



**DEPARTMENT OF GEOLOGY NEWSLETTER
COLLEGE OF ARTS AND SCIENCES
WESTERN MICHIGAN UNIVERSITY
KALAMAZOO, MI 49008**

Volume 1 No. 19

December 1994

Greetings --

As I write this letter we are enjoying a beautiful late fall day near the end of a surprisingly mild autumn. Western's football season closed less auspiciously than we had hoped but was played in a "spruced up" Waldo Stadium. The basketball team has played its first home game in the new "University Arena," and the Student Recreation Center, a massively reconstructed Gary Center, has been operational for the past few months. The new "Gilmore Theatre Complex," a magnificent facility for the performing arts, was recently dedicated; and ground breaking for the new "Science Pavilion," consisting of a new building for science laboratories and a retrofitted Wood Hall for instruction and faculty offices, should occur in late fall or early winter 1995-96. All this gives credence to the P.R. statement, "If you haven't seen Western in the past five years, you haven't seen Western."

Change also continues to be the dominant theme within the Department. The "program" for the "retrofit" of Wood Hall is just about in place. In plain English, they have assigned space to the several departments that will occupy these facilities -- Geology, Chemistry, Biology, Psychology, and Science Studies. Fortunately, Wood Hall is a big, old building. Incidentally, Leslie Wood, for whom the building is named, was one of Frank Leverett's field assistants and taught geology and geography here from 1904 to 1932. The Department will have about a third more space in the new facilities, and we expect to have a considerable upgrade in research and teaching equipment.

The computer laboratory you have been hearing about is now a reality. We have 16 PC's, 486 DX's, linked to the VAX and networked to an array of printers. The activity in this room seems to be about three times what we had in the former lab which has been converted to a Macintosh laboratory. Although we only have three Macs in the room now, we have requested three more and plan to network these machines to the laser printer in the larger lab. The computing power available through these systems is truly awesome.

Dr. R. V. Krishnamurthy joined our faculty from the Institute of Water Sciences this fall. A stable isotope geochemist, he has taught isotope geochemistry for us, and a number of students have already completed theses under his direction. We are pleased to welcome him to the faculty.

Several members of our faculty are developing relationships with foreign universities. Dr. Estella Atekwana is working with two faculty members at the University of Yaounde, Cameroon, to strengthen ties between our departments. Dr. Christopher Schmidt has extended his work with the University of Cordoba by spending some time there last Spring term and by hosting two Argentine structural geologists on an extended tour of the Rocky Mountains last summer. Dr. R. V. Krishnamurthy received National Science Foundation funding to support a visit to India to explore possible Indo-US collaborative research. The Michigan Basin Core Research Laboratory, through its Director, Dr. William Harrison, and Visiting Research Scientist, Linda K. Harrison, is forging ties with the University of Latvia.

Although Dr. Richard Passero retired at the end of 1993, he continues to work closely with the Groundwater Education in Michigan (G.E.M.) program. In August, he and Ginnie moved to Hershey, Pennsylvania, where she has taken a job with Pennsylvania State University. Dr. Passero continues to work with the Groundwater Education in Michigan (G.E.M.) program with infrequent visits to campus because of the rather long commute.

I hope this finds you well, and that you and yours have an enjoyable holiday season and a wonderful year in 1995.

Best wishes,

W. Thomas Straw
Professor and Chair

DEPARTMENT OF GEOLOGY NEWSLETTER

FACULTY NEWS

ESTELLA ATEKWANA ASSISTANT PROFESSOR

I just can't believe it's four years already since I came to Western. You all know what that means -- TENURE TIME IS ALMOST HERE. Needless to say that this has been the busiest year of my life, YET! In addition to the research activities I have been involved in, I continue to teach classes in physical geology, introduction to geophysics, and gravity and magnetic exploration. I was also drafted into the hydrogeology field camp and helped Bill Sauck out with the geophysics module. It was a lot of hot weather but lots of fun.

I co-authored four papers and presented two of them during the GSA North-Central Section meeting in April. I have just submitted a paper on basement tectonic features of the Midcontinent Rift area. I also presented another paper on the East Continent Rift Basin at this year's GSA annual meeting in Seattle, Washington.

On the home front, Eliot is working very hard on his dissertation. Maybe, just maybe, one of these days he will actually graduate. Kyra is now a boisterous 19-month old and just terrorizes her brother Kyle. Kyle continues to go to Sara Swickard but can't wait to be a kindergartner.

DAVID A. BARNES ASSOCIATE PROFESSOR

I am back to regular departmental activities after a rewarding and "mind-expanding" sabbatical leave during the 1993-94 academic year. Most of my activities revolved around a new area of interest, Coastal Geology, in part driven by research funding for study of Coastal Change along the Great Lakes shoreline. We are attempting to evolve an emphasis in the department that integrates aspects of traditional geology with more engineering-oriented coastal studies to address this potential "growth area" in the applied Geosciences. The complex interplay of energetic natural processes, anthropogenic activity, and POLITICS in the coast zone makes for a spicy and sometimes fiery intellectual soup.

I have presented several talks on the preliminary results of coastal studies in the Great Lakes in the Geology Department at Western, while visiting the Blucher Institute (a coastal research institute at the Texas A & M, Corpus Christi, Texas, campus) and at the North Central GSA in Kalamazoo last spring. We were able to generate a rather successful symposium at the GSA entitled, "Great Lakes Coastal Geology." The symposium was very well attended and consisted of in excess of 20 papers about various aspects of Great Lakes coastal systems.

Other activities this year include the supervision of Master's thesis work by Mike Kovacich on Great Lakes Coastal change, publication on the final results of subsurface studies of diagenesis in the St. Peter Sandstone in the Michigan basin (AAPG Bulletin, January 1995), and acceptance of a manuscript detailing stratigraphic relationships in the Michigan basin for a GSA Special

Paper due for publication in 1995. Preliminary results of coastal change studies in Lake Michigan were also documented in unpublished interim reports issued to Federal and State coastal management agencies.

Best wishes to all old friends!

DUANE HAMPTON ASSOCIATE PROFESSOR

I am in the midst of a sabbatical academic year. The funding for my planned projects evaporated, but I still have plenty to do. A worthy project I have yet to begin is to make my offices functional again (i.e., clean them). I am also writing, with much help, a completion report for the EPA on some free product monitoring and recovery research they funded. It will summarize work by Ross Wagner, Tim Adams, Hugh Heuvelhorst, Steve Shank, Tom Barrett, Blair Dudley, Bryan Allen, Jodie McNeil and Jenny Bergin. All but two of these people have graduated, and the other two are near. Laura Krol, Paul Miller, Dave Schmidt and others have contributed, too.

My main goals for this non-teaching period are to finish some projects by publishing the results and to obtain funding for new ones. My research interests continue to be in the area of remediating free product. I am interested in working with oil recovery trench design and operation because I believe trenches are a more effective means than wells of intercepting and removing a largely horizontal accumulation of hydrocarbon. I am also looking for support for a field test of the hydrocarbon tracers Jenny Bergin has successfully used in the lab. I am interested in other topics, such as surface water interaction with groundwater, a comparison of aquifer testing methods, a comparison of contaminant transport models applied to a well-documented tracer test, and an isotopic study of the remediation of BTEX using air sparging.

While I am still interested in working with hydrophobic gravel packs for free product monitoring and recovery wells, and in applying that knowledge to the design of recovery trenches, I am frustrated by the difficulty in obtaining materials (i.e., ground recycled plastics) for field tests. I wish that someone were motivated to make a commercial venture in this area. If granular recycled plastics were commercially available in a variety of grain sizes for rapid shipping, I believe we could build better product recovery wells. Similarly, if prepacked screens were available on short notice with a variety of slot sizes and corresponding packs of granular plastic and sand, I believe we could install greatly improved monitoring wells. Until the commercial sector undertakes this challenge, I don't see much progress in free product wells.

We all miss Dick Passero who has retired and comes by monthly to help with GEM. Dr. Straw is also nearing that great leap into the unknown, as is Dr. Grace. Our department will be making changes in the next few years. Let us know if you have ideas about how we could evolve.

FACULTY NEWS (CONT.)

We have evolved in terms of hardware. You should see our new computer lab with 16 networked PC's, three printers, a plotter and a digitizer. It is getting busy in there, and that would be true even if we eliminated DOOM.

ALAN KEHEW PROFESSOR

Hi to all alums. The past year has been a busy one as usual, but also an eventful one. In April we had the long-awaited North Central GSA meeting on campus. I had the dubious honor of chairing the meeting and was also co-leader of two field trips. Needless to say, it was a tremendous relief to have that responsibility behind me. Two other long term projects were finished up during the year. The second edition of my textbook, "Geology for Engineers and Environmental Scientists," is done and at the printer. Although the revision was a lot easier than the first time around, it was still a major commitment. The second major time sink was an editing project for a special edition of *Quaternary Science Reviews*. Jim Teller (University of Manitoba) and I edited a collection of papers on proglacial lakes and meltwater streams associated with the Laurentide Ice Sheet. This was an outgrowth of an IGCP (International Geologic correlation Project) that had been in progress for several years. We also wrote a paper for the volume, so it was a major undertaking.

My research is going strong in Cass County looking at ground water-surface water interactions in a wetland and the agricultural impacts on the hydrologic system. It won't be a much fun, though, without Dick Passero who started the project before his retirement. I just gave a talk on this site at the annual GSA meeting in Seattle. I also gave a talk on this project last spring in the AGU meeting in Baltimore.

Things are fairly normal at home except that Kay thinks I spend too much time working. We did have a nice break in Maine last summer at a cottage on the coast that we recently purchased. Our daughter Michelle and her husband are living there now, which is great to have someone looking after the place. Our previous rental experience there was a disaster. Best wishes to all until next year.

R.V. KRISHNAMURTHY ASSOCIATE PROFESSOR

This year saw me "officially" becoming a member of the Geology Department. The stable isotope laboratory has now turned into a three-year-old toddler. As all the parents know, this is an age of curiosity and mischief. Thankfully, we have been spared the latter! The year was marked by a visit to our lab by Professor S. Epstein, the founding father of stable isotope geochemistry. Several new research programs were initiated. Madhav Machavaram continued his investigations of precipitation samples; Krista Syrup's work on Austin lake revealed major climate change in southwest Michigan during a time period of 3000-8000 years ago. Work on

deuterium exchange in cellulose showed interesting results. I was invited to talk at a departmental seminar by Texas A & M University. I represented the department at the regional workshop held at Michigan State University. The Office of Space Research has included me in the panel of reviewers for proposals received by NASA. At least two papers are in press. I also received a grant from the National Science Foundation to make a proposal planning visit to India to explore possible Indo-US collaborative research. (Travel is indeed a pleasure when someone else pays for it!)

Does it mean it was all "home run" during this year? Certainly not! Three proposals were knocked down, one that had been rated well by eight out of nine reviewers. Worse, a manuscript submitted to *Marine Geology* came back after five months with the comment, "not relevant to this journal."

On the family front, daughter Swomya and son Rohan have finally convinced themselves that we will not be going back to California and that life can be fun at other places, too! My wife, Sujatha, has become a sort of celebrity among the Indian community in Kalamazoo through her Indian classical music performance. I realized it lately when many in the 500-strong Indian community started addressing me as "Sujatha's husband."

WILLIAM A. SAUCK SENIOR RESEARCH ASSOCIATE

It seems like these newsletters are being sent every 6 months, or is it that time flies when you're having fun? Professionally, I have been continuing up the learning curve of the Ground Penetrating Radar (GPR) method. Last fall was the Second Government Workshop on GPR at Ohio State University. On January 1, I became the Interim Director of the IWS when Mike Barcelona took a year leave of absence. Another round of meetings in the Spring began with the 7th Annual SAGEEP (Symposium on the Application of Geophysics to Engineering and Environmental Problems) where I presented results of winter GPR on a wetland in Cass County and another on archaeological applications of GPR at Chichen Itza, Mexico. At the North Central GSA in April here in Kalamazoo, Dave Seng and I co-authored two papers describing our GPR work along the Lake Michigan coastline. A review paper on GPR, and other papers in collaboration with Dr. Atekwana, K. Keighley, Dr. Passero, and S. Bahling, were also presented at this meeting. In June, I presented two poster papers at the GPR'94, the Fifth International Conference on GPR, in Kitchener-Waterloo, Ontario. The first was a synopsis of the work with the underwater GPR antenna which we built and use routinely (with D. Seng) and the second dealt with problems associated with GPR detection of hydrocarbon plumes. The latter was co-authored by Jodie McNeil and used data from the Carson City refinery site. Another grant was awarded for more underwater GPR work on Lake Michigan, this time from the University of Michigan Hazardous Substance Research Center for characterization of the sub-bottom in the area of

DEPARTMENT OF GEOLOGY NEWSLETTER

FACULTY NEWS (CONT.)

a plume about three miles south of St. Joseph. With that, we got Dave Seng back out on Lake Michigan for one last time before he headed south. The past year saw thesis defense and completion by Jodie McNeil, and we are still waiting for the final version of Dave's thesis. This summer I was involved in both sessions of the Hydrogeology Field Course - Geophysics Module, together with Estella. In September and early October, I was in Brazil teaching short courses on GPR at the National Institute for Amazonian Research in Manaus and at the Federal University in Belem. I brought our GPR system along and used it extensively, testing it in a variety of environments and coming back with lots of good data. It penetrates 3-4 times deeper there than most areas I've tried in Michigan!

On the family front, Elen has recovered from her second hip replacement and is very active in her second year as an Assistant Professor in the Department of Geography. She spent early summer in Brazil. We hosted the Sauck family reunion at our place in August, 80 plus people. The children continue to grow with Jeff at 6'4" and a serious volleyball player. Christine just got her driver's license and Carolyn is also a high-schooler now. Third-grader Eric started soccer this fall, no doubt related to Brazil's winning the World Cup.

DR. MARIAN M. SMITH ADJUNCT ASSISTANT PROFESSOR

Many students and faculty have made last year very successful in terms of volunteering to educate the community on earth science. On November 22, 1994, we hosted 220 Webelos (fourth and fifth grade Boy Scouts) and 93 parents. With the help of Dr. Ron Chase, Dr. Chris Schmidt, and Dr. Bill Smith, the boys and their parents heard about earthquakes, geysers, and how mountains are built. At least 30 students worked with the Webelos in identifying their rock collections and teaching them about rocks and minerals. This is a wonderful way for geologists to give back to their community. Check out your local boy Scout and Girl Scout Offices to see how you can help out with merit badge activities. Geologists can easily be merit badge counselors on Geology, Environmental Science, General Science, and depending on your background, a wide range of other topics.

Students in the Sigma Gamma Epsilon Society and the Geology Club plan to help individual dens and troops here in the future. I am on a project to create a new ground water merit badge in association with the Groundwater Trust of America. If anyone wishes to be a part of this effort, please call me at (616) 387-3756.

I taught the course "Science Literacy and Community Outreach" in the Lee Honors College for a second year. In the winter semester we developed two programs, "Is Math Going Down the Drain in Your Family?" and "Science Flows in '94." These family science programs were sponsored by Groundwater Education in Michigan and the Institute for Water Sciences. Groundwater Education was an essential part of each program. We offered these programs in Cassopolis, Covert, Centreville, South Haven, Hol-

land, and Paw Paw. As many as 220 participants attended each event.

The annual meeting of North Central GSA at Western had a special emphasis on geological education. We had a meeting which was attended by the new executive director of GSA, Dr. Don Davidson, to discuss how geologists can contribute to science literacy efforts locally and on a larger overview. The biggest ideas to come out of this meeting ranged from doing satellite TV expeditions to promoting Webelos Geology nights at departments nationwide and publishing the participating departments in *The Journal of Geological Education*.

At NCGSA we also had two symposia dedicated to earth science education and a SHAREATHON where geologists and teachers could get ideas on how to present ideas related to earth science education to students of all ages.

I am presently president of the new Kalamazoo Club of Sigma Xi, The Scientific Research Society. I attended a Sigma Xi Forum on Science Education in Atlanta in April. Last December I presented a poster session on the Science Literacy and Community Outreach at the American Association of Higher Education in Pittsburgh. In June I shared the concept of service learning and science literacy to professors at Marietta College. This October I am presenting a SHAREATHON and a session on family science programs to the Iowa State Teachers' Conference. Call me if you are interested in purchasing a resource book for teachers that shows how to do Family Science Nights and Math Teach-Ins.

AWARDS AND SCHOLARSHIPS

Undergraduate

- American Mineralogical Society Undergraduate Award - Michael Foley
- Harlan Waters Scholarship - Robert Glasser
- Kalamazoo Geological & Mineral Society Summer Field Trip Scholarship - Kevin Kahmark
- Presidential Scholar in Education and Professional Development and Geology - Robert Glasser
- Senior Honor Award - Earth Science-Robert Glasser, Field Hydrogeology-Brad Carlson, Geology-Roberta Zenero, Geophysics-Mark Powers
- Who's Who Among American Colleges and Universities - Michael Foley, Roberta Zenero

Graduate

- American Federation of Mineralogical Societies Scholarship Foundation - Lisa Anderson, Caroline LoVetere
- Graduate College Dissertation Fellowship - Allan P. Hascall
- Graduate College Student Research Grant - Timothy Clarey, James Jeakle, W. Richard Laton, William Lozier, Matthias Malin, Krista Syrup, Troy Weaver

**Western Michigan University
GEOLOGY COMMUNITY**

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DEPARTMENT OF GEOLOGY NEWSLETTER

ALUMNI /FRIENDS/FORMER FACULTY NOTES

Carl Babb is doing a lot of hydrologic characterization for both surface and groundwater for state and federal permits in Wyoming.

Daniel R. Bannon has been a geologist at IT Corporation in California for the past 3-1/2 years and has been learning much about the sales and marketing end of the envirollogic business.

Gary Blinkiewicz is employed by Clayton Environmental Consultants, Novi, MI, where he is conducting and supervising field activities for remedial investigations.

Mark Caldwell is employed by Klabzuba Oil and Gas in Fort Worth, TX.

Wendy Ginther is working for Waste Management of Michigan, Battle Creek, MI, Division of Compliance Coordinator for Southwest Michigan. Her professional interests include solid waste and environmental policy and regulatory issues.

Terry (Runyon) Halbach has been working part time as a computer consultant since her daughter was born.

Thomas P. Haney is working for a small custom mapping company in California called Barcle Map.

Peter A. Hatch is employed at Ford Motor Company. After receiving his geology degree he returned to school and received a degree in electrical engineering. He is currently working in a research and development group developing advanced electronics for the electric vehicle.

Susan (Kaschner) Jagoda is a curriculum developer/teacher trainer at the Lawrence Hall of Science, University of California, Berkeley, for Full Option Science System project published by Encyclopaedia Britannica Education Corp.

Angela Kemp is a geologist at Woodward-Clyde Consultants.

Martha Klein is working for Versar in Springfield, VA, as a hydrogeologist.

Peter Klemkowsky is working for BDM Federal, Inc. in Germantown, MD, providing contact support to the Department of Energy, for the Office of Environmental Restoration and Waste Management, Waste Operations Office.

Kurt Koella works for Lakeshore Environmental, Inc. in Grand Haven, MI.

Wendy Manial is working for Handex of Michigan in their Wixom, MI, office. Her goal is to work on developing a strong remediation background.

Timothy J. Mayotte is a district manager for Brown & Root Environmental, Holt, MI. His professional interests include remedial design, risk assessment, bioenhancement and bioaugmentation processes for aquifer restoration.

Randy Milstein completed his Ph.D. at Oregon State University and has been teaching in the Geosciences Department since 1990.

Donald Ritchie is employed by the Action Employment Agency, Inc.

James F. Schmidt teaches at University Liggett School in Grosse Pointe Woods, MI. He has received three awards for teaching excellence in the past year.

Kevin Serrin is working for the Association of Medical Colleges in Arlington, VA, as a project manager and as a research associate.

Rupert (Rocky) Shaft is teaching Earth Science at the Holt Public Schools where they have a new earth science course with new text books, but no supplies. He would appreciate any help with supplies. He is also the head wrestling coach and the head football coach.

Jean Tolanda is working with Kieser & Associates in Kalamazoo.

Robert L. Tolliver is a teaching assistant/Ph.D. candidate at The University of Tennessee, in Knoxville, TN, where his professional interests include paleontology and environmental geology.

IN MEMORIAM

It is with great sadness that we report the death of Dr. Elizabeth Garrett in September in Allegan, Michigan.

Betty was born in Queensland, Australia, and emigrated to the United States shortly after World War II. She settled in Michigan, married, and raised two children who survive. She entered Western Michigan University and undertook studies in history, anthropology, and earth science, and received a bachelor's degree in 1972. She continued on into graduate work in earth science, specializing in petrographic analysis of temper in archaeological ceramic materials, and eventually received a master's, a specialist, and finally a Ph.D. degree in 1982 from Western, probably one of a very few persons to earn four degrees from WMU. Betty had a curiosity for learning and a willingness to devote many long and difficult hours to achieve her goals that were truly remarkable.

To pursue her work in ceramics Betty moved to Albuquerque, New Mexico, where she became very well known in archeological circles and practiced her special skills with joy and enthusiasm. She traveled extensively world wide and welcomed many Westerners as they traveled through the southwest. Betty was a very vivacious, independent, and forthright sort of person and was a special friend to the Department of Geology. She will be greatly missed.

DEPARTMENT OF GEOLOGY NEWSLETTER

GEOLOGY DEVELOPMENT AND SCHOLARSHIP DONATIONS

Your generous contributions to the Department support a wide array of activities and we appreciate your help. We try to thank each donor, but as with all bureaucracies we do miss someone occasionally. If we missed you, please know that we rely on your support and will continue to make every effort to acknowledge your gifts. Please accept our sincere thanks for your generous support.

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THANK YOU FOR YOUR DONATIONS

During the past year we have been able to accomplish many things because of your generosity. We have hosted several speakers, helped pay the way of undergraduate and graduate student researchers to conferences, purchased maps, photos, and small equipment to support student and faculty research, and a wide array of additional items. Although we have been enjoying unprecedented support by the University administration, our program and needs are simply developing faster than they can follow adequately. Your help is sincerely appreciated.

We hope that you will consider making a contribution to the Geology Community. You may do this by sending a check payable to: WMU Foundation - Department of Geology.

You may specify that your donation go to the Department of Geology Development Fund, the W. David Kuenzi Scholarship Fund, the Core Lab, the Earth Science Fund, or the Department's Museum. The Development Fund is used to support a wide array of activities, including undergraduate scholarships, student travel, supplemental support for equipment purchases, student activities and a variety of projects for improvement of teaching and research in the Department. The Kuenzi Fund is used to support graduate student research with emphasis on students studying sedimentology.

NEW ALUMNI

The following people received their degrees from WMU's Geology Department between December 1993 and August 1994. Congratulations!

Bachelor Degree Recipients

Earth Science - Steven Becker, Christie Bohl, Joseph Bonnett, Scott Brown, Lawrence Fogel, Robert Glasser, Aaron Haskin, Rebecca Huffman, Dawn Kirkbride, Andrew Kuhns, Patricia Linderman, Jennifer Miller, Jeffry Mueller, Holly Nielsen, Christine Palechka, Christopher Roth, Yvonne Scarbrough, Thomas Simpson

Field Hydrogeology - Joseph Branch, Bradley Carlson, Paul Donaldson, J Deopsomer, Alan Jones, Michael McGuire

Geology - Peter Kaczor, Kristjan Bekker, Cheri Freeland, Matthew Malone, Stephen Schmitt, Susan Windover, Heidi Wines, Roberta Zenero

Geophysics - Todd Campbell, Mark Powers

Hydrogeology - Holley Binando, Jeffrey Clark, Loren Thorburn

Master Degree Recipients

Earth Science - Marilyn Betts, William Bowman, Geoffrey Hickock, Bruce Noble, Dok Stevens, Sara Verbrugge, Barbara Vetort

Geology - Arthur Brooks, Ken Chaivre, Steven Chidester, Timothy Dellapenna, Mitchell Gutaj, Allan Hascall III, Michael Klisch, Franklyn Legall, Angela McDannel, Jodie McNeil, Richard Reinke, M. Richard Schroeder, Yongkoo Seol, Stephen Shank, Jill VanDyke, Douglas Wachtell, Jiang Wu

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DEPARTMENT OF GEOLOGY NEWSLETTER

MAILING LIST

We are anxious to keep your current address on our mailing list and, therefore, ask for your cooperation in advising us if you move. Also, if you know of other alumni who do not receive this newsletter, please send their names and addresses; we would like to add them to our file.

Name _____

Major _____ Degree _____ Year _____

Address & Phone _____

Current Employment _____

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Return to: W. Thomas Straw, Department of Geology, Western Michigan University, Kalamazoo, MI 49008. Phone (616) 387-5485.
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