research activity enhances the educational experience of our students, which remains of highest priority for the Department. Ron Matheny’s grant has enabled completion of his geochemistry lab, enhancing research and teaching in that area. In addition to receiving high-quality classroom instruction, our students had opportunity to participate in three major field trips this past year: to the North Dakota Badlands (led by Nels Forsman), the Big Bend area of Texas (led by Will Gosnold) and the Canadian Ice Fields (led by John Reid).

During the past year, I have had opportunity to meet many alumni. The awarding of the first Arthur Gray Leonard Medal to Wilson Laird brought many former students, faculty, and friends of the Department back to campus. (I look forward to meeting others of you this fall, when we honor Bud Holland and alumnus Andy Alpha with Leonard Medal’s at Homecoming.) I am very impressed by the contributions of our alumni to the field of geoscience, and to society in general. You are quite an illustrious group! And your dedication to the Department of Geology and Geological Engineering is exemplary. We rely heavily on your encouragement and support, and are humbly appreciative of your continued generosity.
SEE YOU AT THE GSA?

Nels Forsman, Will Gosnold, Frank Karner, Tricia Kelley, Dex Perkins, and John Reid will be at the Boston GSA meetings, as will graduate student Tim Kroeger and EERC paleontologist, Joe Hartman. There will be a "gathering" of alumni and friends of the Department Tuesday, Oct. 26, between 5 and 7 p.m. in Dex's and Will's room at the Colonade Hotel.

TOM HAMILTON AWARDED HONORARY DEGREE

Upon the occasion of the 105th regular Commencement of the University of North Dakota, May 16, 1993, Dr. Thomas Hamilton was recognized for his many achievements and his continued generosity to the University of North Dakota. A planned business trip to Azerbaijan was delayed one week so he could be present to receive the honorary degree, Doctor of Engineering. Tom is president of Pennzoil Company and lives with his wife, Carolyn, in Houston.

Upon graduating from Capital University, Columbus, Ohio, Tom enrolled at UND, earning his MS in '67 and his PhD in '69. He worked for Exxon until 1981, when he was hired away by Aminoil, which underwent extensive restructuring under Tom's
leadership as Executive Vice President. Tom next became Senior Vice President of Standard Oil of Ohio in 1985 and then Chief Executive of all oil, gas, and liquified natural gas operations for British Petroleum outside Europe and North America (headquartered in London). Tom has been with Pennzoil since 1992, working to restructure that company. Both Tom and Carolyn have enjoyed the opportunity to travel and to meet with so many world leaders. The job has been stressful and highly demanding (Carolyn reports that Tom's idea of weekend relaxation is to conduct business by computer at home!).

As the Department of Geology and Geological Engineering's first alumnus to receive an honorary degree (as far as we know) we are proud of Tom and delighted to have him recognized for his outstanding achievements!

ANDY ALPHA AND BUD HOLLAND
LEONARD MEDAL RECIPIENTS

Upon the occasion of the Fall 1993 Homecoming, October 1, two Honor Patrons of the Department of Geology and Geological Engineering were awarded the Leonard Medal for outstanding contributions in the geosciences and to the Department.

Andrew "Andy" G. Alpha, was born May 11, 1912 in Lethbridge, Alberta. He graduated from our Geology Department with a BS in 1934 and an MS in 1935. From then until 1943 Andy worked for the BLM, Soil Conservation Service (and Grazing Service) throughout 10 western states.

From 1943 to 1964 he was a petroleum geologist with Mobil Oil Company, moving to several other petroleum companies operating in the western USA until his retirement in 1977. Not content to sit still, he continued as a consulting geologist dealing with geothermal, environmental, ground water, and oil/gas problems and prospects.

Andy's loyalty to the Department of Geology and Geological Engineering extends throughout his career by generous financial support as well as gifts of his library and sketches. Andy is an accomplished artist; his geologic illustrations adorn many guidebooks, field trip logs, and pamphlets. The Department is honored to be able to recognize Andy Alpha in this way.

F. D. "Bud" Holland, Jr., as most of you are well aware, officially retired in 1989 after 35 years in our Department. Bud was born in Leavenworth, KS, March 6, 1924. His undergraduate education at the University of Kansas was interrupted by World War II. He served in the Navy, mustering out in 1946 as a Lieutenant. He received his BS from University of Kansas in 1948, his MA from Missouri in 1950, and his PhD from the University of Cincinnati in 1958, four years after joining the Geology Department at UND.
Bud has always been fiercely loyal to the Department, willing to spend as many hours as necessary to work directly with his students, contributing generously to several Departmental funds, and being to a great extent responsible for the success of the Sigma Gamma Epsilon chapter at UND. It was Bud’s strong position on the Library Committee that assured the Department of more than its share of funds for periodicals and books. The Fall 1988 issue of the Alumni News paid tribute to Bud, summarizing his many accomplishments and reporting that our library is now the F.D. Holland Geology Library. Because of Bud’s many contributions to the Department we honor him with the highest award we can give, the Leonard Medal.

(Nominations are invited for possible Leonard Award recipients. Send your nomination, together with a statement of your reasons why the nominee deserves this award, to Dr. Patricia Kelley, Chair.)

GEOREGICAL ENGINEER JOINS FACULTY

Joel Kuszmaul, our newest faculty member, is still getting settled in the Department and in Grand Forks. Joel comes to us from his hometown of Detroit, then Michigan Tech., where he earned his BS degree in GeoE. Engineering ('81), and the University of Minnesota (MS Geological Engineer '83). From Minnesota Joel spent the next several years working at Sandia National Laboratory. His research there was on rock mechanics issues related to oil-shale retorting (simulation of rock fragmentation). He left Sandia to enter the University of California-Berkeley, where he completed his Ph.D. in Civil Engineering this past Spring. His dissertation was on keyblock size determination using probabilistic methods, an analytical procedure verified by modeling.

Upon graduation, Joel was hired by the Cooperative Research Centre for Mining Technology and Equipment in Brisbane, Australia. As a short-term employee he offered interactive video workshops on block theory and presented seminars on probabilistic methods.

Here at UND Joel is busy teaching GeoE 323: Engineering Geology, and CIE 301: Mechanics of Materials. It is expected that he will also be teaching Geomechanics next semester. Joel’s goals (other than getting through this semester) include to work to assure that the program in Geological Engineering remains accredited, to strengthen the program as a resource for other geology majors and civil engineering students, and to begin a program in rock mass visualization. Joel’s research is so new that much has to be accomplished before it can be applied. Others are eager to learn what he has learned and we are most fortunate to be able to attract someone with Joel’s excellent credentials.
Joel is not by himself, though. He is married to one who also earned a BS in Geological Engineering, JoEllen Kuszmaul, a certified environmental assessor (California). JoEllen's goals are to become a certified Professional Geologist and to begin to apply her knowledge in this part of the country. Joel's and JoEllen's hobbies include canoeing (Boundary Waters), and fishing. We are delighted to have Joel and JoEllen a part of our family in the Department. Welcome!

RECENT GRADUATES/THESSES/DISSERTATIONS

December, 1992 Geology Graduates

Goebel, Dean (MS)
Mayer, Gale (PhD)

December, 1992 Geological Engineering Graduates

Haddeland, Darren (BSGE)

May, 1993 Geology Graduates

Cayler, Bryan (BS)
Comeskey, Allen (MS)
Ellingson, Jon (BS)
Fox, Jon (MA)

Kong, Lingbu (MS)
McLena, Steve (BS)
Rolland, Michelle (BA)
May, 1993 Environmental Geology & Technology Graduates

Crowder, Bridget (BS)
Roberts, Samantha (BS)
Vetter, Leon (BS)

May, 1993 Minor in Geology

Bervig, James A. Merdan, Curtis
Hebert, Tami Jo Winkler, Sonya Jean

1992 Gale G. Mayer, (Ph.D.) Denitrification in the Elk Valley Aquifer,

1992 Dean R. Goebel, (M.S.) Hydrogeologic characterization of a discharge
wetland in northeastern Grand Forks County, North Dakota.
Chairman: P.J. Gerla.

1993 Allen E. Comeskey, (M.S.) Estimation of a water budget for Agnes Marsh,
Grand Forks County, North Dakota. Chairman: P.J. Gerla

1993 Jon Fox (M.A.) Depositional and Diagenetic Controls on Porosity Evolution
in the "C" Zone, Red River Formation (Upper Ordovician), Divide County,
North Dakota. Chairman: Patricia E. Videtic

1993 Lingbu Kong (M.S.) Petrography and Inorganic Geochemistry of the Rosebud
Coal Seam at the Absoloka, Big Sky and Rosebud Mines, Powder River Basin,

IMPACT OF UND BUDGET REDUCTIONS

Our financial situation is similar to that of most other departments across the
United States; our budgets are being cut. This biennium UND has been allocated
6.5% less than last year. With a new faculty member, Joel Kuszmaul, now here,
there were certain additional costs that had to be absorbed by the Department as
well. The most serious result this year is the elimination of one Graduate
Teaching Assistantship, which meant that we did not have enough graduate students
funded to teach our labs. Fortunately, we were able to come up with some money
to hire an undergraduate student for one lab. Still, there is insufficient money
to cover our expected operations (including communications), and faculty are
required to cover a significant percentage of any travel expenses they incur to
present papers, attend conferences, or even to visit students in the field.
Fortunately, our faculty are professional and accept this obligation.

If it were not for alumni funds our situation would be much more serious! Your
generosity is much appreciated! So, we are not pleading for you to increase your
giving, although any contributions will be used most effectively; we just want
you to know how much your contributions have helped us maintain the quality you
expect of us. Thanks.

6
ONE SPECIAL OPPORTUNITY

One of the funds, designated to help students, is still below the minimum required before awards can be made. The Alan M. Cvancara Graduate Field Research Endowment is to support graduate students in the Department (it is the only fund restricted to graduate students; most are for undergraduate majors, only). At present the endowment has slightly more than $4000.00 accumulated. A minimum of $10,000 is needed before awards can be made. If you are inclined to support this endowment you can send your contribution directly to the Alumni Foundation and designate it for that fund.

HONOR ROLL OF PATRONS

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):**
Dr. & Mrs. Thomas Hamilton
Bernold M. Hanson
Dr. & Mrs. F. D. Holland, Jr.
James W. McKee
Hugh and Ruth Palmer

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

**Sustaining Patron ($1,000):**
Mr. & Mrs. Robert K. Aaker
Donald B. Achtiten
Terrence P. Bailey
Clarence G. Carlson
Dr. John L. Carter
Dr. Odin Christensen
Joel A. Degenstein
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Bryan Johnsrud
Mary Jo Klosterman
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Enserch Exploration
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Internos, Inc
Newmont Mining Corp.
North Dakota Geological Society
North Dakota Society of Mining Engineers
Olin Corporation
Pennzoil Company
Standard Oil
Tenneco Oil Co.
Texaco, Inc.

DONORS

Below is a list of donors since the 1992 Fall Newsletter. If you notice any errors or omissions please let us know. We want to be accurate and complete. If your contribution was made only recently it may not have been processed by the Alumni Foundation, yet. It will be listed in the next Newsletter.

Terry Bailey
Arne A. Bakke
Frederick V. Ballard
Mr. & Mrs. Peter F. Bjorlie
Mr. & Mrs. David W. Brekke
John L. Carter
Odin D. Christensen
Mr. & Mrs. Joel A. Degenstein
Dr. & Mrs. Thomas M. Hamilton
Allan Heinle
Mr. & Mrs. Kurt Hillman
Mr. & Mrs. Kyel R. Hodenfield
Dr. & Mrs. F.D. Holland, Jr.
Bryan C. Johnsrud
Mrs. Nicholas Kohanowski
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Dale Lalim
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Dr. & Mrs. Steven P. Lund
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Wally L. Popejoy
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Mr. & Mrs. K. Bruce Switzer
Jack C. Thompson
Dr. & Mrs. Samuel J. Tuthill
Dr. John E. Utgaard
Dr. James B. Van Alstine
Reuben J. Vig
Delores Waldren
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Conoco Inc.                    Newmont Mining Corporation
Exxon Education Foundation     Olin Corp. Charitable Trust
Freeport-McMoran Inc.          Pennzoil Company
Gulf + Western Foundation      Texaco Inc.
IBM Corporation

OTHER DONATIONS

In addition to the much-appreciated monetary donations to the Department, we have continued to receive other donations, which we gratefully acknowledge here.

Lori A. Ferguson (MA'84), with the Defense Mapping Agency in St. Louis, MO, has kindly donated a set of Oak Ridge National Laboratory reports which she collected while with the agency. Most are related to ground water hydrology and chemistry and will be used in Ron Matheney's and Phil Gerla's classes. Thank you, Lori!

Family of Harald Bliss, who passed away this past year after a lifetime of teaching, mainly at Mayville State, kindly offered the Department his vast collection of rocks, specimens, books, and slides. Harald was well known for his concern for students and his enthusiasm toward earth science teaching. We are grateful to his family for thinking of us and assure them that all will be used effectively to upgrade our own teaching collections. Thank you!

Clarice and Clarence Johnsrud, of Buford, ND, donated an amazing collection of Paleocene plants (mainly leaves) to UND. Through the efforts of Joe Hartman, EERC, much of the collection was brought to UND and is now part of at least two displays, one in Leonard Hall, and the other at EERC. We sincerely appreciate receiving such an outstanding collection.

Reuben Vig (BSMIE'37, MS'63) has established a life-income annuity through the Alumni Foundation. Upon his passing, any remaining interest will be used to support the Department of Geology and Geological Engineering. Thank you for your thoughtfulness, Reuben.

SCHOLARSHIPS AND AWARDS
1993-94

Joel Degenstein Field Camp Scholarship
Paul Brown

Stanley Erickson Scholarship
Jon Folkedahl

Estwing Pick Award
Jon Ellingson

9
Henry Hinds Scholarship  
Michele DeWeese

Reba Laird Scholarships  
Christine Ellingson  
Stacy Harwell

Tom and Francis Leach Scholarship  
Taunya Ernst

Hugh and Ruth Palmer Scholarships  
Harry Abercrombie  
Karyn Alme  
Susan Carlson  
Karen Grabanski  
Grant Larson  
Bernard Lenz  
Kale McNaboe  
Paul Myerchin  
Henriette Salander

Charles H. Waldren Scholarship  
Jennifer Kouba
CUSTODIAN, RALPH LINDBLAD RETIRES

After 25 years of greatly underpaid employment as Custodian at UND (in Leonard Hall), Ralph Lindblad retired April 20, 1993, "to spend more time fishing." As most of you know, it was because of Ralph (and later aided by Beverly Cariveau) that the halls and classrooms of Leonard Hall still look almost brand new! Visitors to our Department from other universities are surprised to learn that our building is now 29 years old! In the Spring of 1988 Ralph received the President's Award of Merit for his efforts. Ralph took pride in his work and enjoyed interacting with the faculty. Already we miss his daily chatting with us. The Department hosted a luncheon for him and his wife and then an open house in his honor. The fact that no other Department at UND has ever done this for a custodian is a testimony to how much we have appreciated Ralph. Best wishes for a happy retirement, Ralph!

Ralph and Jean Lindblad (4/15/93)

ALUMNI NEWS

Bert C. Timm (BA'39) writes that upon earning an MA degree from the University of Texas (1941) he began a 40-year career with oil companies, first with Mobil, then SunRay, then Sun Oil, which bought out Sun Ray. After five more years as a petroleum consultant Bert retired to teach as Professor of Geology at Collin County Community College, where he still teaches part-time. While at UND he assisted a new research-oriented instructor, Max Harrison Demorest, in the classic experiment of proving that ice behaved as a plastic under stress. (Bert says that it was cold work in that barn!). He also assisted Dr. Foley in southwestern ND and remembers Foley and Demorest arguing that the Cannonball Fm.
belongs in the Tertiary, not the Cretaceous! Our alumni have many stories they ought to share more widely!

Eric Engbrecht (BS'49) visited campus this summer and presented a seminar (See Lectures).

William J. Geiermann (BS Geol'47) "deserted" the field of geology, spending the next 30 years as a Special Agent with the FBI. He retired in 1977, but continued to do some consulting. Bill sends greetings to his former classmates, Bob Aaker, Sid Anderson, Earl Perkins, Ray Sinkbeil, and to his former professor, Wilson Laird. Bill's memories of UND are still sharp and his appreciation warm.

Wally L. Popejoy (BS Geol'51) visited the Department earlier this year and spent time talking with Sid Anderson. In his note to us he shared the fact that the day he received his degree he also was offered his first job as a geologist and his wife, Mercedes, presented him with twins as a graduation present! Not a present to be repeated too many times, Wally! He also shared that he was recently appointed to the Board of Directors of Lutheran Social Services for all of Texas and southern Louisiana. We are proud that our alumni are serving society so generously. Sid reports that Wally has bought into the oldest and largest bank in Corpus Christi after selling his share of a gas field for an undisclosed sum. And, he stays free whenever he visits one of the motels owned by his former partners! Best way to travel, Wally!

Sid Anderson (PhB'51) is seen in his Leonard Hall office or the Core and Sample Library quite often this past year. He assisted Tim Gerlach (grad student) in his work on the Newport (impact) structure, he has been doing some consulting for a Texas company on a potential site in Rolette Co., and he and Lee Gerhard (former Chair and State Geologist) are collaborating on another possible impact structure in Bowman Co. Sid and Mary have one granddaughter who is busier than his own daughters ever were!

Bernold "Bruno" Hanson (BS Geol'51), President of the Division of Environmental Geology, AAPG, travelled with the president-elect, President, Lee Gerhard, to Prudhoe Bay in July. Bruno will be attending the International meetings of the AAPG in The Hague this month (October). Bruno was one of approximately 25 experts brought in as President Clinton's transition team. Quite an honor, Bruno!

Elmer "Jerry" Meldahl (BS Geol'55, MS'56), although officially retired is still on a 60-day/yr retainer with Montana Power.

Ben Olien (BS Geol'58) and his brother Byron will close their John Deere dealership after 32 years in the business. "Deere & Co. didn't renew the franchise this year," Ben told the Bismarck Tribune. "They needed more sales." Now farmers around Mott will have to drive farther for parts. Fewer buyers make it difficult for dealers to turn a profit. "There aren't as many farmers now as there were in 1980," a Deere & Co. director said. Do you still sell cherries, Ben?

Frank Delzer (BA'54, BSMIE'58) is with the Elkhorn Coal Corp., Prestonburg, KY.

Clarence "Kelly" Carlson (MS'60) was feted upon the occasion of his retirement after nearly 39 years with the ND Geological Survey and the ND Industrial
Commission's Oil and Gas Division. Happy retirement, Kelly. We can't imagine their getting along without you!

Jim Hollarn (BS Geo'l'd4) continues to send interesting newspaper articles from San Diego. He continues to be busy with COMARCO, recently traveling to Florida and then Washington, DC. He is active in the San Diego Association of Geologists and has been spending time with Tim Giles (BS'72) on field trips.

K. Bruce Switzer (BS'66) recently sent a series of newspaper articles on the June landslide at Lemieux, Ontario, about 80km se of Ottawa where Bruce is working. He has been involved as secretariat to facilitate the reorganization (word sound familiar?) of the Inland Waters Directorate of Environment Canada. That task was completed and he is back as Monitoring and Agreements Officer. He bemoans the politics of hiring relatively incompetent people just because they belong to a minority group. One of the hydrologists there has never even had hydrogeology and is not a geologist! Hang in there, Bruce! Thanks for thinking of us.

Jack W. Crawford (BS Geo'l'd8, MS'67) is still working in South America. This past year, after getting the Mahoma Gold Mine into operation in Uruguay, Jack was transferred to Mendoza, Argentina, to establish an exploration office for copper and gold. The city, he says, is in a beautiful setting at the base of the Andes, and is noted for its wine! Good to hear from you, Jack. Keep in touch!

Thomas Hamilton (MS'67, PhD'70, Doctor of Engineering'93). See separate article.

Tom and Carolyn Hamilton (5/16/93)

Mike Archbold (BS'68) is director of student services at the International School of Islamabad where he has been working for the past three years. Before then, he spent two years with Hunt Oil before switching to international education, with posts in Yemen, El Salvador, Egypt, and Thailand.
Clair M. Opsal (BSGE’69) is Field Operations Manager for FD Services (subsidiary of Fluor-Daniel Co., which is now in charge of the DOE’s Naval Petroleum Reserve at the Teapot Dome. Clair and Cindy have two children, 21 and 23 yrs. He reports that Gary Strong (BS’72) also works for FD Services, in the Technical Group.

John R. Tinker, Jr. (MS’69, PhD’70) reports from Univ. Wisconsin-Eau Claire, that his department is keeping him busy, but not so much that he could not incorporate his consulting company. He recently received an NSF Instrumentation award to install water table wells and piezometers on campus to aid in instruction of hydrogeology. He and Christine are proud grandparents, with their grandson living only four blocks away (perhaps too close, John).

J. Mark Erickson (MS’68, PhD’71) is "again" chair of the Geology Department at St. Lawrence University. Mark brought two students with him to study Upper Cretaceous strata in SW North Dakota this summer. (Mark and John Tinker both came together from Tufts, some of you may recall.)

Frank Schulte (BS’65, MS’71, PhD’72) is now Liaison Officer for Academics for Exxon. Not sure the title is correct or exactly what that entails, Frank, but it sounds impressive! He is trying to expand areas of research of interest to academic institutions and to Exxon. Frank and Cindy’s daughters are at Notre Dame and Princeton (Chem. Engr. and Environmental Engr., respectively). Cindy continues to work for Atwood Oceanic. Frank reports that Bill Bickley (MS’70, PhD’72) is now in Exxon’s Americas Business Unit. Ladd Hagemier (MS’67, PhD’71), also with Exxon, is in the Russia Regional group. Thanks for keeping us current, Frank.

Roger J. Reed (BS’59, MS’67, PhD’72) is on Sabbatical Leave from Southwest State University (MN) and teaching geology and astronomy (in English!) at Akita, Japan. Karen is accompanying Rog, having obtained a leave of absence from the Marshall, MN school system. Expensive place to go, Rog! Enjoy your adventure!

Tim Giles (BS’72) (see Hollarn) has been very successful in his search for water supplies, defining lineaments on remotely-sensed imagery (satellites and planes).

Mary Scott (MS’72) has helped combine six libraries on the Ohio State University campus into a new Science and Engineering Library building where she is head of technical series. Abigail is in second grade.

Frank Caramanica (PhD’73) continues as a porosity and permeability interpretation specialist with ResTech in Houston. He and Judy stopped by on a vacation trip to inspect their recently-acquired property near Lengby, MN.

Fred Wosick (BS’74, MS’77) still lives in Bismarck where he was recently promoted to Assistant Vice President of Operations and Acquisition for Fidelity Oil. Fred has also been a faithful member of the Department’s Advisory Committee. Congratulations, Fred!

Gail R. Bergan (BS Geol’79) went on to earn her MS degree at the University of Texas at Arlington (’87) and then joined Reservoirs, Inc. where she was Staff Geologist. She has now formed her own company, The Write Enterprise, in which she specializes in technical writing and editing of geoscience documents. Interesting decision, Gail. Good luck. (Alums who might use her services should contact her!)
Palmer Bailey (BS Geo '70, BSEG '80, MS '80) is thoroughly enjoying his new position as Commander of the U.S. Army Cold Regions Research and Engineering Laboratories, in New Hampshire. Palmer stopped by to participate as a member of the Department Advisory Committee earlier this Spring. He was on the way back from Prudhoe Bay and other stops to check on CRREL projects. I don’t know if he worked on the Bering Glacier again this summer (it has been surging), but he was planning to work with one of his scientists on another project in Alaska. He is very busy. He and Bonnie and their two daughters are delighted with their home in nearby Vermont.

James Van Alstine (MS '74, PhD '80) reports that he finally incorporated his hydrogeological consulting company. That, and his teaching and administrative work at Univ. Minnesota-Morris, keeps him busy. It’s strange that many of his clients are along lakes where he goes fishing! He and his son, Jim, Jr. assisted John Reid on Lake Sakakawea this summer.

Gordon Prichard (BS '75, MS '80) stopped by right after Thanksgiving to report that he moved to Colombia in March '92, still working for EXXON’s Intercor. His work there is in the Maracaibo Basin, where about 30 coal seams are being removed from an open-pit mine employing 9000 workers! (including grass-mowers, Gordon informed us.) The moderately high grade bituminous coal is largely shipped to Europe, but some to Miami and some to Japan. Gordon enjoys the area and the work; his Spanish is improving daily, largely because all the TV stations are now only in Spanish. The instability of the country is serious, but has not affected the mine operations, yet. It was good to visit with him.

Kathy Logan (MA '81) continues as Director of the Polk Co. (MN) Environmental Services. Her husband, Greg Turosak, has been promoted as Managing Editor of the Grand Forks Herald. Busy family!

Arne Bakke (BS Geo '82) was a co-author of a paper, "Low-temperature thermal history of the Gilmore Dome area, Fairbanks Mining District, Alaska," in The Canadian Journal of Earth Sciences, vol. 30, 1993. Arne has been working in Alaska since graduating from there several years ago.

Lori Ferguson (MA '84) (See Donations)

Ed Murphy (BS '79, MS '83) was the Editor of the special Alumni News issue that reported on the festivities accompanying the awarding of the first Leonard Medal to Wilson Laird. Reactions from Alumni have been very positive; it’s the first issue that has ever had requests for additional copies! Thanks, Ed.

Fred Kelly (BSEG '84) continued his education at University of Texas at Arlington where he earned his Environmental Engineering degree in 1990. He is Plant Environmental Engineer with 3M in Brownwood, TX. Fred and Jodie (Stiening) have started a household hazardous waste collection program in Brownwood and spend lots of "quality time" camping, hunting, fishing, and canoeing with their children. Jodie worked for a private civil engineering consulting company for six years before starting a family. It was good to have Fred stop by and bring us up to date!
Guido W. Keaveny (BSGE'84) received his MS (Civil Engineering) from the University of Houston last year. He is presently the Office Engineering Manager (Environmental) with USPCI Remedial Services in Spring, Texas. In addition to graduating and beginning a new job last year, Guido married Michelle McAda, with Dan Shide (BSGE'84) also attending. Hope your new home is finished, Guido! Good to hear from you!

Neil R. Korsho (BS'84) is now District Manager for the east district of Pictured Rocks National Lakeshore, near Munising, MI. Neil and Christine have one daughter, Katrina, now five yrs old.

Daniel T. Shide (BSGE'84) is an Environmental Engineer at the Naval Air Weapons Station, Point Mugu, CA. He and Rebecca have one son, Eric, now two yrs old. (See also Keaveny.)

John Hoganson (PhD'85), as the paleontologist for the NDGS, spoke to a packed audience when he lectured on fossils in ND, as did John Bluemle (PhD'71), lecturing in ND landforms. The lectures were part of a series at the ND Heritage Center, in Bismarck.

Mark Bohrer (BS, BSGE'85) is working as a petroleum engineer for the ND Industrial Commission; he is the underground injection supervisor. He and Kimberla have a 4-yr old daughter.

Larry C. Thrasher (MS'85) writes that he is continuing in his roles of District Geologist, paleontologist, and hazardous materials ("hazmat") coordinator for the BLM in Safford, AZ. Sounds impressive, Larry! He and Karen have two sons, 4 and 5 yrs.

Kerry E. Kramlich (BSGE'85) is now in his 5th year with Sundstrand, a manufacturer of API centrifugal pumps and compressors in Arvada, CO. He enjoys the versatility of sales, marketing, and engineering. He and Colleen have a son, six, and a daughter, two. Kerry still takes delight in recalling how Cory Schaun (BS'85) used to fall asleep in Geomorphology (I do, too, Kerry!). He also recalls Guido Keaveny's (see above) "infamous" phrase, "How funny is that?" (I guess you had to have been there!)

John R. Heiser (BSGE'85) stayed at UND for two more years and earned his BS in Civil Engineering. John is presently Project Manager for design and implementation of soil/groundwater/landfill remediation projects in southern California, for McLaren/Hart Environmental Engineering Co., Irvine. John writes that his best memory is of a six-week "field party" in southern Maine with Chad Sanderson (BSGE'85), Tom Sawatzke (BSGE'86), Kim Moe (Sawatzke) (BSGE'85), and Bryan Johnsrud (BS, BSGE'84). Exactly what happened, John? John and Cathy (Heidecker) live in Mission Viejo.

David Kleesattel (MA'85) is now a registered geologist in California where he works for an engineering consulting firm.

Lorena Goerger (BS'87) just completed an MS degree in geology at New Mexico State University at Las Cruces. Congratulations, Lorena! Now what? Keep us informed.
David M. Ronneil (MS'87) is still with Delta Environmental Consultants, St. Paul, where he is Senior Project Manager and Senior Hydrogeologist. He and Colleen have also started a small company focusing on bioremediation of petroleum-contaminated soil, Land Farms, Inc. Dave and Colleen are the proud parents of a son, born one year ago. Busy people!

Nancy A. Perrin (PhD'87) is teaching at Tallahassee Community College. According to Howard Fischer (see News from Former Faculty), her students appreciate her.

Fred Lobdell (MS'84, PhD'88) has left Oshkosh b' Gosh! He has accepted a position as assistant professor of geology at Elizabeth City State University in NC. Paulette will remain in Oshkosh while Fred searches for a house, teaches sed., paleo, and honors 101. Hope it won't be too long, Paulette!

Jeff Maletzke (MS'88) and Penny announced the birth of Nicole, a most "gifted" daughter, now just over 1-yr old! Jeff continues with SEC-Donohue in Sheboygan, WI; Penny continues to teach and coach. Both are enjoying life!

Camille M. Pederson (BSGE'89) is hoping to continue toward a PhD in igneous and metamorphic petrology and is asking if any alumnum working with volcanoes needs an assistant? She says she will "work cheap."

J. Crashell (MS'91) is finally supporting Dee! He is employed with Gartner Lee, Inc., a Canadian-based environmental consulting firm, where he is becoming a Jack-of-all trades, working with seismic, electromagnetic, ground-penetrating radar surveys, drilling, installing, and developing monitoring wells, etc. Dee is working toward her MBA degree, hoping to be a financial analyst/advisor "when she grows up," J says! Good luck to both of you!

Erik Harvey (BS'91) is finishing his master's thesis at Humboldt State on "Pleistocene sediments and fossils at the mouth of Mad River, Humboldt Co., California" and has begun his PhD program at Ohio State University where he is a Graduate Teaching Assistant. Congratulations, Erik!

Reuben Vig (BSMIE'37, MS'63) is retired from his many years as Project Geologist with the U.S. Army Corps of Engineers in Kansas City. He lives in Rapid City. (See Donations)

ACTIVITIES AT THE EERC

Two new additions to the University of North Dakota's Energy and Environmental Research Center are expected to be completed in November. These include a 50,000-square-foot Environmental Research Laboratory Addition and a 7,400-square-foot pilot plant addition. The official dedication of the new facilities is tentatively scheduled for May 1994.

Following on the success of its April 1992 energy and environmental conference in Prague, Czechoslovakia, the EERC is preparing for a second conference in the Czech Republic scheduled for September 1994. The first conference was attended by 300 people from 26 nations and was cosponsored by the Power Research Institute of Prague. The Center's ongoing Eastern European
initiative has attracted several projects involving government, industry, and research partnerships. The EERC is also exploring opportunities in China, Australia, Indonesia, India, Russia, and other countries.

Other activities of the EERC include a project for the Gas Research Institute on mercury contamination of gas industry sites; designation as the National Center of Excellence for Air Toxic Metals; advanced power systems and emissions control research; ethanol research conducted by the Center's National Alternative Fuel Laboratory; waste management programs focusing on disposal and utilization; development of innovative analytical techniques; and training and education activities through workshops, conferences, and symposiums.

Front of EERC Building showing almost ready north addition to right

**EERC Geology Alumni Report**

**Frank Beaver**, EERC associate director, is actively involved in ongoing research projects at the Center that include research on groundwater and mercury contamination for the gas industry; geochemical aspects of wastes from advanced coal systems; waste utilization opportunities; mine land reclamation; and the impact of agricultural chemicals on groundwater. Projects under development include: a wetlands research program; commercialization of environmental remediation technology; direct coal liquefaction; underground coal gasification in the southwest Pacific; and serving as technical director for a September 1994 conference in Prague, the Czech Republic.
David Brekke, research associate, conducts mineralogy microprobe research using the Center's scanning electron microscopes. Projects on which he is working include mineral transformations in gasification systems, fluidized bed combustion chemistry, and studies of buried fly ash. He is also assisting Dr. Frank Karner in teaching a class at UND on clay mineralogy.

Ray Butler is a senior research manager of groundwater, waste management, and National Mine Land Reclamation Center Studies at the EERC. His principal areas of research include geologic and hydrogeologic studies of aquifer systems and water resources in the upper Great Plains, studies of groundwater in mine settings, impacts of agricultural chemicals on groundwater, and contaminant characterization and remediation design for various industry wastes, contaminants, and disposal settings.

Dan Daly, research manager for resources and strategic planning, has been involved with the Center's mercury contamination program with the Gas Research Institute contracts and has written reports on produced water and drilling waste management. He is currently editing a volume entitled "Geology and Utilization of Fort Union Lignites" and serves as editor of the Low Rank Coal Newsletter. He attended meetings of the Groundwater Protection Council in Houston, Denver, and Orlando. He also assisted in writing papers entitled "Team North Dakota: Partnership for Energy Development" and the Greater North Dakota Futures Committee final report on emerging trends.

Kurt Eylands, EERC research associate, is responsible for laboratory management and using analytical equipment for characterization of geological materials. Areas of research in which he is involved include analytical methods and techniques, clay mineralogy, phase transformations of minerals, and coal ash utilization.

John Foster is a research geologist and field engineer at the EERC. As part of the Center's groundwater team, he has been involved in hydrogeologic field testing of solid residues from advanced coal combustion processes, abandoned mine land research, and research on the environmental impacts of agricultural chemicals. He specializes in vadose zone monitoring and microprocessor-based remote site monitoring.

Dean Goebel, a research scientist and hydrologist, has been doing field work under a U.S. Department of Agriculture project studying the effects of agricultural chemicals on groundwater. He will be managing a project now under development involving instrumentation and closure procedures on a landfill in eastern North Dakota. He is also involved in a cooperative effort with the University of Waterloo examining the diffusion of groundwater through Lake Agassiz sediments.

John Harju, EERC geologist, coauthored a topical report with Craig Schmit of the EERC entitled "An Overview of the Subsurface Transport of Constituents Associated with Gas Industry Operations" for an EERC project with the Gas Research Institute. He also coauthored a report with David Charlton of the EERC entitled "Proceeding of the Workshop on Mercury Contamination at Natural Gas Industry Sites." He presented an invited paper at the National Groundwater Sampling Symposium in Washington, DC, entitled "Hydrologic Investigations of Contaminants at Ultra-Trace Concentrations Utilizing Dedicated Sampling Pumps."

19
Gerry Groenewold, EERC director, is focusing his efforts on broadening the Center's international scope and on the commercialization of energy and environmental technologies. He has been working with economic development and venture capital groups to help commercialize technologies developed at the EERC. He was named 1992 North Dakota Business Innovator of the Year by UND's Center for Innovation and Business Development. He also reports that restoration of his 1907 Auburn is complete and that anyone interested in a ride in the car should give him a call.

Kevin Henke is a chemist at the EERC and is involved in research dealing with groundwater contamination issues and the mineralogy, chemistry, and leachability of solid wastes. He has been heavily involved in the Center's mercury contamination program with the Gas Research Institute. In the past year, he has coauthored numerous publications related to mercury contamination of gas industry sites, as well as a report evaluating mercury in lignite coal and energy conversion facility mercury emissions.

Joe Hartman has been teaching invertebrate paleontology in the Department of Geosciences at North Dakota State University. In April, he and other EERC staff presented papers at the North Dakota Academy of Science. In June, he assisted with and chaired the Marshall Lambert Symposium and Field Trip at the Pioneer Trails Museum in Bowman, ND. During the summer, Joe was coprincipal investigator on a project funded by the National Science Foundation in Madagascar. On the way back, he presented a paper during a symposium at the Fourth Congress of the European Society for Evolutionary Biology in Montpelier, France. This fall, Joe will present an invited paper on nonmarine mollusks at a symposium at the annual meeting of the Society of Vertebrate Paleontology in Albuquerque, NM.

Gale Mayer is a research scientist and hydrogeologist in groundwater studies at the EERC. His principal research areas include the impacts of agricultural chemicals on groundwater and the role of biological processes in the degradation of these chemicals. Other research has included waste management, wastewater treatment, and the gasification and combustion of low-rank coals. Last year, he made several presentations on the initial results of his research on the impacts of agricultural chemicals on groundwater quality in North Dakota to organizations which included the American Society of Agricultural Engineers, the North Dakota Non-Point Source Water Quality Task Force, and the North Dakota Water Quality Symposium.

Wesley Peck, EERC research associate, coauthored a paper with Joe Hartman of the EERC and Allen Kihn of Minot State University on the stratigraphy of the Nessan Anticline in northwestern North Dakota and presented the paper at the North Dakota Academy of Science meeting last April. He conducted field studies on the Cretaceous and Tertiary stratigraphy and paleontology in and around Makoshika State Park in southeastern Montana. He is assisting in the development of a
geographic information system (GIS) program at the EERC. He is managing data accumulation on the lignite observations in southcentral North Dakota and integrating the data into database and GIS formats. He is also using computer graphics programs to create various geologic oriented diagrams.

Craig Schmit is a senior research manager at the EERC. Projects in which he has been involved during the past year include the Rocky Mountain underground coal gasification test, groundwater research for the Gas Research Institute, and a sour gas plant remediation program for Canadian oil and gas industry. He represented the EERC at meetings of the Environmental Research Advisory Committee of the Canadian Association of Petroleum Producers.

James Sorensen, a geologist I, has been employed at the EERC since May 1991. He has been conducting field work as part of the Center's project with the Gas Research Institute studying mercury contamination in soils and groundwater. He is currently attending graduate school at UND, pursuing his master's degree in geology.

Ed Steadman manages research projects and coordinates research activities related to inorganic analytical methods development. He is also responsible for preparation and presentation of research publications, reports, and proposals. Areas of research in which he is involved include scanning electron microscopy, biological and petrographic microscopy, x-ray diffraction analysis, x-ray fluorescence analysis, geochemical analysis, materials science and geological sampling techniques.

Chris Zygarlicke is working as a project manager on several research projects that seek solutions to ash deposition problems in utility boilers. He's also heavily involved in research related to toxic metal emissions during coal and waste combustion. He has authored or coauthored peer-reviewed papers published in the Journal for the Institute of Energy, Energy and Fuels, and the Combustion Institute this past year. He also presented a paper at the Engineering Foundation Conference in Birmingham-Solihull, United Kingdom this past June.

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**FORMER FACULTY**

**Wilson M. Laird**  
(1940 to 1969)

Where did you go after you left UND?  
To the position of Director, Office of Oil and Gas, U.S. Department of the Interior.

What did you do over these years?  
From 1969-71 I was Director of the Office of Oil and Gas of the U.S. Department of the Interior, with a staff of approximately 50 people. The Director serves as staff advisor to the Secretary of Interior in oil and gas matters.
From 1971-1978 I was Director of the Exploration Affairs Department of the American Petroleum Institute. My duties included implementing programs of the General Committee of Exploration Affairs, in particular efforts to open the Northeast Gulf of Mexico and the Atlantic Coast to offshore exploration, but also including supervision of data collection for environmental impact studies for the Atlantic and Gulf coasts, supervision of Atlantic Coast onshore impact studies, and study of interface of petroleum and fishery industry operations.


What is Margaret doing?
Margaret is active in the duplicate bridge circles here in Kerrville. She has been winning places or whatever in this game.

What about your children?
Doug is a salesman for an equipment company in Des Moines. David is with 3M in Washington. Donald is Executive Vice President of the Columbia, Missouri Chamber of Commerce. Dorothy is a special education teacher in Sabeka, Verndale and New York Mills, Minnesota.

What anecdote/recollection can you share about your time at UND?
I have many which I am writing for my memoirs. I enjoyed teaching especially when the World War II veterans came back.

Anything else you care to add?
My oldest grandson, Michael (Doug’s son), just got married. He is a grad student in microbiology at Arizona State. Dorothy’s oldest is starting as a freshman at Drake University this fall.

Gordon L. Bell
(1953 to 1957)

Where did you go after you left UND?
I received a good offer from the North Dakota Department of Transportation to help with the construction of Interstate Highways 94 and 29.

What did you do over these years?
I also taught evening classes at BJC (Bismarck State College). I retired from the Highway in 1977 with a real good camera from the employees. I continue to enjoy the camera and visit with the Highway people, especially on Awards Day.

What are you doing now?
After the Highway I have enjoyed consulting work in Geology and Geophysics. This includes many of our Western States and a project in the jungles of Guam three years ago. There certainly is a lot of water on Mother Earth. The work also included Geophysical logging of coal in Montana and Wyoming with a computerized logging truck unit. Our son, John operated the equipment. I was his assistant. Other work includes foundation problems and piping (underground erosion) since the rains. I have a U.S. Patent on "Unified Monitoring System for Hazardous and Toxic Waste." This indicates my interest in waste disposal. This is an
extensive field for geology and geophysics, and biology. I enjoy writing reports on these various subjects, and one given in Kentucky was reprinted in Australia.

**What is Beth doing?**
Beth continues to be my beautiful partner and invaluable helper. She makes my reports possible, starting with my Ph.D. thesis in 1951. Beth has worked for North Dakota Department of Public Instruction for about 28 years.

**What about your children?**
Evan is an architect in South Dakota. The twins, John and Joel, born in Grand Forks, are also good healthy young men. They helped me in geophysics for years. Joel is at home, and John is trying new fields.

**What anecdote/recollection can you share about your time at UND?**
I enjoyed teaching at UND and recall "Geology Appreciation Day," sponsored by my class of 325 in General Geology. Those wonderful students included lots of talent, dancers, singers, and skits. Boyd Christensen was a member of that class with all of his happy wit.

**Anything else you care to add?**
I also have pleasant memories of my membership on the salary and scholarship committees. We also obtained silver for the Chester Fritz Library and diamonds for the Homecoming Queen’s Crown.

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**F.D. Holland, Jr.**
(September 1954 to May 1989)

**Where did you go after you left UND?**
Mardi and I retired in Grand Forks

**What did you do over these years?**
Professor Emeritus.

**What are you doing now?**
This spring I presented a paper on UND’s *Triceratops* at the Marshall Lambert Symposium in Bowman, collected shark teeth from the Fox Hills Fm. in North Dakota. In July, I worked on a genus of Upper Devonian brachiopods with Paul Sartenaer of the Royal Museum in Brussels, and travelled with Mardi in our 5th wheel RV to the Paleontological Research Institution meeting in Ithaca. I have developed a database for "Fossil on World Postage Stamps" and am collecting them. **Mark Erickson (MS’68, PhD’71)** and I have nearly 90% of the more than 800 postage stamps illustrating fossils.

**What is Mardi doing?**
Mardi "camps" with me in our 5th wheel RV and continues to cook "too-good" meals. She is also President of the Board of Directors of the GF Home-Delivered Meals project and helps her mother who lives alone in her own home some three blocks from us.
What about your children?
Del continues as science teacher in the public alternative school in Iowa City where he was named "Iowa Alternative School Teacher of the Year" a few years ago. He is adoptive father of 4 children (3 biracial).

Erik received his MA in public history (museum interpretation) from the U. of Wisconsin, Milwaukee in May '93 after working for the State and US as interpreter in the Knife River area of ND. He and Susan live in Williamsburg, VA as he has taken a job as historian at the Jamestown Settlement, near there.

What anecdote/recollection can you share about your time at UND?
I muse, a good bit, how things might have been different if Mr. An had elected to take up paleontology.

Anything else you care to add?
Good students and top-notch assistants in a fun profession (paleontology and geology) made for a good life that still keeps me busy.

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Walter L. Moore
(1960 to 1981)
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Where did you go after you left UND?
I went to Houston, TX to work for Conoco which soon thereafter became the energy division of Dupont.

What did you do over these years?
I have travelled considerably but am at home in Houston. I have had variable responsibilities in geology - geophysics, first in teaching, then in exploration in the Gulf Coast area.

What are you doing now?
I retired from industry on January 1, 1989, but am still engaged in some geology via field trips, meetings and travel. I'm pretty much at home where house and yard maintenance coupled with some photography and small wood working projects, keep me busy.

What is Al doing?
Al's specialty is the garden which in Houston is an ongoing battle with heat, humidity, insects, slugs, snails, moths, fungi, bacteria, and alternations of drought and flooding, punctuated by occasional hurricanes. In odd moments, she sews for the grandchildren.

What about your children?
Jeff is in computer management with a heart valve company in Minneapolis. Liz is a med-tech with Colorado State University at Ft. Collins, Colorado. She is married with two daughters. Kate is teaching computer graphics, out of Denver, for a company under contract to U.S. West. She is getting married in the late fall.
What anecdote/recollection can you share about your time at UND?
On one of the field trips where Dave Johnson and I were co-leaders, he and I were
tagged with the monikers Bwana One and Bwana Two. Both of us were ex-marines and
we had several navy vets in the student group. We'd stopped somewhere in South
Dakota for the night and the students wanted to go to town. "OK, but we're
leaving at six in the morning." One of the ex-swabs piped up, "That's the little
hand down and the big hand up, if any marines are present." That war isn't over
yet.

Anything else you care to add?
Tell that whole motley group of ex's that I'm proud of them. They have enjoyed
considerable success as professionals, but best of all as people.

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Alan M. Cvancara
(1963 to 1991)

Where did you go after you left UND?
Moved to Casper, Wyoming.

What are you doing now?
Trying to regain my former health, and writing a novel.

What is Ella doing?
Ella is maintaining the household, and oil painting -- Wyoming mountains instead
of North Dakota plains.

What about your children?
Mark is completing requirements for a degree in aeronautical studies. Julie is
in the second year of her nursing program.

What anecdote/recollection can you share about your time at UND?
The time when a geology graduate student, during Dr. Walt Moore's tenure, showed
his bare bottom to Dr. Moore and students during an unscheduled swimming stop at
Lake Sakakawea while on a fall field trip. Dr. Moore said, "Now we've seen your
best part!"

Anything else you care to add?
Publications:

Formation (Paleocene) in North and South Dakota. Journal of Vertebrate
Lee Clayton  
(1965 to 1980)

Where did you go after you left UND?  Wisconsin Geological Survey
What did you do over these years?  Pleistocene Geology
What are you doing now?  Pleistocene Geology
What is Barbara doing?  Barbara is teaching at the University of Wisconsin in the Theater Department.
What about your children?  Annie is 8.

Art Jacob  
(1969 to 1975)

Where did you go after you left UND?  
To the U.S.G.S. Uranium Branch

What did you do over these years? 
From 1976-1992, I was involved in petroleum and uranium exploration in the Rocky Mountains, Gulf Coast, and the mid-continent.

What are you doing now? 
Environmental software sales, and consulting work in petroleum exploration in the Rockies.

What is Aicha doing?  Music and family

What about your children?  
We have 10 children; the youngest is in kindergarten, and the oldest two are working.  One son is in school at the Art Institute of Chicago with several awards.

What anecdote/recolleciton can you share about your time at UND?  
Lee Clayton's (BS'60, MS'62) arm-waving diagrams of the North Dakota Pleistocene.
Odin D. Christensen
(Fall 1975 - Spring 1978)

Where did you go after you left UND?
From UND, I went to the University of Utah Research Institute in Salt Lake City. In 1981, I joined Newmont Exploration Limited in Reno. I have been with various Newmont Mining Corp subsidiary companies in several locations since then.

What did you do over these years?
With Newmont, I have been involved in mineral exploration and gold mining in various capacities. The majority of the time was in Elko, Nevada with Newmont Gold Company as VP Exploration, responsible for an exploration group and production from 5 mines, the largest gold mining complex in North America.

What are you doing now?
I am currently Chief Geologist for Newmont Mining Corporation with responsibility for technical oversight of Newmont’s worldwide geologic problems. Recent assignments have included Indonesia, Ecuador, People’s Republic of China and Canada as well as domestic programs.

What anecdote/recollection can you share about your time at UND?
I recall icy winters and Red River floods. Among my cherished awards is the Grotkin Award, presented to me by department students for some totally botched arrangements on a spring field trip (in horrible weather) to New Mexico.

Anything else you care to add?
Although it has been 15 years since I left UND, I hold fond memories for a state with some of the finest people I have had the pleasure of meeting and a Geology Department with an uncommon dedication to its students.

For pleasure, I participate in 3 to 4 ultramarathon runs (100 miles on mountain trails) every year. A year ago, I got my private pilot certificate and now view the spectacular geology exposed in the western mountains from the air.

I live in Aurora Colorado with my wife, Phyllis, and daughters, Cathryn, 15 and Cristin, 12.

Don L. Halvorson
(1977 to 1988)

Where did you go after you left UND?
We spent two years in Crosby, North Dakota, where we have relatives, and where we owned and operated a jewelry store and gift shop. Then we moved to northern Arizona.
What did you do over these years?
Participated in a scientific expedition organized and directed by Dr. Lee Gerhard and other members of the Kansas Geological Survey to re-photograph R.C. Moore's 1923 expedition through the Grand Canyon. The tour, photographed in part by NOVA, observed effects of dam discharge along the Colorado River. Our 17-member team included Mike Hayden, Assistant Secretary, Dept. of the Interior; Sen. Frank Gaines of Kansas; Don Schnacke, a direct descendant of John Wesley Powell; and former UND colleagues Dr. Lee and Darcy Gerhard and Dr. Tim and Maggie Cross.

What are you doing now?
I am teaching Physical and Historical Geology and Lithology at Northland Pioneer College, and also Geology of Arizona and Environmental Geology for Northern Arizona University.

What is Dawn doing?
Working as an office and research assistant for a clinical nurse specialist, and teaching in an ASU/NPC program for enhancement of basic English and mathematical skills among Native American adults.

What about your children?
Chris - Ph.D in physics, Univ. of Colorado; employed by National Center for Atmospheric Research in Boulder. Wife - Cindy; 2 daughters - Lydia and Alisa.
John - B.A. in history, Univ. of Minnesota; employed in Minneapolis. Wife - Kimber; daughter - Amanda; son - Donny.
Jim - employed by Rainbow Foods in Minneapolis; fiancee - Sheila; contemplating engineering.

What anecdote/recolletion can you share about your time at UND?
Our most enduring recollections are of the many good friends in the Department, the Survey, and the Grand Forks community.

Anything else you care to add?
Our warm greetings!

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Lee Gerhard
(1978-1981)

Where did you go after you left UND?
1981-1982: Exploration Manager, Rocky Mountain division, Supron Energy Corp., Denver, CO, and later, Exploration Manager, Rocky Mountain Division, Union Texas Petroleum, after the first big industry buy-out.

What did you do over these years?
Threatened with a promotion/transfer to Houston, I then became Professor of Petroleum Geology and then Getty Professor of Geological Engineering at the Colorado School of Mines. At the same time I opened a consulting and exploration office, Gerhard and Associates, and worked with Dave Fischer (MS'80) and Erling Brostuen (PhB'65) quite a bit. A few years later, I accepted the position as Director and State Geologist, at the Kansas Geological Survey. I have established a new longevity record there, now being in my seventh year, albeit
on sabbatical. It's a different kind of survey than the old NDGS, being entirely research-oriented, and encouraged to be international as well as state-wide in scope. We are somewhat larger than the NDGS also, with about 180 total staff, including students and contract staff.

What are you doing now?
Right now I'm on sabbatical leave, as I mentioned, to test the hypothesis Randy Burke (PhD'89) and I have advanced about the architectural styles and evolution of reefs, especially how this architecture affects porosity development.

What is Darcy doing?
Darcy is in real estate sales now, here in Lawrence, with the Gill Agency.

What about your children?
Tracy graduated from KU this May with a degree in psychology, and is planning on graduate school shortly. She is working in retail sales, serving as a volunteer counselor at a local crisis management center, and continuing with part-time research experience studies.

What anecdote/recollection can you share about your time at UND?
Most of my anecdotes revolve around the survey, and also around Sid Anderson (PhD'51). There was the hunting trip with Sid and Bud where the sleeping bags froze to the wall of the trailer, the serape broke, rather than ripped, in the jeep, and the deer took a week to thaw out enough to cut and wrap for "freezing". Bud provided coffee and Scotch while I cut and Sid wrapped.

Anything else you care to add?
Mostly, I remember fondly the big events. Bruno Hanson (BS'51) getting the Sioux Award, and becoming a friend. The dedication of the Wilson M. Laird Core Library. Maxie Anderson's slide show of his transatlantic balloon voyage. The big winter of 1978-79. The big flood of 1979. Darcy's two car wrecks in four days.

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Howard Fischer
(1982 to 1988)

Where did you go after you left UND?
Since I left UND, I have been living in Florida. The first year after my departure, I was in St. Petersburg where I taught Earth Science at both St. Petersburg Jr. College and Hernando J.C.

What did you do over these years?
The following year, I accepted a position as a Professor of Geology and Oceanography at Tallahassee Community College and moved to Tallahassee, Florida. I am now tenured at that position and plan to remain here for a long time. Tallahassee is a bit of the old south and is more like southern Georgia than the tourist-rich southern part of Florida. We have a new home in a beautiful wooded suburb north of the city and greatly enjoy the easy going lifestyle. It is only two hours to some of the most beautiful beaches I've ever seen. We routinely take our classes on field trips to the beach on the weekends. My teaching
responsibilities now include Earth Science, Environmental Geology, Physical and Historical Geology and Oceanography. Our teaching load is usually three classes per semester and labs if applicable.

What is Andrea doing?
Andrea is in her second year of a successful re-opening of her retail business. Munchkin Manor has been redone as the Resale Stork and she is enjoying a well-earned success and reputation as a fine place to purchase recycled children's and maternity clothing.

What about your children?
Lance has been a weather observer in the Air Force since 1989 and has been stationed in New Hampshire, Tampa, Korea and now Las Vegas. We are very proud of him and expect that he will stay with the Air Force for at least four more years. We just returned from a two week car trip to visit him in Vegas, and of course took every opportunity we could to see and photograph as much geology as possible. Colette is living in Tallahassee and runs a day care business in her home. On July 23, she had a beautiful baby daughter, Khari Alexis. That makes Andi and me grandparents (gulp!).

Anything else you care to add?
Two years ago we hired another UND alum at TCC. Nancy Perrin (Ph.D 1987) is on our faculty now and teaches geology and earth science to excellent student reviews.

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Patricia Videtic
(1988 to 1992)

Where did you go after you left UND?
Grand Valley State University, Allendale, MI

What are you doing now?
I am now at a purely undergraduate department with six faculty and about 90 majors, including earth science majors bound for K-12 teaching. My primary job is teaching, but there is a push to get undergrads more involved in research, so I have been working on that too. I am a councilor for the "Council on Undergraduate Research" (want to join, see me!), and this summer I have been working with a student on dolomite in gypsum mines in the area. So far, I'm keeping (very) busy and having a great time.

Anything else you care to add?
Congrats to Bud Holland on his receiving the Leonard Medal!

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FACULTY NEWS

Min Chu can't understand where the summer went; Min is still waiting for hot weather! Perhaps all his travels had something to do with it. Min travelled more than 20,000 miles this summer to Japan, where he presented a paper on "Underground supercritical water oxidation-an alternative to incineration." The
process is innovative and especially relevant to Japan and Taiwan, where land is so scarce.

This semester Min is teaching Engineering Economics for the first time...very different from his usual petroleum courses. He says the key to success is to dress up and act like a businessman! (Min's and Toni's son, Mark, is a high school senior this year!)

Nels Forsman is now into skydiving! He will have completed well over 100 jumps by the time this Newsletter reaches you. Because he is so tall (large surface area) he has to wear a 12-lb weight whenever he jumps with a team (to keep up with them!). When he is not jumping out of planes Nels is busy at a variety of activities. He team-taught Intro. to Geology with John Reid at Turtle Mountain Community College in Belcourt this summer, submitted a proposal to NSF on ancient tuff-bentonite associations in North Dakota, and he has published the results of COGEOMAP research with Ed Murphy (BS'79, MS'83) and John Hogansson (PhD'85). Nels will present a poster at the GSA, with Ed and John, on the Cretaceous/Tertiary boundary in south-central North Dakota.

For the first year in a long time, Nels is only peripherally involved with Integrated Studies. He is currently teaching Geology for Engineers, and a Geol. Problems course on the Geology of Natural Resources.

Phil Gerla has been busy this past year, directing several theses, teaching several hydrogeology courses, and serving on several committees. He helped Jon Folkedahl (MS student) instrument a site along the Turtle River to determine the hydrological and geochemical impacts of a free-flowing well completed in Lower Cretaceous sands. Then, early this summer he and Ron Matheney completed a report to the ND Water Resources Research Institute on the Lunby and Stewart wetland, 15 mi northwest of Grand Forks. Phil is working to improve a groundwater flow model for that area and expecting at least one paper to be published on it. He and Mike Strobel (PhD student) presented papers before his largest audience ever (over 600) at the Prairie Ecosystems: Wetland Ecology, Management and Restoration Symposium in Jamestown in August.

Besides all this, Phil has had time to enjoy his "vacation" property along the Turtle River west of town, to be scoutmaster for a troop, to be active in his church, and to deliver David Roderick (when Janet couldn't make it to the hospital in time!). (Just call him "Doc").

Will Gosnold: The major happenings for this year have been in research. I have three exciting projects in progress, two of which are funded by the U.S. Dept. of Energy. An unfunded project is an analysis of a large heat flow anomaly in South Dakota, and I am giving a poster on it at the GSA meeting in Boston. Paul Todhunter (Geography) and I have just begun a three-year paleoclimate project that covers the midcontinent of North America from near Brandon, MB to south of Sherman, TX (see separate article). The third project involves use of the UND Cray XMP to analyze heat flow and ground water flow at an underground coal gasification site near Hanna, Wyoming. I hope that at least three students will get theses from these projects.
In addition to these three exciting research projects, I've made aerobic physical activities a regular part of my daily routine. I swim one hour each day instead of eating lunch! UND has a great Masters Swimming Program and I work out with other competitive swimmers and triathletes. Also, in the warmer months, I alternate between running and in-line skating in the evenings. That is I run one day and skate the next. During the cold months, cross-country skiing becomes my main passion. Dexter Perkins and I enter a number of ski races in Minnesota and Wisconsin each year and we train by skiing in Lincoln Park or on the Red River.

Annie is in seventh grade and doing very well in her studies. She is a member of Red River Gymnastics and hopes to compete for the Grand Forks School system at the junior-varsity level this Spring. The four cats and two dogs remain alive and fuzzy, in reply to former student inquiries.

Frank Karner: Last year, a developmental leave allowed me the rare freedom to do what I wanted—to think about geology; complete some research; spend some time on travel, home and family; and start in some new directions and revisit some of my old interests. Specifically, I finished a geologic map of Io, coauthored by Wolf Elston, New Mexico, and now in review for USGS publication. I've done some additional work in coal geochemistry with a research group at EERC including Steve Benson, Ed Steadman (MA'85), Chris Zygarlicke (MS'87) and Dave Brekke (MA'79). Part of this was research with one of our graduate students, Lingbu Kong, who was the GSA Antoinette Lierman Student Scholarship Award winner in coal geology for 1992-93.

I did some teaching last year and this summer to develop new directions in Petrology, Seminar, and Introductory Geology. This year Dave Brekke and I are reviving Clay Mineralogy as a graduate course. In general, teaching students in the 90's is a new story. Potential is high but, increasingly, student motivation and effort have to be carefully cultivated. I think our universities need to allocate additional resources to help students develop while just the opposite is occurring as we yield to the demands of raising our own operating funds.

Nevertheless, working with students remains highly rewarding. This summer, as an experiment, I started Geol 101 problem-oriented, student-led, investigative team projects which allow students to examine regional geological resources in order to develop a knowledge base for future planning. We began with five student choices of aspects of water resources: geothermal; wetlands; water quality; recreational use of water; and desalinization. The results were very good with students properly linking geology and resources, learning teamwork, balancing societal needs and environmental concerns, and glimpsing their role as knowledgeable citizens. Quite a few students were highly motivated and productive. I'm continuing this Fall with a larger number of groups, again focusing on water resources.

Rich LeFever is working on three projects at present: Basin Development, with Julie, Statistical Petroleum Resources Assessment, with Tom Heck (MS'79), and Cretaceous Sequence Stratigraphy of the Williston Basin. His statistical expertise is in such great demand that he is on 15 graduate thesis committees! Rich is also the Graduate Advisor for incoming students in the Department.
Julie keeps busy as Director of the Wilson M. Laird Core and Sample Library and as mother of two daughters. Kathryn (10 yrs) is involved in many extracurricular activities (College for Kids, this summer, for example), and Christine (5 yrs) is now in kindergarten. All took their usual trip to California this summer.

Ron Matheney has received a major grant from the National Science Foundation to study mechanisms of oxygen-isotope fractionation in biogenic opal. The goal of this research is to determine whether the oxygen-isotope composition of the sedimented siliceous shells of lacustrine algae can be used to monitor Recent climatic fluctuations on the continents.

The grant enables him to make extensive modifications to the geochemistry laboratory. It is much larger now, as it includes the floorspace of the former sample preparation room. This summer, he nearly completed the construction of a high-vacuum extraction line which will be used to prepare silicate samples for oxygen-isotope analysis by fluorination. John Parry, a new graduate student from Edinboro University of Pennsylvania, joined the lab as a Research Assistant in July.

Ron Matheney and John Parry touching up isotope lab apparatus

Patricia "Tricia" Kelley, who chairs our Department, survived her first year remarkably well. There were no insurrections and she always remained calm, polite, and sensitive to the idiosyncrasies of the faculty! It has been a year of learning how best to "lead" the Department and how to cope with budget reductions. Still, Tricia has found time to teach one full course each semester (Paleontology, and, this semester, Geology 102) (The students speak very highly
of her teaching). She has continued to be involved in her research, having published several papers and abstracts (see Recent Publications) and having written and submitted two more this past summer. Her NSF grant has been transferred to UND, allowing her to support two graduate students studying naticid gastropod predator-prey systems.

Tricia travelled to Washington, DC, to serve on two NSF evaluation panels, to Bellingham, WA, to finish writing a paper with her co-author, Thor Hansen, and to the GSA Annual meeting (Cincinnati), Rolla, MO, Penn State, and Tallahassee, FL, to present papers on her research. She also had time to present several invited talks on campus. She continued with her Paleontological Society activities, including Technical Editor, Journal of Paleontology, and she has been elected to the Executive Committee of the North Dakota Academy of Science.

Tricia, her husband, Jonathan, and children, Timothy and Katherine reside in the church manse in Gilby (shortest commute she has ever had!). We are indeed fortunate to have such a qualified person chair our Department.

**Dex Perkins** effectively completed most of his research projects while in France and so this year he has been busy starting new investigations. In addition, Dex is now Associate Editor for American Mineralogist, and is on the UND Faculty Research Committee.

Dex is still involved with high-grade metamorphic rocks from Saskatchewan, working this summer at the University of Michigan with other specialists in the field. He also was an Instructor again at our consortium field camp in the Black Hills. He reports that our own students were well-prepared and reflected well on the University.

Dex and Betsy are frequent contributors to Letters to the Editor in the Grand Forks Herald. They often say things the rest of us ought to say but don’t get around to it!

**John Reid** turned 60 yrs this past January, but claims he feels only 40! (Memory is the second thing to go!) He continues to teach a full load and is active on University and Departmental committees. For the past six years he has been teaching about the causes, measurements, and analysis of shoreline erosion data for various Federal agencies around the United States. This year it was in the Wind River Basin. He also served as one of three "experts" on a panel to evaluate proposals to mitigate erosion on Flathead Lake, MT, taught beginning geology 101 at the Turtle Mountain Community College (with Nels Forsman), directed a faculty member from Fort Berthold Community College on a paleosol study, worked with Jim Van Alstine (MS’74, PhD’80) to extract cores from the bottom of Lake Sakakawea, and led his fourth field trip to the Columbia Icefields (see separate article).

John’s mother passed away in February and that necessitated a couple of unplanned trips to Boston and disrupted his teaching schedule a bit, but others kindly covered for him. Barbara keeps busy caring for five of the nine grandchildren while their parents are at school or work. Grandchildren are so great we should have them first!
Sundar Saluja: As a result of reading for ROUSE: Reclamation of Our Spiritual Environment, founded last year, I felt that I needed more time to pursue the new interest effectively. Thanks to my phased retirement starting this academic year, I am now able to do this.

During the winter break, I attended the Solar Energy Conference, at Indian Institute of Technology, Delhi; my presidential address to the Indian Science Congress in 1980 on "India's Energy Future: Problems and Prospects," was accepted as the basis for our National Energy Policy and I was invited to re-examine this crucial issue after a decade, through my address to the Congress in Jan., 1991.

ROUSE arranged the following panel discussions: 1) Values, Technology and Society, to explore steps that may be taken at different levels starting with the individual "to reclaim the essential values with as much enthusiasm as we are reclaims the physical environment." 2) Health Care, to explore impact of the Inner Environment of the Human Mind on the Body, also the impact of consequent changes in Human Behavior (e.g., Self-Control vs. Self-Indulgence, Compassion vs. Ruthlessness, Conservation vs. Consumption) on the health of the individual and of society, and on the cost of maintenance thereof. 3) Health of Society, to explore the impact of the quality of the Environment of the Human Mind on the Health and Behavior of Individuals; also the impact of consequent changes on the health of the Individual and of Society, and on the cost of maintenance thereof.

I also participated in the following over the summer: The United States Institute of Peace Conference on Teaching, Washington, DC; Summer Conference on Theology and the Church, "Science, Technology, and the Christian Faith," Concordia College, Moorhead, MN; Council of Parliament on World Religions and the Templeton Foundation Seminar on Science and Religion, Chicago.

This gave me an opportunity to listen to and interact with knowledgeable persons and practitioners from different religions; I feel enriched and plan to start writing in this controversial area after I get over the intimidation which I have, with a view to serve humanity.

**PAEOLCLIMATE STUDY FUNDED**

**Will Gosnold** has received notification that his paleoclimate proposal will be funded at about $120,000 a year for the next three years! The project, with Paul Todhunter of the Geography Department, is "Climate Change in the Midcontinent of North America," and will be funded by the U.S. Department of Energy through their National Institute for Global Environmental Change (NIGEC).

The project is to investigate the climate history of the midcontinent of North America for the past 200 years. The project involves drilling six 150 - 250 meter (500 - 800 ft) heat flow holes, in Manitoba, North Dakota, South Dakota, Nebraska, Kansas and Texas. Each of these holes will be cased, grouted and filled with water for heat flow measurements. However, the principal use for the holes will be to record the geothermal gradient. Scientists have learned that the geothermal gradient contains a decipherable record of the ground surface temperature (GST) that extends for up to 10,000 yr BP. Warming since the Wisconsinan glaciation is recognizable in the geothermal gradient in most
boreholes deeper than 1 km. The temperature of the ground at the surface is largely controlled by the air temperature, and changes in the GST indicate changes in climate. To date all of our work has involved reevaluating our existing data from holes drilled for other purposes. This project is the first one in which we will actually drill holes to study climate change.

We have special requirements for each of the holes. First, we must find sites that have had the same type of land use for a long time, preferably grassland for the past 50 years. There is some concern that the type of land use affects the GST and that what is being recorded is merely the change in absorption of solar radiation. Interestingly, initial investigations of land-use changes in North Dakota suggest that it doesn’t matter.

The second concern is the possibility of vertical ground water flow. Thus, our target is the Pierre Shale everywhere except Texas where it will be the Eagle Ford Shale. We will drill in shales because they tend to be relatively impermeable rocks that normally don’t allow ground water flow at velocities that would affect the subsurface temperature. However, we are conducting parallel investigations to ensure that our sites are free from thermal disturbances by ground water.

The final concern is the microclimate of the site. Different microclimates exist around roads, trees, bodies of water, buildings, abrupt changes in terrain and abrupt changes in land use. We require sites that are at least 1/8 mile and preferably 1/4 mile from any of these features.

We will install solar-powered weather stations at each site for at least three years. The stations will not only record the weather conditions at each site but also will record temperatures in the upper sections of the heat flow holes. The data will allow us to correlate ground surface temperature changes with air temperature changes at the same site and will allow us to determine how accurately the geothermal gradient records the air temperature. We also will correlate the bore-hole weather station data with data from nearby National Weather Service stations. This information is especially important for future analysis of geothermal gradient data from old holes.

The project will involve a number of students and we hope it will produce several Master’s theses. Interestingly, a number of possible thesis topics not directly connected with this project have already surfaced as a result of interaction with geologists at Energy and Mines, Manitoba. The first is the supposed impact structure at Lake St. Martin. It has not yet been carefully mapped. The area within the structure contains several interesting features. Thick gypsum deposits in the impact area show thrust faults and folds. No one has yet explained their origin. There is a coarse conglomerate within the crater that contains fragments of granite, basalt, metamorphic rocks, dolomite, limestone, sandstone and is cemented by gypsum. Its place in the area is unstudied. Finally, the hole we logged north of Grand Rapids is essentially isothermal. The temperature increased by less than 0.3°C in 143 meters. I believe it indicates downward ground water flow in the area. One of the geologists in Manitoba also theorizes that ground water flow in the Interlake region is downward and eastward. Temperature measurements could provide critical data to test his theory.
RECENT DEPARTMENT PUBLICATIONS


Kelley, P.H. (1992b) So, what kind of paleo is NSF funding these days?: American Paleontologist 1(1):6-8.


**CONSORTIUM FIELD CAMP 1993**

Field camp is one of the requirements for many of our majors. Until recently, students were left to find a camp for themselves. There were lots of choices and confusion. In order to make things easier and more uniform, and to
ensure a high quality experience, we have now joined a consortium of schools that operates a field camp in the Black Hills. With a few exceptions, we now require all our students enrolled in the B.S. in Geology and the B.S. Geological Engineering programs to attend field camp at Ranch A, in Beulah, Wyoming. (The camp is one of the least expensive in the country.)

Situated on the headwaters of Sand Creek in the northwestern Black Hills, the Ranch A Educational Center is a huge lodge that was built as a retreat in the early 1930's by eastern publisher Moses Annenberg. Early in its history, the ranch was used as a party destination for Chicago gangsters. In the mid 1980's, the School of Mines and Technology in Rapid City acquired management of the facility from the U.S. Fish and Wildlife Service. A consortium of Geology and Geological Engineering departments from several universities and colleges operate the Black Hills natural Sciences Field Station and Ranch A as a educational facility. The spacious lodge and grounds are used also for educational courses and camps, conferences, seminars, etc.

This year there were two sessions of geology field camp at Ranch A--one early in spring and one in the middle of summer. Special sections, that emphasize applied science, were offered for engineers. The courses lasted 5 weeks, which was long enough to exhaust students and faculty. Major projects included mapping in both sedimentary and metamorphic terranes, and stratigraphic correlations.

The future of Ranch A and the geology field camp is under discussion at the present time. Maintaining the camp is expensive and costs may eventually become prohibitive. Meantime, our students are experiencing an outstanding field program. Dexter Perkins was an instructor there again this summer.

Students confused about how to use a Brunton compass on the first day of field camp.
SPRING FIELD TRIP
1993

(Back to front; left to right) Paul Brown, Brent Stafford, Mark McDonald, Michelle Rolland, Jon Ellingson, Sue Carlson, Leon Vetter, Bobby Holder, Christie Ellingson, Will Gosnold, Todd Holweger at Santa Elena Canyon, TX (March 17, 1993)

Blooming cactus, mysterious caverns, drifting dunes, Mexican burros, "just over the next hill" fossils, winding canyons, a dip in the Rio Grande and an awesome suntan...what more could a North Dakota Geology student wish for on Spring Break? Students and faculty found it all on our field trip to the Desert Southwest.

Our journey began early in the spring semester. Michelle Rolland and Sue Carlson, President and Vice President of the Association of Undergraduate Geologists (AUG), worked out the details of the trip, then, AUG held several fund raisers, ranging from selling "Grandma Helen's Cookies" to raffling off a Valentine dinner at Sanders restaurant. The group also received vital financial support from the Department, Alumni, Sigma Gamma Epsilon, AUG and the Student Activities Council.

In preparation for the trip, we all worked together to create our own comprehensive and entertaining field guide. We became "mini-experts" in the geology of the various areas we would be visiting. It was a very rewarding experience not only to teach, but to learn from fellow students.

Saturday, March 13, was the big day. We departed the Minneapolis airport and began our nine day adventure in the Southwest. During our Albuquerque layover, we toured the New Mexico Museum of Natural History. The next day was filled with
travel and a frolic in the dunes of White Sands National Monument. Monday we enjoyed the splendor and mystery of Carlsbad Caverns, viewing everything from stalactites and columns, to flowstone and cave pearls. We visited the Guadalupe Mountains and spent the night in the backyard of the very gracious Alpine, Texas, police department! On Tuesday we reached our main destination, Big Bend National Park, Texas. We quickly became accustomed to the ever-popular question: "Nort’ Dakota...you done drived all ‘dat way?"

While in Big Bend, we experienced many adventures, including a hike to the top of Lost Mine Peak (we never did find the mine!), and through the basin area to the popular "Window." We explored Boquillas Canyon and Santa Elena Canyon, both carved by the Rio Grande, discovering faults, joints, fossils, fluted limestone and wild pigs! We enjoyed a moonlight soak in the hot springs as well as a unique leaky boat, and a two mile-long burro ride into Boquillas, Mexico. One of the highlights of the trip was a tour of the spectacular weathered features of the Glen Springs laccolith given by our fearless leader, Will Gosnold.

After nine days of exploring the Southwest, 12 very tired, content and sunburned geologists returned to the "Great White North." The group spent several days sharing stories of the wild adventures, beautiful scenery and fantastic geology to other students and faculty...generating interest and excitement for the much anticipated 1994 Spring Break field trip!

- Michele DeWeese

1993 COLUMBIA ICEFIELDS TRIP

Cal Taylor and Tim Gerlach on Wapta Icefield, Alberta (8/19/93)
The fourth UND expedition to the Canadian Rockies and Columbia Icefields of Alberta and British Columbia departed August 14, with John Reid in the lead of six graduate students and a stray telecommunications specialist. A day and a half later, we had our first view of the Canadian Rockies at the entrance to Jasper National Park, where the Athabasca River carves a natural gateway through the folded and faulted Paleozoic carbonates.

The first days of the trip yielded many memorable moments, including wapiti wandering through our campsite at Whistler Campground, our dodging tourist busses at Athabasca Falls, the first hike on the ice at the Athabasca Glacier, and drinking from supraglacial meltwater streams. We discovered the coolness of katabatic winds on the glacier surface, how painfully cold it is to ford a meltwater stream barefooted, and how each glacier has its own distinctive features. During our stay at Wilcox Campground, our cooks had the opportunity to experiment with some new recipes, all the while evaluating the capacity of glacial ice to cool the evening cocktail. Somewhat by accident, they invented the soon to be famous "Wyler's Athabasca lemon chicken" (eat your heart out Julia Child, it's probably better than the chicken was).

The long hike to the Saskatchewan Glacier, 2 days later, proved its worth, with excellent examples of bedrock potholes, glacial fluting and collapse terrane. The audible crashing of boulders and cobbles in the outwash stream gave testament to the origin of the glacier's extensive cobbled outwash plain.

The literal and figurative high point of the trip was an overnight hike to Bow Hut, a mountaineering hut at the edge of the Wapta Ice Field. Several of the group hiked up the ice field to an elevation of about 9000 feet where they were able to view the Bow Glacier from high above.

On our last full day in the Rockies, we first paid tribute to the Burgess Shale, then stopped at Lake Louise where we hiked to the Plain of Six Glaciers adjacent to the Victoria Glacier. That evening we hit the streets of Banff, dining out in a saloon named after Banff Park's Wild Bill--Bill Peyto, a self-taught geologist and game warden during the early years of Banff Park.

The next morning, with the Rockies in the rear-view mirror, we headed northeast through the foothills to the Royal Tyrell Museum at Drumheller. Although the Tyrell is known for its excellent dinosaur exhibits, extensive exhibits based on all of the geologic periods are on display, although thankfully, the museum focuses on paleontology.

Nature cooperated with us by positioning a stationary high pressure ridge over the Canadian Rockies, yielding almost perfect weather throughout the trip. The participants declared the trip a complete success, providing us with an superb field experience before we buckled down to the drudgery of the fall semester.

- Tim Kroeger
Cal Taylor, Tim Gerlach, Dick Freyholtz and Tim Kroeger in a moment of silence at Burgess Shale plaque, Yoho Nat. Park, BC (8/20/93)

SEEN AT THE 1992 CINCINNATI GSA MEETING

Lee Clayton
Tim Cross
J. Mark Erickson
Rod Feldmann
Jean Hoff
Bud and Mardi Holland
Frank Karner
Alan Kehew
Patricia Kelley

David Keesattel
Wilson Laird
R. Al Larsen
Mark Lord
Darryl Pederson
Dexter Perkins
Don Schwert (NDSU)
Mary Scott
Mike and Tina Strobel
John Utgaard

LEEPs LECTURERS

The Leading Edge in Earth and Planetary Sciences (LEEPs) Lecture Series is intended to bring outstanding scientists to UND to share their research with students and faculty. The series, began several years ago as the Frontiers of Geoscience (FOG) series, has been an increasingly important part of learning in the Department of Geology and Geological Engineering. Students have the opportunity to visit in the absence of faculty to question the scientists and share their own research problems. Faculty learn new techniques and discoveries, and are often encouraged to pursue new avenues of research.
Funding for this past year’s series was provided by grants from the Office of Research and Program Development ($1000), The Energy and Environmental Research Center (EERC) ($1500), the National Science Foundation EPSCOR/ASEND Program ($1500), and you, the alumni. Some matching funds came from the Department of Geography and the Space Studies Department. One lecturer was funded for travel costs by the Joint Oceanographic Institutes, another by AMOCO. Your part in providing funds to make this program such a success is deeply appreciated.

Sept. 9: Christopher G. Maples, Kansas Geol. Survey
"Planes, trains, automobiles, and donkey carts: Geological field work in the People's Republic of China" and "Carboniferous Lagerstatten: patterns, processes, and speculations."

Oct. 16: James P. Kennett, Univ. California-Santa Barbara (JOIDES)
"Cenozoic climate change: paleoceanography and event stratigraphy" and "Abrupt global warming and extinctions at the Paleocene/Eocene boundary"

Nov. 13: Douglas P. Smith, Vanderbilt University
"Evidence for rapid initiation of blueschist uplift in the geologic history of Cedros Island, Baja California" and Shallow magnetic inclinations in the Cretaceous Valle Group, Baja California: remagnetization, compaction, or terrane translation?"

Dec. 4: Desmond Collins, Royal Ontario Museum
"The challenge of the Burgess Shale" and "Burgess Shale: contingency of classification?"

Feb. 5: Sara S. Folland, Amoco, Denver (AAPG)
"Tectonics of northern offshore California" and "Uses of innovative techniques in mature basin exploration, Arkoma Basin, Oklahoma"

Mar. 12: Stephen S. Porter, Univ. Washington
"The Little Ice Age" and "Paleomonsoons of central China"

"Artist in the space frontier" and "Cratering, collisions, and catastrophism in our Solar system"

Apr. 16: Hugh Hendry, Univ. Saskatchewan
"Gravels on a one-way trip...a comparison of gravelly successions deposited by unidirectional currents on land and in the sea" and "Correlation, sedimentation and tectonic setting of the Martin Group, northern Saskatchewan"
Apr. 23: Talib Syed, Simon Hydro-Search, Denver  
"Overview of subsurface disposal operations and regulatory impacts"

In addition to the LEEPS lectures we also hosted Rod Feldmann (BS'61, MS'63, PhD'67) Oct.23, "The Cretaceous/Tertiary extinction event in Antarctica," and Eric Engbrecht (BS'49), June 29, "Geodynamics- measuring Earth's gravity and recording Earth's tilt...and Creep." We sincerely appreciate having alumni share their expertise with our faculty and students.

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**Necrology**

**John R. Bergstrom** (Faculty 1955-59). It is with regret that we announce the passing of John Bergstrom, June 24, 1988. News of his death from cancer came only this summer.

Dr. Bergstrom came to UND upon receiving his doctorate at the University of Wyoming in 1954. While at UND he taught structural geology, sedimentology, and Geology 101. He is remembered as a jovial, enthusiastic, hard-working colleague, although impulsive at times. Students thought highly of him. His love of the outdoors took him on many canoe trips.

Dr. Bergstrom joined the faculty at University of Wisconsin-Eau Claire in 1964, and was responsible for founding the Department of Geology in 1969, serving as Chairman until 1971. He taught beginning courses as well as environmental geology, oceanography, and plate tectonics. Dr. Bergstrom retired in 1982.

Flags at Eau Claire were flown at half-mast in memory of Dr. Bergstrom. He leaves behind a son, Carl, two daughters, Christine and Nancy, and two grandchildren.

**Stanley P. Fisher** (former faculty and Assistant State Geologist, 1947-53) passed away Dec. 12, 1992 in Costa Rica, at the age of 73. At the time he was professor emeritus at Ohio University, where he had served as department Chairman (1970-75) and then Associate Dean of arts and sciences (1975-80). His research areas included sedimentology, petroleum geology, and engineering geology, but, especially, the petroleum geology and tectonics of the Caribbean and South America. His master's thesis resulted in the publication of NDGS Bulletin 26, The Geology of Emmons County, ND. Our sympathy goes out to his family.

**Kay Morton Baukol** (BSMIE'46). Kay Baukol, a major building contractor in Grand Forks, died June 18, 1993. Among his accomplishments were Swanson Hall (UND), the Central Fire Station on Demers, Ramada Inn, and Hugo’s supermarket on 32nd Ave. South.

Upon graduating from UND, Kay joined the Copper Mining Co., Ducktown, TN and Seagram's, in Indiana. He was involved in the construction business since 1947, first with his brothers, and then with Baukol Builders, Inc. He retired as president in 1989.
Survivors include his wife, Phyllis, daughters, Bonnie Kay, Susan Lee, and Jan Beth, and sons, Philip Anders, and Gaines Mitchell, and ten grandchildren.

Chester F. Royse, Jr. (PhD’67). It is with regret that we announce the passing of Chet Royse, who died of heart disease in Olympia, Washington, in February of 1992. It is reported that he was waiting for a heart transplant.

Geology 101 lab (Note map cabinets in far corner; remember them from Babcock Hall?)

Sign of the times!

Editor: John Reid
ADDRESSES OF ALUMNI AND FRIENDS

Aaker, Robert K. (BS Geol 1949)
Aase, Glenn D. (BSMIE 1941)
Achtitten, Donald B. (BSMIE 1953)
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601 1 Ave East  Williston ND  58801
PO Box 302  Hatton ND  58240
3237 Flora Ave  Billings MT  59102
20492 SE 15th St  Harrah OK  73045
6 Wellesley Way  Greenville SC  29607
RR 1 Box 57  Edinburg ND  58227
6006 S Leyden Englewood CO 80111
Box 88 Swastika ON  FOX 1TO  CANADA
PO Box 672123  Chuqlak AK  99567
4912 29th Ave S  Minneapolis MN  55417
9020 Drumcliffe Lane  Dallas TX  75231
4725 NW 59th Terr Ste 413  Oklahoma City OK  73122
230 Malibu Lewisville TX  75067
1 Dorset Road St Paul MN  55118
2841 Pegasus Dr  Bakersfield CA  93308-6818
113 Paint Brush Trail  Cedar Park TX  78613
5500 Kingston Dr  Midland TX  79705-1715
RR 1 Box 106B  Spring Mills PA  16875
5819 Cambridge Circle #5  Racine WI  53406
413 Erie Ave  Crosby MN  56441
PO Box 511  Thayne WY  83127
502 Bellwood Ave  St Paul MN  55117
SEE SAWATZE
519 Walnut St  Grand Forks ND  58201
No Current Address
3647 E 67th  Anchorage AK  99507
801 Ballantine Road  Golden CO  80401
7334 San Ramon Drive  Houston TX  77083
PO Box 693  Tripoli LIBYA
Ste 1203 1155 Harwood St  Vancouver BC V6E 1S1
CANADA

SEE HARKINS
2123 11th W  Seattle WA  98119
135 Pressley Kellogg ID  83837
502 West Rosser Ave  Bismarck ND  58501
Route 5 Thief River Falls MN  56701
11005 Onondaga Rd  Onondaga MI  49264
4945 Dominick Drive  Hopkins MN  55343
6007 Nahane East NE  Tacoma WA  98422-4258
8223 Bronte Ct Orlando FL  32819 (Temp Away)
634 N Stonewall St  McKenzie TN  38201-1547
2112 St Claire Brentwood MO  63144
MTU Box 272  Fairfield IA  52556
1440 Beaumont Drive NW  Salem OR  97304
9826 Hartman Omaha NE  68134

58
Nesemeier, Bradley D. (MS 1981)
Ness, Carl E. (BSGE 1984)
Ness, Thomas P. (BS Geol 1978)
Nestøval, Jerry E. (BS Geol 1962)
Nesvold, Randy L. (BSGE 1981)
Nielsen, Dennis (MS 1969 PhD 1973)
Nill, Gregory T. (BS 1986)
Noble, E. A. (Ned)
Noone, Patricia L.
Norby, Rodney D. (BS 1967 MS 1971)
Nordhagen, Arlen D. (BS 1978)
Nordness, Harold J. (BSMIE 1954)
Nordstog, James A. (BA 1986)
Nordstog, Paul (BSc 1952)
Noren, Charles H. (BSMIE 1943)
Norstedt, David L. (BS 1984)
Norton, Wesley D. (BSMIE 1960)
Novak, Richard L. (PhB 1959)
Novak, Robert M. (MA 1971)
Nusich, Lee C. (BSGE 1972)
Nye, James D. (PhB 1959)
O'Neill, Stephen E. (PhB 1969)
O'Toole, Frederick S. (BS 1978 MS 1981)
Obelensus, Thomas J. (MS 1985)
Oberst, Robert J. (BSGE 1986)
Okland, Howard D. (MS 1978)
Okland, Linda E. (MA 1978)
Olien, Benjamin N. (BS Geol 1958)
Olson, Beatrice W. (BS 1946)
Olson, Bruce A. (BS 1974)
Olson, Gerald L. (BSGE 1976)
Olson, Lance (BSGE 1982)
Olson, Lee L. (BSGE 1983)
Ongane, Robert J. (BSMIE 1961)
Opp, Albert G. (BS Geol 1953)
Opsal, Claire M. (BSGE 1969)
Orndoff, Wendell R. (BSMIE 1931)
Oros, Margaret O.
Orth, James A. (BS 1970)

Oseles, William M. (BS 1978)
Osen, Lars (BSMIE 1959)
Oster, Courtney B. (BA 1984)
Oty, John W. (BS Geol 1955)
Overmoe, Terrance H. (BS Geol 1956)
Owen, Wallace M. (BSMIE 1958)
Palmer, Hugh
Pappas, Capt. James M. (ExMS 1988)
Parsons, Michael W. (MS 1980)

3721 Maya Dr Gallup NM 87301
1235 Pocatello Dr Bismarck ND 58501
Box 6161 Bismarck ND 58502
1311 Lloyd Kelso WA 98626
2751 Planters View Lane Missouri City TX 77459
1601 Circle Drive Winona MN 55987
Monango ND 58471
11407 Great Meadow Dr Reston VA 22091
3061 Brookview St Anchorage AK 99504-4186
618 Pittsfield Dr Champaign IL 61821-7805
998 E 132nd Ave Denver CO 80241-1120
5316 Whisperwood Drive Birmingham AL 35226
2891 D Warwick Loop #12 Bismarck ND 58504
1711 Iris Lane Billings MT 59101
1049 Woodland Way Hagerstown MD 21740
13545 SW Pommel Court Beaverton OR 97005
238 Saturn Drive Bismarck ND 58501
3437 Blaisdell Avenue S Minneapolis MN 55408
RR 1 Box 1AA Stanley WI 54768-9701
3612 NW 163rd Terr Beaverton OR 97006
3616 31st Ave N Robbinsdale MN 55422
13453 Marble Chantilly VA 22021
189 Pinyon Circle Rangely CO 81648
7915 Charis Thomson Ln #4 Annandale VA 22003
302 Remington Drive Bismarck ND 58501
2702 McKenzie Drive Anchorage AK 99517-1142
2702 McKenzie Drive Anchorage AK 99517-1142
RR 3 Box 141 Mott ND 58646
SEE PISAR
PO Box 635 Walhalla ND 58282-0635
1308 Brookhaven Dr Edmond OK 73034-4820
1224 Main Williston ND 58801
10694 W 85th Pl Arvada Co 80005
5647 York Road Helena MT 59601
1811 Stirrup Lane Alexandria VA 22308
4155 S Skyline Rd Casper WY 82604-9247
6815 Santa Maria Lane Dallas TX 75214
913 Madeline Lane Lawrence KS 66049-2631
PO Box 224 Corner King Lansdowne ON K0E 1L0
CANADA
110 S Festival Dr #A-3 El Paso TX 79912
RR 7 Box 567 Joplin MO 64801
1147 Custer Ave Ogden UT 84404-6553
7323 S Pontiac Way Englewood CO 80112-1625
3103 E Boulder Layton UT 84041
422 W Turnpike Ave Bismarck ND 58501
40-137 Sand Dune Road Rancho Mirage CA 92270
8276 Cedar St Fairchild AFP WA 99011
20030 Century Blvd #201 Germantown MD 20874

59
Sunderland, Gary L. (BS Geol 1971)
Sunnergren, Edwin C. (MST 1968)
Swenson, Karl F. (BSMIE 1956)

Switzer, K. Bruce (BS 1966)

Syvertson, David I. (BSGE 1980 BS 1980)
Tesarowski, Chester S. (BA 1967)
Thomas, Timothy M. (BSGE 1965)
Thompson, Gary G. (BS Geol 1962)
Thompson, Jack C. (PhB 1949 BS Geol 1950)
Thompson, Stephen C. (MS 1984)
Thomte, Dennis L. (BS Geol 1957)
Thrasher, Lawrence C. (MS 1985)
Timm, Elbert C. (BA 1939)
Tinker, John R. (MS 1969 PhD 1970)
Tokach, Kenneth C. (PhB 1965)
Towse, Donald F.
Trapp, John S. (PhB 1967)
Traynor, Patricia (BS 1974)
Traynor, Terrance O. (BS Geol 1977)
Tribott, Robert C. (BS 1980)
Trimble, William C. (BS 1954)
Troftgruben, Eldon M. (PhB 1971)
Truax, Calvin O. (BS Geol 1951)
Tuchida, Edward A. (BS Geol 1957)
Tuthill, Samuel J. (MA 1963 PhD 1969)
Uwomey, Christopher A. (PhB 1971)
Ulmer, James H. (MS 1973)
Uran, Daryl L. (BSGE 1986)
Utgaard, John E. (BS 1958)
Valvik, Jeffrey (MA 1990)
Van Alstine, James B. (MS 1974 PhD 1980)
Van Ornum, Joanne (BS 1971 MS 1979)
Vandergon, David D. (PhB 1969)
Vandersluis, Heidi N. (BSMIE 1960)
Van Nest, Julieann (BS 1983)
Verner, Lanny D. (BS 1978)
Vetter, Leon (BS E&G 1993)
Vickers, Jeffrey P. (BSGE 1978)
Videtich, Patricia
Vig, Reuben J. (BSMIE 1937 MS 1963)

Voight, Harold E. (BSGE 1984)
Waldren, Delores (Mrs. C.H.)
Walker, Daniel M. (BS 1979)
Walker, Thomas F. (MA 1967)
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Box 197 Matlock MB ROC 2B0 CANADA
9662 E Rand P1 Tucson AZ 85715-5832
3401 Racquet Dr Billings MT 59102
PO Box 157 Maurepas LA 70449
4371 Svensk Ln Eagan MN 55123-1745
664 N 164th St Omaha NE 68118
2807 S 12th Ave #701 Safford AZ 85546-3840
2505 Westridge Drive Plano TX 75075
3624 Pickering Place Eau Claire WI 54701
RR 2 Box 123C Mandan ND 58554-9566
2420 Ruby Ave San Jose CA 95148-1749
316 Opera Ct Silver Spring MD 20901
SEE NOONE
712 4th Street North Bismarck ND 58501
600 N 4th St #3 Grimes IA 50111-2205
1435 Island View Dr Bellingham WA 98225-8539
2513 11th Ave S Grand Forks ND 58201
6346 Prairie Hills Drive Cheyenne WY 82001
9 Golftview Ct Sugamihl Wds Homossasa FL 32646
HCR 86 Box 389 Grand Marais MN 55604
102 Kenwood Court Thief River Falls MN 56701
Route 4 Box 490 Frazee MN 56544
1726 15th St N Bismarck ND 58501
912 Glenview Drive Carbondale IL 62901-2439
3640 Dartmouth Dr Bethlehem PA 18017-2071
RR 1 Box 603 Morris MN 56267

SEE LERUD
516 7th Street Devils Lake ND 58301
PO Box 9292 Rapid City SD 57709
243 Haywood Dr Iowa City IA 52245-1522
No Current Address
1247 Portland Dr Bismarck ND 58504
723 14th Street W Williston ND 58801
3186 Fillmore Jenison MI 49428
757 E Anamosa St #101 Bld 1 Rapid City SD
57701-1306

P.O. Box 31 Dunn Center ND 58626-0031
5185 Kokopelli Ln Las Cruces NM 88005
1849 Elmherst Dr Victoria BC V8N 1R1 CANADA
PO Box 811 Pt Orchard WA 98366
416 Asher St Lafayette IN 47904
RR 6 Country Club Acres Box 124 Minot ND 58701

64
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Warburton, Stanley M. (BS Geol 1951)
Wartman, Brad L. (MS 1983)
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Waxvik, John N. (BS Geol 1965)
Weaver, James G. (PhB 1967)
Webster, Mark H. (BSGE 1984)
Webster, Rick L. (BS 1980 MS 1982)
Wehrfritz, Barbara D. (MS 1978)
Weinlader, Janice (Ex 1973)
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Wenbrg, Richard V. (BSME 1956)
West, Edmund G. (BSME 1959)
West, Roger G. (MST 1969)
Wetzel, Mark O. (BS 1987)
 Wheeler, Raymond D. (PhB 1964)
White, Stanley F. (MS 1980)
Wiken, Kent W. (BSGE 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, Barry J. (BS Geol 1983)
Wilson, Everett E. (BS Geol 1956 MS 1958)
Wilson, James W. (BSGE 1976)
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Winczewski, Laramie M. (BS Ed 1972 MS 1977 PhD 1982) 12614 Vindon Dr Houston TX 77024
Winterer, Timothy R. (BSME 1959)
Wockovich, Marvin R. (PhB 1953)
Wold, Paul D. (BS 1949)
Wolff, Robert A. (BSGE 1982)
Woods, Mary L.
Woolsey, Earl (BSGE 1989)
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Wyborny, Sylvester J. (BSME 1958)
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Zejdlik, Roger C. (BS Geol 1957)
Zich, Terrance J. (BSGE 1977)
Ziebarth, Harold C. (MS 1962 PhD 1972)
Zimmerman, James T. (BS Geol 1955)
Zodrow, Dwain M. (BS Geol 1950)
Zygarlicke, Christopher J. (MS 1987)

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2225 Orchid Street Lake Charles LA 70601
1620 NE Irving St # 79 Portland OR 97232-2244
1221 Woodchase Drive Anchorage AK 99516
1002 Timberline Ln Duluth, MN 55811
512 Pearl Circle Elk Horn NE 68022
PO Box 114 Reynolds ND 58274-0114
7727 Kleingreen Ln Spring TX 77379
PO Box 430 Meeteetse WY 32433-0430
SEE SOWOKINOS
919 East Mount Faith Fergus Falls MN 56537
720 Mill St Snohomish WA 98290
14229 E Marina Dr Aurora CO 80014-3761
57620 Ramona Road Spokane WA 99204
2601 Fairway Drive Moorhead MN 56560
524 8th Ave N Grand Forks ND 58203
RD 1 Box 25 Dolgeville NY 13329
346 Meadowcreek Dr Duncanville TX 75137
3441 Knob Oak Dr Grapevine TX 76051
904 11th St SE High River AB T1V 1L2 CANADA
1128 N Marine Dr #304 Tamuning GU 96911-4305
2757 Arldowne Drive Tucker GA 30084-2514
1839 61st Ave North St Cloud MN 56303
1614 Rickey Road Charlottesville VA 22901
15935 Wingdale Drive Houston TX 77082
6404 Kensington Court Oklahoma City OK 73132
48 W Broadway #2406 N Salt Lake City UT 84101
1227 Pocatello Dr Bismarck ND 58504

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170 Pacific Ave #23 San Francisco CA 94111
3104 Hamilton Way Casper WY 82609
1061 E Sandpiper Drive Temple AZ 85283
4415 Crown Point Road Mandan ND 58554

SEE SCOTT
901 S 11th St Grand Forks ND 58201-4449
220 E Brandon Drive Bismarck ND 58501
RR3 Box 551 Frazee MN 56544-9244
1753 Bingham St Stephenville TX 76401-2103
414 N Main St Harrodsburg KY 40330
4203 Iowa Drive Anchorage AK 99517
320 Felspar Ridgecrest CA 93555
115 Sudden Vly Bellingham WA 98226-4821
414 Laredo Dr Bismarck ND 58504-7211

No Current Address
6905 Edenvale Blvd Eden Prairie MN 55346
1112 South Main Minot ND 58701
835 Great Plains Ct Grand Forks ND 58201

65
Please fill out and return to the address on the back as soon as possible.

Name ___________________________ Residence ___________________________
Surname _________________________ Telephone __________________________
First ___________________________ Area ___________________________
Middle ___________________________ Number __________________________

Residence Address ________________________
Street Address _______________________ City ___________________________
Business Address ______________________
Position ___________________________

Business Telephone ______________________
Area ___________________________
Number __________________________

Company Address ________________________
City ___________________________
State ___________________________
Zip ___________________________

Permanent Address (or name and address of parents, nearest relative, or someone who will be able to reach you):
Telephone ___________________________
Name ___________________________
Relationship _______________________
Number __________________________
Area ___________________________
Number __________________________

Street Address ________________________
City ___________________________
State ___________________________
Zip ___________________________

Degree ___________________________
University _________________________ Year _________________________
College or _________________________

Degree ___________________________
University _________________________ Year _________________________
College or _________________________

Degree ___________________________
University _________________________ Year _________________________

Spouse ___________________________
Name ___________________________
Year of Wedding _____________________

Children ___________________________
Name ___________________________
Birth Date _________________________
Name ___________________________
Birth Date _________________________

Name ___________________________
Birth Date _________________________
Name ___________________________
Birth Date _________________________

On the back of this sheet please send us any news of your "doings" to be included in the next issue. Tell us about some incident or recollection you remember from your days in the Department, e.g., the time Bud Holland shot a hole in his car. Or, in any event, return this sheet so our records will be more complete and current. We want to hear from you!
FROM: ________________________

____________________________

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