



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

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Dear Friends,

I considered beginning this letter with "The times they are a changing" knowing that many of you would recall the line from the movie, Rise and Fall of the Great Lakes. The Department has changed a great deal since this time last year. Several new faculty members are adapting to Western, we are being assisted by a number of new graduate students, and undergraduate classes have several familiar faces and many new ones. Newly acquired equipment is in the process of being installed, and we are seeking approval for a doctoral program in Geology with an emphasis in hydrogeology.

In order of their appearance at Western, the new faculty are: Dr. Michael J. Barcelona, Director of the Institute for Water Sciences and a tenured faculty member in Geology and Chemistry, who joined us on January 1. Dr. Barcelona comes to us from the Illinois Water Survey where he was head of the chemistry section. He is an internationally known hydrogeochemist with strong credentials in water chemistry and ground-water monitoring. Dr. William A. Smith has his Ph.D. from South Carolina and is a broadly trained geophysicist who has focused on seismotectonics and has evinced an interest in the tectonics of the Michigan Basin. Dr. Marian Smith, an expert in image analysis also has her Ph.D. from South Carolina. Appointed as an adjunct assistant professor, she is working closely with our sedimentology group. Many of you will remember Dr. William A. Sauck who was a faculty member here in the early 1980's. He has returned as a Senior Scientist with the Institute for Water Sciences and will be working with geophysics related to ground water. Dr. Sauck's wife, Dr. Ellen Cutrim, has been appointed as an adjunct faculty member in Geography where she will continue her work on the meteorology and climatology of the Amazon Basin. Dr. Estella Atekwana, an expert in gravity and magnetism, has joined us from Dalhousie University where she just completed her doctoral dissertation on the Kapuskasing Structural Zone in the central Superior Province of the Canadian Shield. Her trials with the U.S. State Department may become a departmental legend. We are, of course, delighted to welcome these folks and are looking forward to many years of association with them.

The Department continues to increase its equipment holdings. We are in the process of installing a Scanning Electron Microscope that was a gift from the British Petroleum (B.P.) Company. Dr. David Barnes "sweet talked" B.P., his former employer, into donating this instrument, a fluid inclusion stage, a digital point counter (those of you who remember point counting slides should appreciate this addition) and a powerful photo-microscope. The replacement value of this equipment is about \$200,000. The Institute for Water Sciences is in the process of acquiring a ground-penetrating radar, an isotope-ratio mass spectrometer, and a van for use with the radar and as a field sampling laboratory for hydrogeological studies.

The Department has been in the process of developing a doctoral program in hydrogeology for more than a year. Our proposal was approved by the Departmental faculty last spring, and received unanimous approval of the College of Arts and Sciences Curriculum Committee in early October. The program must still be approved by the University's higher administration and submitted for review at the state level--with luck we should be able to enroll our first students in the Fall of 1991. The faculty is especially concerned that this program not negatively impact our existing undergraduate and master's level programs. We hope that the program will not only increase the research productivity of the Department but will also give undergraduates the opportunity to work as research assistants.

On behalf of the faculty, I want to again thank each of you who has supported the Department. For many of you, that support has been in the form of a contribution to our Development Fund or the W. David Kuenzi Fund; for others of you, it has been in the form of jobs for our graduates, or simply a suggestion to a company or individual that Western has a strong and growing program that should interest them as a possible place to study or to look for employable personnel.

Your support of the Development Fund has permitted us to accomplish many things that would have been impossible without your assistance. During the past year we have used your contributions to support field trips and short courses for students; repaired and installed equipment; supported community college transfer students, minority and women undergraduate students; purchased awards for students; and brought outside speakers to the Department. The funds you give are a major factor in our continued success. Thank you for your generosity, we sincerely appreciate your help and trust that we will continue to deserve your support.

We hope that this newsletter will give you a good idea of the status of the Department. If you happen to be in the area, please drop by or call. We are now very much a 12-month operation with lots of activities during the spring and summer sessions. If you are unable to visit the campus, please use the form with this newsletter to let us know of your whereabouts and activities. I think the newsletter is most effective if it contains a variety of types of information about the Department but has as a major focus the activities of our graduates.

Best wishes to you and yours for the holiday season, and may we all enjoy a peaceful and prosperous New Year.

Sincerely,



Tom Straw

INSTITUTE FOR WATER SCIENCES

The Institute for Water Sciences is in its third year of operation and is on its way to becoming self-sufficient. The operation is headed by Dr. Michael Barcelona and has increased the size of its staff by adding an administrative assistant, a lab manager, and a research geophysicist.

With the addition of this staff, the Institute needed more space and is now located in Trimpe Hall. By next summer, they hope to have added more space so that project layout, dry labs and wet labs will be housed together. They also need to have room for graduate students and the upcoming purchase of the Isotope Ratio Mass Spectrometer.

Equipment added at the Institute includes a total organic carbon analyzer, a coupled static headspace GC-Data System, and an Inductively Coupled Plasma Spectrometer. They are hoping to add a GC-MS system soon. They have received field instrument support from QED Environmental Systems, Inc. and Norton Performance Plastics.

External funding for the IWS has been from Ground-Water Education in Michigan (GEM), The Kellogg Foundation; Research Excellence and Economic Development Fund REF, Michigan Department of Management and Budget; The Science for Citizens Center; and USEPA-University of Illinois Sub-Contract for Ground-Water Contamination by Volatile Organic Compounds. Seven research contracts are pending and five to ten additional proposals will be submitted next year.

GROUND-WATER EDUCATION IN MICHIGAN

In February of 1989, the Institute for Water Sciences at WMU received a three-year GEM grant for \$578,000 from the W. K. Kellogg Foundation. WMU became a Regional Center for the GEM program which now includes over 20 ground-water grants in Michigan. Dick Passero coordinates the GEM activities. He has been assisted by Dave Dickason, Bob Poel, Rudy Ziehl, Jim Bradley, Craig Laurent, Syd Dulaney, Linda Jones, Kim Finkbeiner and others. This year the Center has assisted in developing a K-12 ground-water education program called Classroom GEMS, conducted a week-long workshop for teacher-trainers, created a ground-water exhibit for the Kingman Museum in Battle Creek, made significant progress on applying GIS technology to local areas, completed first drafts of popular publications on the ground-water resources of St. Joseph and Calhoun counties, assisted other GEM participants in building ground-water flow models, and given several public lectures. The GEM program illustrates the environmental concerns of the W. K. Kellogg Foundation and should serve as a model for other parts of the country.

CORE RESEARCH LAB

The Core Research Lab continues to maintain high levels of activity in research on Michigan Basin subsurface geology. Current research projects include continuation of reservoir characterization, petrologic and lithofacies descriptions, and stratigraphic analysis of the St. Peter Sandstone/Prairie du Chien interval. This year the Glenwood Formation, overlying the St. Peter Sandstone, added to the project. This research is currently being funded by a subcontract through the University of Wisconsin from the Gas Research Institute in Chicago.

Other activities include analysis of the lithology and reservoir characteristics of the Antrim Shale. Over 1000 wells have been completed in the Antrim for gas in the past three years. The Core Lab has a 2-year subcontract through I.C.F. Resources from the Gas Research Institute to study the geologic properties of the Antrim from seven cores.

This past year the Lab has been visited by numerous groups of geologists to look at the cores and to discuss basin research. Companies such as Oryx, Forest Oil and Telesis Oil and Gas of Canada have been through the lab.

Student activities

Dr. Bill Harrison and Carl Lundgren presented a paper at the National GSA in St. Louis. Tim Dellapenna made presentations at Eastern Section and National AAPG and Michigan Basin Geological Society. Jeff Cottingham, who is working on earthquake monitoring south of San Francisco, gave a poster session at National AAPG this year. Brendan Curran and Dave Balthazor gave presentations at Eastern Section AAPG in London, Ontario, Canada. Karen Mater has taken a job with a consulting company in Mt. Pleasant, Michigan. Carl Lundgren and Dave Balthazor have taken jobs with major oil companies (ARCO and MOBIL, respectively). They will finish their theses soon after the new year begins, as will Tim Dellapenna and Karen Mater. Rusli Adam is expecting to finish his thesis early in 1991. Brendan Curran has completed his thesis. There are two new students in the lab. Marnie Twynham and Steve Kimm. Marnie has already begun research on the Antrim and Steve is working away on the Glenwood. Both will have summer jobs with MOBIL in Oklahoma City.

AWARDS & SCHOLARSHIPS

Undergraduate

Honors College Undergraduate Research Scholarship -
Jody Johnson
Kalamazoo Geological & Mineral Society Summer Field
Trip Scholarship - **Jim Finetti & Wendy Manial**
Presidential Scholar in Geology - **Bruce Gillett**
Senior Honor Award - **Bruce Gillett, Dawn Hoenes &
Jody Johnson**

Graduate

Gas Research Institute Grant - **Tim Dellapenna, Steve
Kimm & Marnie Twynham**
Graduate College Student Research Grant - **Paul
Genovese, Mitchell Gutaj, Greg Nelson &
Robert Tolliver**
Graduate Research and Creative Scholar Award -
Barry McBride

GEOLOGY/EARTH SCIENCE CLUB

Fund raisers are already underway for the Geology/Earth Science Club this year. Coffee and doughnuts are being sold again this year, and recyclable bottles and cans are collected for deposit return. In addition to searching for more fund raisers, the club has been busy with a T-Shirt contest and planning field trips for this academic year. The fall ice-breaker was a success despite the rainy weather.

This year the 37-member club is headed by Kate Kennedy, President; Wendy White, Vice-President; Jodie McNeil, Secretary; and Dawn Hoenes, Treasurer. Officers for next year's club will be announced at the spring awards banquet as will recipients of the Department's awards and scholarships.

FACULTY NEWS

Dr. Estella Atekwana recently completed her doctoral dissertation from Dalhousie University, Halifax, Nova Scotia, Canada, entitled "Gravity and Magnetic Interpretation of the Kapuskasing Structural Zone in the Val Rita and Groundhog River Blocks, Northwestern Ontario, Canada."

On a personal note, she and her husband, Eliot, have moved here from Halifax and Washington, D.C., respectively. For the first time since their wedding two years ago, they are able to live together. They have a seven month old son, Kyle, and look forward to parenting together. They miss their friends in Washington, D.C., and Halifax; however, they hope to make new ones in Kalamazoo.

Dr. Michael Barcelona attended approximately 10 national society meetings where about 6 papers were presented. He chaired a session of environmental characterization at the 143rd Midwest Environmental Chemistry Workshop and convened a ground-water monitoring short course at Shrewsbury, Baschurch, United Kingdom. Short courses attended included the USEPA Hazardous Waste Incident Response Course. He has published four book chapters and one manuscript for peer-reviewed publication. Mike is a member of the Water Pollution Control Federation Ground Water Committee and the American Chemical Society Ground Water Task Force.

Grants won include the USEPA-EMSL, Las Vegas, Nevada, grant for Volatile Organic Compound Contamination of Ground Water: Spatial Temporal Variability; and the USEPA-RSKERL, Ada, Oklahoma, grant for Characterization of Organic Matter in Aquifer Solids.

Research activities include new initiatives with Dr. Gary Robbins, Department of Geology, University of Connecticut, in monitoring well hydraulics and soluble organic compound transport in ground water. His research assistants include Jiang Wu for ground-water geochemistry and Eliot Atekwana for ground-water isotope geochemistry. Ground-water sampling trips have been made to Rockford, Illinois; Traverse City, Michigan; and Empire, Michigan. Future plans are to build up the water quality and contaminant transport laboratories.

This has been an eventful year for **Dr. Dave Barnes**. The highlight was the birth of Nicholas Quinn Barnes on California earthquake day, November 17, 1990. The baby is growing fast.

Professional activities this last year include: GSA talk in St. Louis, participation in a Core Lab-hosted symposium on Pore Geometry and Reservoir Evaluation with Dan Hartmann, travel to Japan as part of Ocean Drilling Program (ODP) research, as well as several trips to Texas A & M University for other ODP-related activities, and presentation of a short course on "Applications of Diagenesis in Hydrocarbon Exploration and Production" at Eastern Section AAPG.

This has also been a successful year for research funding with three major grants awarded, two for the study of the St. Peter (PdC) gas reservoir in Michigan from the Petroleum Research Fund of the American Chemical Society and the Gas Research Institute, and one for the study of origin and evolution of the Japan Sea basin funded by the U.S. Science Support program of the Ocean Drilling Program.

Dave submitted a revised manuscript on "Sequence Stratigraphy and Correlation in the Midcontinent, USA" in the European Journal Basin Research, and another on "Sedimentology and Diagenesis in the St. Peter Sandstone in the Michigan Basin" to AAPG. Dave sends best wishes to all.

Dr. Ronald Chase is busy, as usual, with teaching and research. The research that he and Chris Schmidt are doing together in basement-cored Rocky Mountain uplifts received an additional boost in the form of a second NSF grant to keep things going. Ron and Chris co-chaired a symposium on Rocky Mountain Foreland Folds (along with Eric Erslev from Colorado State University) at the Rocky Mountain Section Meeting of the Geological Society of America last May 22. They will also co-edit a GSA Special Paper on this subject and contribute two papers of their own. Paul Genovese, a wonderful graduate student now pursuing Ph.D. work at Princeton, contributed greatly to their efforts. Ron is also continuing his fascination with the origin of fractures in clay-rich glacial tills. A paper on this subject is nearly completed and he is currently courting about for grant support to continue his studies.

Ron won a sabbatical leave last year and did not teach his usual optical mineralogy-petrology sequence. Instead, he worked full time on research and grant writing and concentrated his teaching mainly on his Upper Peninsula field course and in-service training for earth science teachers. He is totally back in the saddle again this fall.

The physical geology textbook that Ron is co-authoring with Lee Suttner (Indiana University) is well along and due for publication by Prentice-Hall in the spring of

1992. This is a project that he will really be happy to get off his back.

The home fires continue to burn for Ron and wife Chris. On their four boys: Karl is in his fourth year at Central Michigan University majoring in sports management; Andy is now a freshman at Northwestern University majoring in journalism; both Scott and Jamie are co-attending Hackett High School and the Kalamazoo Area Math and Science Center where they are high honors students. Ron is happy, healthy, and thankful that things are going so well.

Dr. John Grace attended the EPA Conference in Cincinnati, Ohio, and the Michigan Academy of Arts and Sciences where he presented a paper. In November 1989, he also participated at the National GSA meeting where he presented a paper on environmental radon. He attended a short course in Advanced X-Ray Diffraction Techniques sponsored by the Mineralogical Society of America. John has become involved in research on clay minerals which fits into the Department's efforts in sedimentology and hydrogeology.

Dr. Duane Hampton received a 3-year EPA grant for \$266,000 (\$75,000 first year) to do field and laboratory studies of monitoring and recovery wells for spilled petroleum products. His plans to establish field sites in Hawaii and the Bahamas may have to be reconsidered, however, since there is a large pipeline spill near Three Rivers, a little more convenient to campus.

Duane and his students, Ross Wagner, Tim Adams and Hugh Heuvelhorst, authored and presented papers in Kalamazoo, Houston, Calgary, Baltimore, Las Vegas, Venice, Montreal and Waterloo. These papers dealt with free product monitoring and recovery, and with modeling water flow through unsaturated soils. Kathy Hewitt finished her thesis on modeling contaminant transport. The above students plus Linda Jones and Steve Ricci are working on theirs, and some others are getting started.

On the home front, he bought a house in Portage (complete with its own water well). Now he can begin to worry about what "parts per billion of various constituents in one's drinking water" really means. The University applied for a patent on his Aquifer Dipstick, which should soon begin commercialization.

Dr. Bill Harrison continued to be busy with activities centering on Michigan Basin subsurface geology and the Core Research Laboratory. Exploration and development of hydrocarbon resources in Michigan are still a high priority to the petroleum industry. The main

areas of interest continue to be the natural gas reserves in the St. Peter Sandstone/Prairie du Chien Group and the Antrim Shale. Bill, along with Dave Barnes and several graduate students in the Core Lab, continued research activities on these units. Presentations of research results were made at National GSA in St. Louis and Eastern Section of AAPG in Bloomington, Indiana, and at the Ontario Petroleum Institute in London, Ontario, Canada. Papers were also published by the American Gas Association and the Ontario Petroleum Institute. St. Peter and Antrim research is being supported by subcontracts to the Core Lab from the Gas Research Institute.

The oceanography classes continue to be very large and occupy a significant portion of his teaching time. Bill has written a study guide manual to complement the textbook in the oceanography class, published in the summer of 1990.

He was promoted to full Professor effective September, 1990. He is on sabbatical for the 1990-1991 year, doing research on enhanced recovery potential of Dundee (Middle Devonian) Oil fields in Michigan.

Bill traveled with his wife, Linda, to the Canadian Maritimes during the summer. The geology was great, but the lobster and scallops were even more spectacular. An extended visit to the Annapolis River Tidal Power Station in Nova Scotia and the Bay of Fundy with its vast tidal ranges, provided lots of new material and photographs for oceanography classes.

One of the high points of the past year for **Dr. Alan Kehew**, literally, was a glacial geology field trip with eleven students to Banff and Jasper National Parks in the Canadian Rockies. The trip followed the glacial geology class, which is taught every other year in the spring term. During about a week in the two parks, they hiked to glaciers in the Columbia and Wapta Icefields and took in the fantastic glacial geology and scenery of the area. They had a little unplanned excitement when a young grizzly decided to check out their campsite one morning about breakfast time. The WMU van never looked so inviting! Hopefully, the trip will be made again in 1992.

In the summer term, the hydrogeology field course was taught for the third time, but without the assistance of ESE (formerly Keck), which we had enjoyed in the past. Coordination of the course proved to be a major task, but things worked out with some last-minute assistance from drilling contractors who donated their time and equipment to the course.

Alan and Tom Straw finished their three-year study of the Schoolcraft aquifer and submitted a final report to the Institute for Water Research at Michigan State. The

study provided some very interesting information about ground-water flow in a large glaciofluvial fan. For example, the flow system appears to be vertically separated into two parts. In the shallow part of the aquifer, ground-water flow interacts with lakes and wetlands on the surface of the fan. Flow in the deeper part of the aquifer comprises one long flow path from a recharge area near the Kalamazoo Moraine to a discharge area near the toe of the fan. Like all research projects, however, it raised as many questions as it answered. They are now pursuing new funding sources so that they can investigate some more detailed problems in the area.

Dr. Dick Passero's efforts as interim director of the Institute for Water Sciences finally paid off. Dr. Michael Barcelona, formerly of the Illinois Water Survey, accepted the position of director and has become a new friend and colleague, as well as a super-charged leader of the Institute. Dick continued his role as coordinator of the G.E.M. Regional Center and the Michigan Research Excellence Fund grant in addition to working with the Michigan Department of Natural Resources on aquifer sensitivity of the State's pesticide management program. His wife, Ginny, is still an instructor at the Bronson School of Nursing. Their daughter, Kathy, is as happy as ever in New York City where she is an associate editor for *Corporate Travel*. Dick is looking forward to a sabbatical next year . . . and perhaps every year thereafter.

Dr. William Sauck has returned to WMU after a 6 1/2 year absence, having divided that time between Beléu, Brazil, and Madison, Wisconsin. He was hired August 20 as a research geophysicist by the Institute for Water Sciences and will be concentrating on electrical methods and well logging. Specific projects underway include a Kalamazoo Test Site for hydrogeology, geophysics and hydrochemistry; and research on geophysical methods for characterizing sub-vertical joints and fractures in tills. He is finishing projects in Wisconsin on cavern detection and use of shallow seismic reflection for reconnaissance of sand aquifer thickness along the lower Wisconsin River valley. Dr. Sauck attended AAAS in New Orleans in February and is a member of the editorial board of the journal, *Ground Water*.

His wife, Ellen Cutrim, has recovered well from the bone marrow transplant and is eager to get back to her satellite meteorology research. Oldest son Jeff is a freshman in aviation technology at WMU. The other three children are all doing well at their schools and enjoying the freedom of a few country acres in Texas Township.

During the first week of June, **Dr. Lloyd Schmaltz** organized and led a Colorado River trip through the Grand Canyon for the Department and the WMU Foundation with 40 alumni and University friends in attendance. Jim Duncan, co-leader, provided expertise on the archaeology of the canyon.

Lloyd is consulting in the Kellogg Foundation Grant on Ground-water Education in Michigan as it relates to nature centers in Michigan.

The most significant thing that has happened to **Dr. Chris Schmidt** since the last newsletter has been the return of his family to Kalamazoo. Carolyn had been working for a large firm (SAIC) in Las Vegas that was under contract from the Department of Energy to oversee the geological characterization of the proposed high-level nuclear waste disposal site at Yucca Mountain. Carolyn found a job locally with American Hydrogeology, Inc. run by Mick Lynch (BS 1981). She works closely with Lisa Phillips (BS 1982, MS 1988) on projects related to gasoline storage tank seepage and removal. Paul French, a current geology graduate student, and John Paquin, a former WMU student, are also employed by American Hydrogeology, Inc. Yes, an igneous petrologist can work in ground water. Chris has decided to postpone a sabbatical to Argentina so he and his family can get reacquainted.

Professionally, Chris was invited to present a paper last January to a conference at Liverpool. The conference was on granite and was in honor of W. S. Pitcher's 70th birthday. Wally Pitcher, as some of you may remember, visited our department in 1982, (see the 1982-83 department picture) presented a very memorable lecture series, and went on our field trip to the St. Francois Mountains. Chris's paper, co-authored by Harry Smedes and Mike O'Neill, about the origin of some batholiths in Montana will appear in a special volume of the *Geological Journal* in December. Another paper, on the Montana thrust belt, co-authored with O'Neill and graduate student Paul Genovese, appeared in the November issue of *Geology*. (Paul is currently working on a Ph.D. at Princeton but still has a small matter of a master's thesis to finish.) Chris is madly trying to finish several papers on basement cored folds that are slated to be submitted to a GSA Special Paper on the Rocky Mountains. Fortunately, he and Ron Chase are co-editing this book so there is some flexibility on the deadline (but don't tell that to the other authors).

Chris will be in Montana again next summer working with graduate students Rose Bredael and Mitch Gutaj on a project related to the Boulder batholith. However, he is very much looking forward to cutting back on professional responsibilities to enjoy life and family for a change.

Dr. Marian Smith, our new adjunct assistant professor, arrived in Kalamazoo with her husband, Dr. Bill Smith, on June 1. This summer she taught an oceanography class and is teaching earth history and oceanography this fall. She earned her Ph.D. from the University of South Carolina in 1986; Post-doctoral fellowship work was done in Ottawa, Canada. She followed that with two years of teaching at Michigan Technological University.

Marian attended the North Central Geological Society of America (NCGSA) Meeting in Macomb, Illinois, April 19-21 where she presented a paper on communication in geoscience courses. She is a chairperson for the geoscience education session at the 1991 NCGSA meeting in Toledo; presented a poster session at Lake Superior Institute in Sudbury, Ontario; and refereed proceedings at McCon90 in San Francisco.

Research activities include grain shape analysis of gravel packs with Dr. Duane Hampton and image analysis of composite materials with Dr. Jay Easwaran of the engineering department. She did image analysis research this fall at the Department of Geological Sciences, University of South Carolina, Columbia, South Carolina.

Associations with the Kalamazoo Area Math and Science Center include two workshops on Michigan paleogeography and stratigraphy to senior high students, and a Geology Department tour emphasizing careers in geology to thirty 5th and 6th grade summer students. A presentation was also given to 40 members of the Girls Scouts of America regarding careers in geoscience.

Dr. William A. Smith has recently been hired by the Geology Department as the new geophysicist. Bill hails from the University of South Carolina (where he obtained his Ph.D. in 1987) via a temporary teaching position in geophysics at Michigan Technological University in Houghton. Upon moving to Kalamazoo from Houghton in June, he worked with the IWS and Dick Passero on the shallow seismic study of the Schoolcraft aquifer. His professional interests include potential field analysis, seismic reflection, seismology and tectonics. Bill wants to develop research that integrates these interests with local and regional problems such as the mid-continent rift system, petroleum within the Michigan Basin, and applications of geophysical techniques applied to hydrogeology. Bill wants to get the MIRA seismic software, donated to the Department in 1989, up and running as it will be an excellent tool for both seismic reflection research and teaching. Research is continuing on seismotectonics of the Charleston, South Carolina, seismic zone.

He and ten of his geophysical students attended the Michigan Basin Workshop on "Seismic Acquisition, Processing and Interpretation" in Mt. Pleasant.

Besides trying to establish a viable research program, teaching physical geology and shallow exploration geophysics and writing manuscripts, Bill and his wife, Marian, and son Austin really enjoy the Kalamazoo community. In November, Bill spent a lot of time as the local "earthquake expert" encountering the various media organizations and alleviating the unnecessary hysteria and fears associated with the predicted magnitude seven earthquake in the New Madrid seismic zone.

Bill would like to hear from any alumni on how and if geophysics has impacted their careers.

Dr. Tom Straw remains active in wetlands hydrogeology. During the past year he taught short courses and worked in southern California; South Carolina; Seattle, Washington; Maryland and Michigan. He and Alan Kehew are continuing their work on the Schoolcraft aquifer with a major goal being to establish this aquifer as the best equipped and studied glacial aquifer in the upper midwest. He and his assistants, Richie Laton and David Wardwell, can commonly be found in Lake Michigan when wave conditions permit. We hope that their work, coupled with Ron Chase's long-term studies of coastal stratigraphy and fractures in till, will form the base for re-instituting coastal studies at Western.

NEWS FROM THE SERVICE STAFF

Beverly Britt has been busy hosting her family while her niece was in the hospital. Ashley has recuperated well and even though she will face more surgery, she is a tough little kid and will continue to progress.

Bob Havira reports that he had great fun while moonlighting at Kalamazoo College. He taught a photography class in the art department this fall. His wife, Barbara, is on sabbatical this year. Bob and Barbara are trying something new - dancing lessons. After 20 years Bob is learning how to keep up with Barbara's dancing talent.

This past spring, **Joyce Parsons** and her husband, Ed, added an extra room to their house involving major kitchen remodelling. She and her husband wallpapered the kitchen together and managed to stay married; however, their leaky basement is another matter.

1990 SPEAKERS PROGRAM

Dr. Robert L. Antsey, Michigan State University. "The Usefulness of Bryozoans in Biostratigraphy: Two Applications in the Ordovician."

Mr. David Arnold, Groundwater Technology, Inc. "Alternate and Innovate Technologies at Hydrocarbon Sites."

Mr. Patrick Barrese, Hydrogeologist, Denver, Colorado. "Hydrogeochemical Characterization of a Glacial-Drift Aquifer System in Southwestern Michigan."

Dr. Robert Bereskin, Terratek, Inc., Salt Lake City, Utah. "Fluorescence Microscopy as Applied to Porosity in Sedimentary Rocks."

Dr. Michael Caughey, Environmental Chemist, University of Illinois. "Light Stable Isotopes in Aqueous Geochemistry."

Mr. Jim Clark, Calvin College. "Glacial Isostasy of the Great Lakes and Reconstruction the Laurentide Ice Sheet."

Dr. Kevin Cole, Assistant Professor of Geology, Grand Valley State University, Allendale, Michigan. "Gravity and Ground Water."

Mr. Paul Daniels, Petro-Hunt, Dallas, Texas. "Evolution of the Early Michigan Basin."

Dr. William Doll, Colby College. "Some Geophysical Features of the Maine Crust."

Mr. Eric Fahle, R. F. Weston, Boston, Massachusetts. "Analysis of Dissolved Organic Compounds and Their Contribution to Iron Complexation in the Shallow Leachate Plume of the West KL Landfill."

Dr. J. M. Franklin, Geological Survey of Canada. "Research on Sea Floor Hydrothermal Systems; Relevance to Understanding Ancient Volcanogenic Massive Sulfide Deposits."

Dr. Richard A. Groshong, Jr., University of Alabama, AAPG Distinguished Lecturer. "Style and Balance of Extensional Structures."

Dr. William Hinze, Professor of Geophysics, Purdue University, West Lafayette, Indiana. "Geophysical Studies of the U.S. Craton."

Dr. Morris W. Leighton, Illinois State Geological Survey. "Interior Cratonic Sag Basins."

Ms. Anne Matherne, University of Illinois at Chicago. "Scale Changes in the Hydrologic Response of Watersheds."

Dr. Charles Nelson, Professor of Earth Science, St. Cloud State University, St. Cloud, Minnesota. "Wave Modeling on an Inland Lake."

Dr. Lisa Pratt, Associate Professor of Geology, Indiana University, Bloomington, Indiana, AAPG Distinguished Lecturer. "Paleoceanography and Paleolimnology of Petroleum Source Rocks."

Dr. Vishnu Ranganathan, Assistant Professor of Geology, Indiana University, Bloomington, Indiana. "Salt Diffusion in Interstitial Waters and Halite Removal from Sediments: Examples from the Red Sea and Illinois Basin."

Mr. Joe Sheahan, RMT, Inc. "Design and Evaluation of a Deep, Low Yield Ground-Water Purge System."

Dr. William A. Smith, Michigan Technological University. "Seismo-tectonics of Charleston, South Carolina, Seismic Zone: An Integrated Geological and Geophysical Study."

Dr. Todd Thompson, Indiana Geological Survey, Bloomington, Indiana. "Establishing the Altitude and Age of Late Holocene Lake Levels in Southern Lake Michigan."

In addition to these speakers, two faculty members and thirteen graduate students gave presentations.

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.

Alumni

Mr. James R. Bartel
Mrs. Robin L. Geesey Bartel
Mr. Robert W. Crabb
Mrs. Maryann J. Crawford
Mr. Timothy M. Crawford
Mr. Douglas Daniels
Mr. Paul A. Daniels, Jr.
Mr. LeRoy L. DeNooyer
Mr. Stanley R. DeRight
Mr. Richard C. Dickerson
Mr. Thomas Drean
Mr. James H. Duncan, Sr.
Mr. Michael R. Dunn
Mr. Ronald L. Erickson
Mr. Kurt E. Ewoldt
Mr. William B. French
Mr. Michael J. Gallagher
Mr. Dennis J. Gebben
Ms. Terri R. Halbach
Mrs. Mari K. Hall
Mr. Harold F. Hoelzle
Mrs. Janice R. Hylland
Mr. Thomas D. Hylland
Mr. Thomas W. Lambert
Mr. Thomas A. Laux
Mrs. Debra A. Lefler
Dr. J. Philip McLaren
Mrs. Lynne A. McLaren
Mr. Bruce J. McLeod
Mr. James D. Meinke
Mrs. Suzanne K. Merrill
Mr. James H. Nidy
Mr. T. Michael Pendergrass
Mr. James C. Peterson
Mrs. Sally C. Putney
Mr. Kevin G. Serrin
Mr. Charles H. Soule
Dr. Julie K. Stein
Dr. Roger C. Steininger
Ms. Katharine F. Whitley
Mr. David W. Young

Friends

Mr. Daryl Baron
Mrs. Mary Baron
Mrs. Cheryl Binda
Mr. Robert Binda
Ms. Barbara Bolio
Dr. Wen-Chao Chen
Dr. Maynard Conrad
Mr. David R. Crawford
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Western Michigan University GEOLOGY COMMUNITY 1974

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 Front Row-Bob Havira, John Koski, Gary Miller, Steve Pierce, Linda Harrison, Connie Chenard, Sue Stone, Jim Smith, Tom Strav

Photo by Robert Havira

ALUMNI/FRIENDS/FORMER FACULTY NOTES

Lynne Aldrich is still living in the Houston area and keeps busy raising two young children.

Dave Anderson and his wife visited the Department during homecoming. Dave is now living in the Philadelphia area.

Sandy Barnick is working for N.U.S. Corporation in Lansing, Michigan.

Rick Batt is teaching at Buffalo State College. He and his wife, Susan, have announced the birth of their daughter, Erika Lynne.

Pat Barrese is working at GEOWEST Golden, Inc., Golden, Colorado.

Andy Benziger paid a surprise visit. He and his wife live in Chicago.

Paul M. Ciaramitaro is employed by Groundwater Technology, Inc., Houston, as Manager, Business Development, RCRA Specialist.

Pete Clemens is working for Vika Engineering, Alexandria, Virginia, as a consultant to the Maryland State Highway Administration in Construction/Project Management.

Francine Cohen is with Dames & Moore in West Valley, New York.

Michael Dunn is working at the U.S. Naval Oceanographic Office at Stennis Space Center in southwest Mississippi as a nautical cartographer/hydrographer. He and Mary Beth Speaks were married in December of 1989.

Kate Edgar is attending graduate school at the University of California in Davis.

Elizabeth Garrett is in Albuquerque, New Mexico.

Nate Fuller visited the Department this summer. He's working for the Ohio Geological Survey doing research on Lake Erie.

Lori Wenz Gandy is working for Dell Engineering, Inc. in Holland, Michigan.

Lee C. Gerhard has an oil and gas geology consulting business in Lawrence, Kansas.

Mike Goff is a project manager with Missiner & Associates, Inc., a ground-water hydrology and environmental consultant firm in Florida.

Former secretary **Carol Harkness** and family are settled in their own home in Redding, California.

Kathy Hewitt is working at C-E Environmental in Portland, Maine.

Paul Horton is a district hydrogeologist with Groundwater Technology, Inc. in California. He is continuing computer modeling of ground-water flow and contaminant transport on state superfund and on RCRA sites in California.

Randy Hutton lives in Burton, Michigan. He works as a computer specialist for EDI Corporation and referees college basketball in his spare time.

Tom Hylland lives in Muskegon and is President of Wood Trucking Company, an excavating contractor.

Nicholas Johnson is residing in Marshall, Michigan.

Peter Klemkowsky is a project manager at the Department of Capital Improvements Projects in LaPlata, Maryland. He has completed studies in 1989 in traffic engineering at the University of Maryland and is returning to the University of Maryland to gain a master's in engineering management.

Matt Kuplinski has had various computer consulting jobs within the geology department of Northern Arizona University. He is working to finish his master's in geology. His topic is "Bathymetry, Geomorphology, Neotectonics and Hydrothermal Activity of Yellowstone Lake, YNP, Wyoming."

Gail Lancaster is teaching earth science in the Greenville, Michigan, school system.

Tom Laux is with the Denver Region Production Systems Group, Amoco Production Company, Denver, Colorado.

Barry McCool, Geraghty and Miller of the Detroit area; **John Herman**, an environmental engineering firm of the St. Joseph area; **Dennis Curran**, Canonie of California; and **Dave Arnold**, Groundwater Technologies, Inc. of Farmington Hills arranged visits to the Department to interview for new employees for their respective firms.

Julie Medlin and **Dick Cookman** are both teachers in the biology department at Northwestern Michigan College.

Ron Mercer and **Kristi Groendyke** were married this past summer. They now reside in the Grand Rapids area.

Gary Meyers is working in the oil industry in the Bakersfield, California, area.

Mark "Lance" Parish is a consultant in the Grand Rapids area.

David Piotrowski is a project engineer at Amoco Oil Company in Chicago.

Nora Rooney is working for Hercules Corporation in New Jersey.

Earlier this year **Brian Roth** was in Ventura, California, doing offshore well drilling. He also spent time in Alaska logging two wells in temperatures ranging from -60°F to +25°F with wind chills reaching -105°F. Brrrr!! His plans for this fall are to attend Wright State where he will be working on his master's degree in geophysics.

Ellie Papadopolous Sexton is in Corona, California.

John Shamo has his own oil company and drilling company in Mt. Carmel, Illinois, called Grasshopper.

Mark Stewart is Vice President for Technical Services at Superior Environmental in Marne, Michigan.

Tim Strong, currently a manager at Hot & Now Hamburgers, is returning to school to obtain teacher certification for earth science and biology.

Vince Szymanski is currently active in exploration for Niagaran reefs in southeast Michigan. He works for West Bay Exploration Company in Traverse City.

Tom Ulrich, a national park ranger at Homestead National Monument in Nebraska, is working on the restoration of 100 acres of tallgrass prairie to original species composition.

Steve Vealey is working on a master's degree at Colorado School of Mines.

Kevin Wilson received his Ph.D. degree from the University of Colorado and is now teaching at Bryn Mawr College.

Richard Yarger is Dean of Charlotte Campus of Edison Community College in Port Charlotte, Florida. He teaches one section of physical and one section of historical geology each year; he speaks to various groups on geologic topics; and he's interested in the cenozoic vertebrate fossil faunas of south Florida.

DONATIONS

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

You may specify that your donation go to the Department of Geology Development Fund or the W. David Kuenzi Scholarship Fund. 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.

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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.

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Return to: Dr. W. Thomas Straw, Chair
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