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College of Arts & Sciences

WILLIAM SAUCK

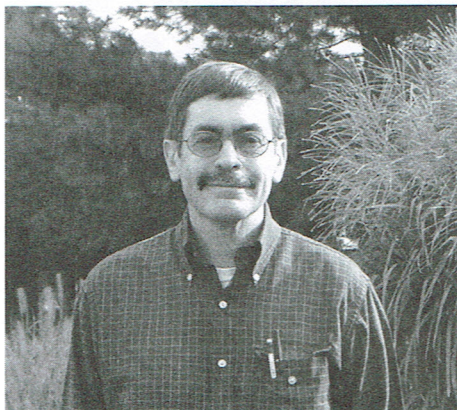
Department of

GEOSCIENCES

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Newsletter

December 2001



Alan E. Kehew Professor and Chair

These comments come in the wake of the tragic events of Sept. 11. Despite our concern for the country and sympathy for those who lost friends or family in the attacks, life in the department goes on. With the passage of less than a year since our delayed last newsletter was mailed, there is still quite a bit of departmental news to report. In the realm of faculty and staff changes, I am sorry to report that Estella Atekwana will be officially leaving the university after the fall semester. Estella has been on a leave of absence for the past year. We all wish Estella the best in her new position at the University of Missouri, Rolla. The good news is that the Provost and Dean agreed to move Bill Sauck into a tenured faculty position in the department to bolster our geophysics program. Bill had served in a variety of temporary positions since the Institute for Water Sciences was moved into our department without funding about 6 years ago. This is a welcome and long overdue development. In addition, Dean Jorgens also increased our technician position from half time to full time, and Brian Bird, the current technician, will fill the new position.

Last academic year we spent a great deal of time revising our undergraduate curriculum, including the addition of a new introductory course dealing with earth systems and cycles. This course will be taken by all majors after historical geology. We also created a new major, geochemistry, and revised several others. These changes are now undergoing review by the appropriate committees in the College of Arts and Sciences and elsewhere. We hope this new, up-to-date curriculum will help us to increase the numbers of majors, which has declined in recent years as the strong environmental job market slacked off. The number of earth science education majors, on the other hand, has more than doubled in the past several years, in response to an increased need in the schools for qualified earth science teachers.

Other notable events in the department include hosting the AAPG Eastern Section meeting in September and the establishment of an Outstanding Alumni Academy, with a ceremony and reception last homecoming weekend. The

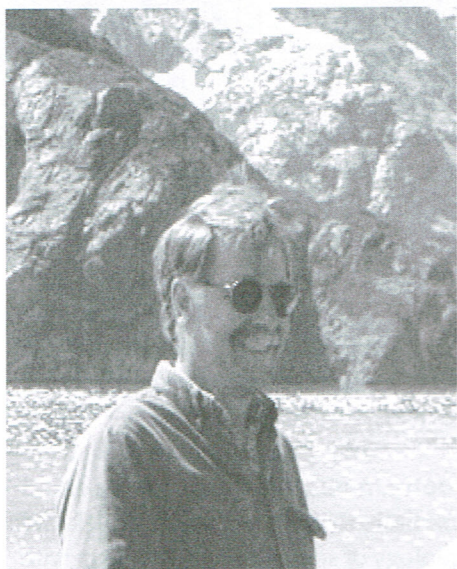
four alums selected for the academy are John Yellich, Mick Lynch, Julie Stein, and Chuck Harrington. You can read more about them later in the newsletter. If you know of others among the alumni who would be good candidates for this academy, please let us know. We would love to recognize them.

My personal activities were pretty much the same as usual. I continue to enjoy mapping the glacial geology of southwestern Michigan with the support of the MDEQ Geological Survey Division, and I am fortunate to have several outstanding graduate students working with me on this. I am also collaborating with Ron Chase on Lake Michigan bluff recession, as we begin a new phase of that research. Kay and I are about to become empty-nesters as our youngest of three daughters, Liz, finishes her last year of high school. When she starts college next year we'll enter a new chapter in our lives—Chapter 11. Have a great holiday season and please send us some news about yourselves.



Al Kehew talking about glacial stratigraphy in the rain on the AAPG glacial field trip. (Photo courtesy of Doug Daniels)

faculty news



Dave Barnes

Hello to WMU Geosciences Alumni and friends,

I hope that you are all fairing well and adjusting to the changes that have overtaken us as a result of the recent tragic events. My most recent activities of note were helping Bill Harrison (the General Program Chair) as Technical Program Chair for the 2001 Annual Eastern Section AAPG meeting held here in Kalamazoo. The culmination of our efforts over the last 18 months or so closely followed the tragedy of Sept 11; the meeting was held on Sept 22-26. The event was quite well received and we were both pleased that we could retain some semblance of normalcy and complete this challenging task, despite the horrible calamity that overwhelmed us all.

I recently returned to normal academic activities after a sabbatical leave during academic year 2000-2001. I was fortunate to receive funding in support of the sabbatical from DOE research grant funds awarded to Harrison and myself for continued study of the Dundee Limestone formation in Michigan and enhanced oil recovery technology studies. Boy, I'm a carbonate sedimentologist!

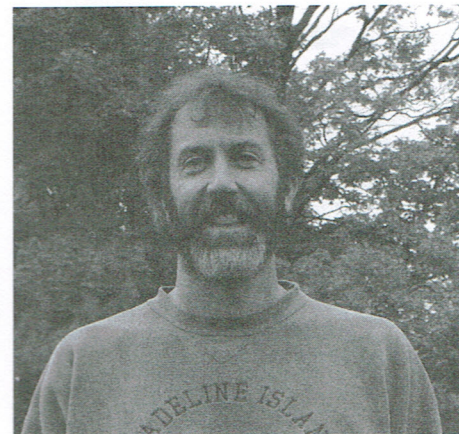
A consortium of faculty in the department have also managed to acquire substantial funding for a long term environment monitoring program at the new WMU Engineering College and

Business, Technology and Research park site. The objectives of the study are ground water quality monitoring and the publication of maps (via WWW) showing ground water and soil/surface water quality conditions at the development site, before completion, during construction and subsequent to the development project. The details are not yet finalized but six figures are likely in support of this long term project.

Other activities during the sabbatical included: many long hours working with computer systems and spatial data analysis technologies (including GIS) for various geological applications including our Dundee reservoir studies; completion of a paper to SEPM Core Workshop No. 21 on the *Sedimentology and Stratigraphy of the Sag River Formation, Northern NPR-Alaska*; presentation of a talk at Eastern Section AAPG in Kalamazoo entitled *Hydrothermal Dolomite Reservoir Facies (HTDRF) in the Dundee Limestone, Central Michigan basin, USA*; attendance at a couple of short courses dealing with Geostatistics and Computer systems in Geology; a consulting project to enhance a water flood project in the Dundee at the Buckeye field in Gladwin Co. through a detailed facies study, and a lot of quiet contemplation. I hope to have a "*Spatial Data Analysis in the Geosciences*" course in the catalogue for Winter 2003. The course will provide spatial data analysis and computer technology applications in the Geosciences as a formal elective for all of our Geoscience major and minor curriculum.

My family and I are truly enjoying our new life as "country folk" on farm on Wolf Drive. I have become an avid gardener and have gotten pretty good at it. The children are growing; Brendan made varsity Cross Country (at Hackett CC) and ran a 18:38 5k the other day. Lily and Nick are also scholar athletes and we are very proud of them all! Teresa has been doing very well in Nastar ski racing and during a recent 40th birthday trip to Valle de Sere was dubbed "Ms. Timber Ridge" by some french acquaintances. I have taken up snow boarding and manage to make it down the hill.

We are always pleased to hear from our alumni and other friends, drop a line and give us a report. Best wishes and PEACE.



Dan Cassidy

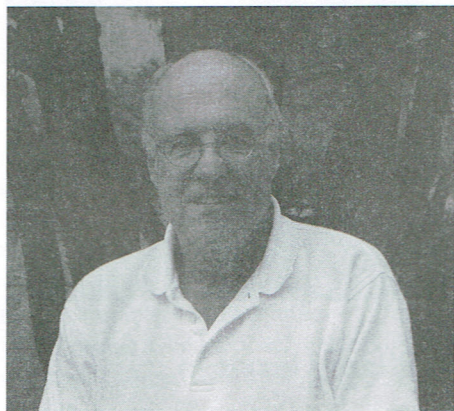
Greetings! I have a lot to report this year. I've seen two of my Master's students graduate: Ahmed Murad and Andy Hudak. This has been a very rewarding experience for me. Ahmed did his work on the use of sodium dithionite to dechlorinate trichloroethylene and tetrachloroethylene in iron-rich soils. He has now begun his Ph.D. research with R.V. Krishnamurthy on applying isotopes to the study of groundwater contamination in his home country, the United Arab Emirates. Andy Hudak did his thesis on the production of biosurfactants (i.e., molecules with detergent-like properties that are made naturally by some soil bacteria) at a nearby abandoned oil refinery. After finishing, he decided that he could not get enough of us in the Department of Geosciences at WMU, and is now staying on for his Ph.D..

I have also, with Duane Hampton and Steve Kohler (a new professor in Environmental Studies and Biology), received research funding from the Michigan Department of Environmental Quality to work on stabilizing and remediating the PCB-contaminated sediments in the Kalamazoo River. This work has proven a very challenging but rewarding experience. Working with Dr. Hampton and Dr. Kohler is a lot of fun, and is a welcome break from my laboratory-

based work. We even get to go wading around in streams and lakes and stuff. Real Geology!

Oh yeah, I almost forgot that I also teach classes around here. I taught Earth Studies (Geosciences 100) for the first time last winter semester. That was a lot of fun, in a strange kind of way. I got used to cell phones ringing in class, and many other post-modern experiences. For example, some young man raised his hand in class only to tell me, "I was *totally* going to ask you something, but I forgot what it was." Experiences like this make you realize something; I'm just not sure what it is. Actually, my Hydrogeology and Soils classes are getting more students every year. We love students around here, and would be overjoyed if you all would tell your sons, daughters, nieces, nephews, little brothers and sisters, friends, etc. that WMU is a great place to go to school (especially in the Dept. of Geosciences).

I would love to hear from all you alumni about your professional activities, and would be particularly interested in learning of information that would support research and job opportunities for our excellent undergraduate and graduate students.



Ron Chase

Hello once again, all alumni and friends! As each new year comes and goes, I feel increasingly lucky to have good health and great enthusiasm for teaching and geological thinking. I hope that you are as lucky. Please let me know what you are doing by contacting me at chaser@wmich.edu.

As for the teaching, this has been a year of innovation and re-structuring. My largest task was to write a totally new laboratory curriculum for the Geol. 100 (Earth Studies) course. With the re-designed undergraduate curriculum, Geol. 100 is now treated strictly as a general education course. With that in mind, I have written 12 totally new laboratory units that are now introduced with CD-ROM and Web technology, then culminated with hands-on experiments. The students now create igneous intrusions, sediment deposits, slumps, floods, contamination plumes, and beach erosion rather than look at the resulting features on topographic maps and aerial photographs. I also taught a new graduate seminar course last winter titled "Slope Stability Analysis" and things seemed to go very well. I hope to include this course in the regular graduate curriculum at a later date. For many years, I have been teaching Optical Mineralogy and Petrology/Petrography (many of you have struggled through these courses) using a relatively standard format with periodic updates. In light of upcoming departmental curriculum changes, I am now planning major changes in both courses. Optical Mineralogy will become Instrumental Mineralogy and will include an X-ray component, plus discussions of other instrumental techniques. Petrology/Petrography will include sedimentary rocks and will be followed by an optional course in Igneous/Metamorphic Petrology. We hope to have these courses available next fall, and I am getting ready now.

As for my research, I am as busy as I have ever been. The Lake Michigan bluff erosion project, in collaboration with Al Kehew and Bill Montgomery (my former Ph.D. advisee), yielded this year three refereed publications, one paper in press, one paper currently in an advanced state of preparation, and three chapter contributions to two books. Look for two of our contributions in the next guide to property protection in Great Lakes coastal environments to be published by the Federal Sea Grant Program. The U.S. Army Corps of Engineers recently came through with their first installment of a five-year, \$1.2M commitment to conduct dewatering experiments at selected coastal

bluff sites. We have discovered that ground water activity is the primary culprit in creating coastal landslides and we have proposed, and are implementing, a dewatering system to stop the movements. The Corps of Engineers is funding our experiments along with the continued monitoring of the relationships among slope movements, wave activity, precipitation, air temperatures, and ground water activity. I also have some residual interest in Rocky Mountain foreland folds, largely kindled by Tim Clarey's (my former Ph.D. advisee) continued movement toward publishing on the subject.

As for my personal life, I continue to be very happily married to a lovely woman who puts up with me and makes me laugh. I still jog regularly and play a mean game of tennis (for an old fart). Chris is still teaching Adult Education Social Studies courses at Comstock High School and running the Chase household as an excellent business manager and efficiency expert. Among our four sons, Karl remains the Regional Sales Manager at the Westin - Michigan Avenue Hotel across from the Hancock Building in Chicago, Andy is a free-lance webmaster in Seattle who contracts to whomever can use his design and layout experiences as a journalism graduate, Scott is a second year surgical resident at Botsford Hospital in Farmington Hills, and Jamie is a federal attorney assigned to the Rhode Island Federal District Court in Providence. We are proud of them all, but do not get much chance to see them anymore.



A gathering of data by the Slope Stability Analysis class. Will the next slump occur here?

faculty news



Contemplating movements on the Lake Michigan coastal bluff. Previous movements are certainly evident.



Duane Hampton

It has been a fulfilling and busy year for me and my family. Dan Cassidy and I received funding to develop in-situ remedial methods for PCB-contaminated stream sediments. I got to take a sabbatical semester this fall to work on that research. The department has made considerable headway on undergraduate curriculum reform. Meanwhile at home, our younger daughter married in California and our older son embarked upon two years of missionary service. My wife and I celebrated our 25th anniversary by visiting Alan & Kay Kehew in Maine and Dick and Virginia Passero in Connecticut.

Dr. Cassidy and I have begun making progress on developing improved

methods of in-situ remediation of contaminated sediments. Of course, Dan is nearly done while I have hardly started, but we have notched some significant milestones. The main idea is to use geotextiles as biointrusion and erosion barriers, to separate contaminated sediments from the food chain. We installed two test patches in Gull Creek, the same stream studied during Mike Dalman's MS research. Thanks to Andy Kozlowski for suggesting that field site.

We will compare benthic organism populations underneath the test patch prior to installation and about 1 year later with the populations in two control areas. Meanwhile, Andy Hudak and Dave Beck are figuring out their research contributions to this area. It looks like Dave and I will study geotextile patches in lab permeameters containing PCB-contaminated sediments to see how well the geotextiles stop movement of organisms and PCBs.

We are seeing increased interest in the hydrogeology major. Our students have had good job options for the last several years. Perhaps that word is finally getting around. We are currently working on slightly revising the major to update it. The next frontier will be rethinking the graduate curriculum.

I hope all of you alumni and friends are doing well both professionally and personally. Drop me a line, call or email me if you get the urge.



William Harrison

This year was an exciting and frightening one for me. It was typical in the classroom as I taught the normal load of Evolution, Historical Geology and Paleontology. It was frightening because I contracted a virus in late March that produced some very scary symptoms. A loss of motor skills and equilibrium through a several week period led to a week

long series of hospital and doctor visits and probes and tests that generally mystified the specialists. The final diagnosis was viral encephalopathy, an inflammation of the fluid surrounding the brain. Apparently, it is a temporary affliction and I am now back to normal (well at least as close to normal as I ever was).

My research projects on improved recovery of oil from old Michigan fields are continuing with lots of new results. We have been looking at several Dundee oil fields with the purpose of finding additional oil. The projects involve surface geochemical mapping which has provided some very exciting results. A horizontal well was drilled in one of these fields late last year. It did encounter hydrocarbons, but it proved non-commercial due to the high water cut. We are also working on a large core study in another Dundee field with hopes of redesigning the existing water flood to recover more oil.

The professional event of the year was the Eastern Section of AAPG annual meeting which was at Western this year. I was the general chairman and the planning for this meeting has been going on for over 15 months. There were two full days of technical sessions, 2 fieldtrips, and three short courses. About 240 people attended some or all of the activities.

Linda and I had a wonderful trip to Germany and Switzerland in July as I was recovering from my spring illness.

I have also been making plans for my retirement. It is hard to believe that I have been at WMU for over 28 years. This fall I have gone on a half-time appointment, teaching only during the fall semesters. I will continue that for two more years then retire completely in December of 2003. I will continue to be involved in the Core Lab and still do research on Michigan petroleum geology.

This year we began planning for a new core lab facility. We have nearly outgrown the present one and we have convinced the University that a new facility should be a priority. We hope to begin a capital campaign to raise money for the new lab in the very near future.



Michelle Kominz

Greetings, friends and alumni of the Western Michigan University's Geology Department. They say time flies when you're having fun. I must be having fun because I can't imagine another year has passed. I think that this job gets more complicated every year. I thought it was supposed to get easier!

As graduate advisor I need to start recruiting. And since I have your attention, a prime aspect of recruiting is statistics on the professional success of our graduates. I would love to hear from anyone who is willing to share stories of their success or otherwise with potential graduate students. (kominz@wmich.edu)

Teaching responsibilities last year were minimal. I taught a lot of Ocean Systems. It gave me a chance to get into my research and make commitments that are now keeping me hopping as I am back to what feels like more than a full load. I have finally joined the Ocean Drilling Community, with an appointment to iISSEP. That stands for "Scientific Steering and Evaluation Panel - Interior" of the iODP, new "Integrated Ocean Drilling Program." A new ship is being built in Yokosuka, Japan, so my first official meeting is there in November.

This Fall Bill Harrison III, with help from a cast of characters, hosted the Eastern Section of the American Association of Petroleum Geologists Meeting here at Western. In addition to administrative responsibilities, I finally put together the Michigan Basin work that

my basin analysis students and I did here years ago. Using the latest time scales I found that while the early Paleozoic evolution of the Michigan Basin was largely thermal with a sea-level overprint, there still remains a distinct signal from the Taconic Orogeny.

The data keeps pouring in for evaluating past sea level in New Jersey. Faster than I can handle it. I suspect I will have to hire on a new Master's Student, since Bill Van Sickel has graduated and is gainfully employed in Jackson, MI. I have even started a project with Chris Scotese to re-evaluate the sea-level variations due to ocean ridge volume changes.

In addition to ocean systems I have taken over the helm for introductory Geophysics. Having lost Estella Atekwana to University of Missouri at Rolla, I have been granted this outstanding opportunity to interact with our undergraduate majors and many fresh incoming graduate students. The class is both very challenging and very rewarding. So far we have experienced a lot of geophysics in the rain in the "hands-on" aspect of the course.

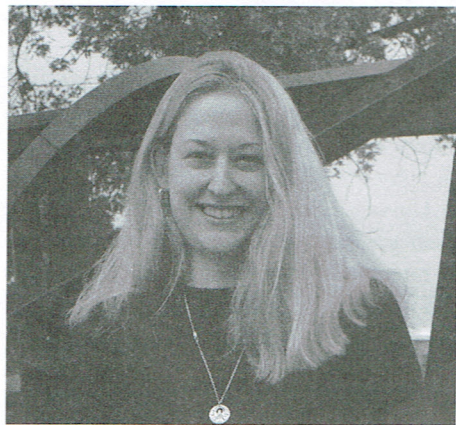
In the summer I got to teach "Our Earth, A World of Change", an earth science/ education course in Battle Creek. This year instead of a field trip to a quarry or to the beach we took a field trip to down town Battle Creek.

With help from John Grace and my digital camera, I put together a field trip guide which the students were able to take on their own after an introduction to rocks and minerals in the class. A good time was had by all. This was an unusual group of students. When I gave them a choice of working on their projects or listening to yet another lecture on global warming, they chose the lecture.

Sometime this past year I took on a few additional university responsibilities. I am the web-mistress for our chapter of Phi Beta Kappa. I am also serving on the steering committee for the College of Arts and Sciences Women's Caucus. The Geoscience Department is looking for a new professor to replace Bill Harrison who is going on half-time appointment as he finalizes plans for retirement. Somehow I find myself serving as chair of that committee.

faculty news

I am just about ready to go out and buy a new set of carving skis to try to enhance my downhill racing at Timber Ridge. Last winter I took a two-day racing clinic in Colorado to get ready for the season. It was a little disconcerting since in Colorado we learned how to do slalom and giant slalom whereas what we do in Timber Ridge is halfway between the two. I still try to get to the gym for aerobics, but in the weight room its very difficult to compete with the health-conscious students.



Carla Koretsky

It's hard to believe that a little over a year has gone by since my arrival at WMU! It's been a busy and challenging, but also highly rewarding year. First of all, my lab in Haenicke Hall is now fully functional, in no small part because of the hard work of two undergraduates, Caren Ihle and Doug Miller, who have been working with me. Thanks, guys!! Peter Voice, a senior geology major, has also been in the lab this summer, working on his honors thesis. I am also very pleased that two master's candidates, Noah Ndenga and Abe Northup, have joined my biogeochemistry group this year. We're all looking forward to starting work on 2 year project for which Johnson Haas (Chemistry) and I recently received funding. This study will focus on seasonal changes in trace metal speciation and bioavailability in the Kalamazoo River and Asylum Lake. I'm especially looking forward to the convenience of doing fieldwork so close to home!

As many of you know, I've spent quite a bit of time traveling since I've been here.

Last September I presented work at the Goldschmidt Conference in Oxford, England. In December, I attended and presented work at the URESCO Geochemistry of Crustal Fluids meeting in Granada, Spain. In February, I returned to Europe for fieldwork in the Scheldt Estuary (Netherlands and Belgium). Unless you really like standing in the cold mud while it's sleeting, it's perhaps not the best time of year for working in the Scheldt marshes. In May, I dashed off to another Goldschmidt meeting, this time in Hot Springs, VA and then spent a very nice week in London, England with a long-time friend. As if that weren't enough traveling, I returned to the Netherlands at the end of July, to work with collaborators at Utrecht University and also to do more fieldwork in the Scheldt Estuary at the end of August. However, I didn't spend all of August in the Netherlands. For one week, I was in the highlands of Scotland (alternating between being very cold and being harassed by midges), working at another series of field sites, with Johnson Haas and his extremely patient undergraduate research assistant, Nancy Morgan.

In case traveling, teaching and research won't keep me busy enough in the coming year, I've recently agreed to become the new joint-editor of the Geochemical News, which is the joint quarterly newsletter of the Geochemical Society and the European Geochemical Society. So, if I look especially harried in the middle of October, January, March and July, you'll know the reason!

Finally, I'd like to thank all of the students, faculty and staff in the Geosciences Dept. for making me feel so welcome during my first year at WMU!!



Students working in Carla's Lab



R.V. Krishnamurthy

For me, the past year continued to be in a state of "hang over" of the previous sabbatical absence away from Western. This is somewhat literally so since I had the opportunity to spend several months in Germany! While in Germany, I spent working at the famous Max Planck Institute for Biogeochemistry, looking for clues to the origin of amino acids in meteorites. The technique involved compound specific isotope ratio analysis, the state of the art approach in the field. I also presented a series of seminars at the institute discussing my various research activities. They must have liked all, or at least most of what I did; for this summer they made a repeat invitation to visit them and suggested that I think seriously about offering a regular summer course to European students in general. In addition to Germany, I was invited by the Finland Geological Survey to give talks and help the students with their research in isotope hydrology. I topped off the sabbatical leave with a visit to India to attend the Mass Spectrometry conference in Goa under temperature conditions of 75 degrees while Kalamazoo experienced one of the worst snowstorms in recent memory. Sometimes I wonder if we can separate Canada and USA landmasses and fill the gap with the warm Atlantic Ocean waters, won't the Silicon Valley move to Portage!

As the New Year dawned, I returned home to resume duties and the first task of course was to see if the Stable Isotope Lab was revivable at all! Thankfully, with the help of a hefty investment and speedy availability of the

factory engineer, the lab could be resurrected. Loago and Ahmed, the two international students soon jumped into the battle scene and began acquiring the intricate skills needed to exploit this facility for their research. They are pretty adept with the situation by now and are looking forward to the "final assault". We are looking forward to some productive times ahead.

On the home front, all praises to Sujatha for running the show more efficiently than me in my absence; Sowmya did pride to every one by coming second in the state in impromptu forensics and by passing the driving test with great ease. As we go to press, she has just been accepted by the University of Michigan as an undergraduate where or any other place she wishes to chose, she will major in business. Rohan continued to make waves as an accomplished musician, going places and giving interviews to the media. In sum it was indeed a "win-win" year.



John Luczaj

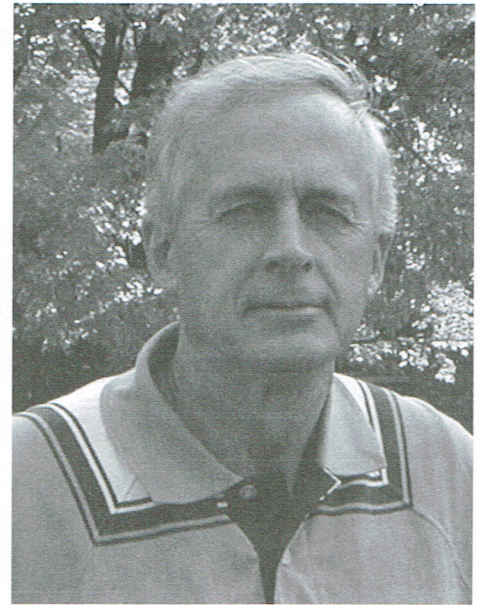
Well, a whole year has gone by since arriving in Kalamazoo. Betsy and I have enjoyed meeting everyone in the department and throughout the WMU community. I taught several classes during the last academic year, and I'm especially eager to teach a course in water-rock interaction during the Winter 2002 semester.

This past May, I led a Geology Club field trip through Wisconsin and The Upper Peninsula of Michigan. We visited underground mines, tailings piles, too many road outcrops to mention, and we had a blast on a boat tour through the Cambrian sandstones of the Upper Wisconsin Dells. The trip was a great success, and I look forward to doing this again in the future. I'm planning to set up a website with pictures from the trip some time this fall, so keep your eyes open!

This summer, I began new research into the water-rock interaction history of rocks in the central Michigan basin as part of a DOE funded grant awarded to Bill Harrison. Chris Schmidt has been kind enough to allow me to use space in Heinecke Hall to set up a fluid-inclusion lab for my research. My initial data suggest that faults and fractures served as fluid flow pathways in many Devonian oil reservoirs in the central part of the basin. The precipitation of coarse saddle dolomite crystals took place at much higher temperatures than were previously expected for such shallowly buried rocks. I'm presenting a poster at GSA in Boston this fall that discusses the preliminary results of this study.



Photo from the Wisconsin Dells Trip



William Sauck

My last year's newsletter entry ended with the beginning of the Fall semester as Visiting Professor at the Univ. of Brasilia, which I was able to arrange because of the alternate academic year contract (Jan.-Aug.) at WMU. I lived with friends in an apartment in a "super block" within about 2 km of the University and walked every day. Brasilia is a very nice city to live in, with pleasant climate all year. Eric was enrolled at an Air Force school in Belém (2000 km N) while Christine and Carolyn involved themselves with research projects at the Univ. of São Paulo (1000 km S) and part-time jobs (teaching English). Elen spent most of her sabbatical time traveling between these places and visiting Universities and research institutes that had active meteorology programs. I gave a one-week short course on GPR, as well as a 4-part lecture series in Brasilia. The Brasilia geophysics group had two main emphases: interpretation of airborne geophysical mineral exploration surveys, and near-surface geophysics for environmental, engineering, and groundwater research. The second area is just getting started in Brazil, so they were very interested in what we have done here in MI. They also had a successful geophysical services "spin-off" company just "graduated" from the University small business incubator

faculty news

program (best of 16 companies). I was able to help a number of students in field projects, including some work in the northern part of the state of Minas Gerais. Thus, I saw quite a number of interesting localities on the Central Plateau in the Federal District and Goiás State as well. At the end of Oct., I was invited to the Univ. of São Paulo, Institute of Astronomy and Geophysics to give a lecture series for several days, and to review research projects. It was very gratifying to see again former students from the Belém years (1976-79 and 1984-87) who are now professors scattered all over Brazil or working in Federal agencies. Our family gathered in São Paulo for Christmas and in Cabo Frio and Rio de Janeiro for New Year's. On the night of the 31st we were on Copacabana Beach with approximately 1 million other people for the true beginning of the new millenium. Twelve launching stations for fireworks along the 3 km of beach made it a once-in-a-lifetime spectacle. On returning to Kalamazoo the first week in Jan., we were greeted by 3 feet of snow, forcing me to buy my first snowblower. Winter term of 2001 was busy with Seismic Methods, as well as GL 130. We continued to upgrade our Geometrics R-24, adding 2 spread cables, 50 more geophones, and a roll-along switch so that CMP profiling can be done. The geophysics group had a paper published (with Dale Werkema as lead author) in the IEEE Transactions of Instrumentation and Measurement in late 2000. Another was published (with Dan Cassidy as lead author) in the Jour. of Env. and Eng. Geophysics, relating the effects of LNAPL biodegradation products to electrical conductivity. The group (still including Estella Atekwana from Rolla, MO) also gave two papers at the SAGEEP meeting in Denver (early March) and I was co-chair of a session. At the end of March, I gave a paper at the European Geophysical Society meeting in Nice, France. Spring was spent getting ready for the Summer Hydrogeology Field Course, which was successful with enrollments between 8 and 13 for each of the six modules. Immediately after that I returned to Brazil for 3 weeks in August on a ticket sent by the Univ. of São Paulo. I served as the external examiner for a

Ph.D. defense (which lasted 4.5 hours) and gave seminars, later spent a few days working on a project at the Univ. of Brasilia, and then north to São Luis and finally Belém. It was an interesting year!

CORE LAB STAFF



Robb Gillespie

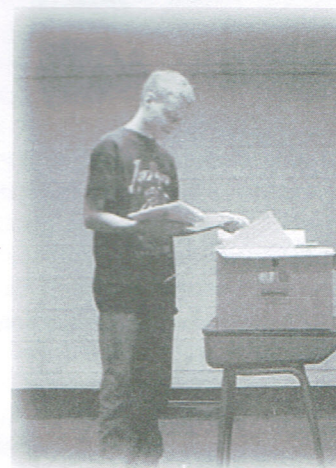
It's been a fun-filled, action-packed year. Wife Linda and I finally bit-the-bullet last year and both decided to take early retirement. We wanted to move back to Michigan to be near her family in Battle Creek, and after twenty years in Texas, we had come to the conclusion that we missed the seasons and hated the heat. So, Linda left the Visiting Nurses behind and I brought my geological consulting and small oil business along with me. Knowing that Battle Creek would not be a bustling oil and gas hub like I was used to in Dallas and Houston, I decided that I'd better get familiar with Western Michigan University and the Department of Geosciences if I ever wanted to speak to another geologist again. Dr. Kehew immediately made me feel welcome, inviting me to attend the Monday seminars, and introducing me to the various members of the department. Dr. Harrison, being the designated petroleum geologist of the department was at the top of the list. Always on the look out for help

with the Core Lab, he immediately got me involved. After a year of reorganizing, expanding the collections, building more data bases and all the other things that go on around the lab, it is hardly recognizable as the same place. It has been a year of immense forward progress for the Lab, and as always, it's an exciting place to be.

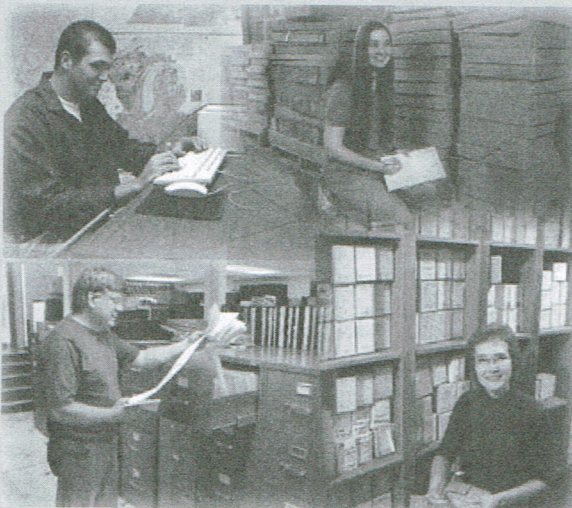
I was honored this spring with an appointment as adjunct faculty with the Geosciences Department. I guess they figured I was serious about being involved around here when I kept showing up for Monday seminar. I'm looking forward to possibly teaching my first course here at Western this winter term.

My partner and I (through our oil company Tres Rios Resources, Inc) participated in drilling a well in east Texas this past summer. We ended up plugging and abandoning the well, but capillary test data from the core indicate that we are on the right track. We're hard at work re-mapping the prospect, revising our leasing and land position, and getting ready to try again. Wish us luck.

And on the home front, Linda and I have just started building our "dream house." It should be boxed in before the winter weather sets in, so it will be an exciting season of inside progress (along with the associated choices). I guess we're here to stay. So - I'm having fun with my tractor and chainsaw, and Linda is winning quilting awards. Yup - back home in the midwest.



Student working at the Core Lab



Michigan Core Research Lab

Those of you who worked in the Core Lab might have a little trouble recognizing it these days. We've cleaned up, painted, waxed, organized, got new lights in the "way back", replaced ceiling tiles, tossed out enough stuff to fill a 40' dumpster, gotten more computers and less mice, and a new pallet lift.

As the Michigan Center for the Petroleum Technology Transfer Council (PTTC) we are maintaining our webpage, from which you can reach several databases with information about our cores, cuttings, mud logs, driller permits and core analyses. These databases receive over a thousand hits per month, so we know we are reaching Michigan's industry.

We continue to offer low-cost, cutting-edge technology workshops. The last one (in September) was about surface exploration in marginal (or abandoned) basins, using geochemical/microbial and seismic techniques. Those are cheaper, less invasive and highly effective. In December we'll offer part two of Bob Knoll's very popular workshop of horizontal drilling.

All this work is part of our effort to make the place more useful and accessible to students, faculty and industry users. Our Advisory Council has been very helpful and supportive in writing letters and giving us advice—thank you so much!

We are also hot on the track for new or additional space for the Core Lab, because we are literally up against the walls. We may be getting more rooms here at West Hall. Ideally, we'd like a new facility, and have been working with the powers that be here at the University through the capital campaign toward that goal. It's a dream just now, but so was the Core Lab when Bill first started it. As always we are interested in tracking down any Michigan cores/cuttings/data we can get. If you know of any needing a home, we'll try to pull our belt tighter and take it in.

We certainly would welcome your input, comments and help as we go through this expansion. We wish you every success in your plans as well.

Groundwater Education of Michigan (GEM) Center

The GEM Center has undergone quite a few changes in the past year. One very sad change was the loss of Associate Director Lauren Hughes this past March. Even with her illness, she continued to work with the GEM Center providing her support and knowledge to both the SWAP program and the Kalamazoo River Watershed project.

We all miss her very much.

There are three distinct projects that the GEM Center focused on in the past year. The majority of work focused on a grant from MDEQ for the Kalamazoo River Watershed. This had three major parts. One was a project in conjunction with the Western Michigan University GIS Center in the Geography department to develop watershed atlases for all townships in Kalamazoo and Allegan Counties as a resource for regional planning activities. The second part focused on developing a strategy and pilot design Kalamazoo River Watershed water quality data information center. The third portion focused on developing a watershed education strategy.

The second project is the Source Water Assessment Program (SWAP). We just finished our fourth year of a five year project facilitating, in Southwest Michigan, the statewide SWAP program for the MDEQ Drinking Water and Radiological Protection Division. This project involves coordinating work efforts with the Environmental Health Departments for nine counties, using G.P.S. to locate Type 2 water supply wells, assessing source water vulnerability for Type 2 wells, and supporting the upgrade of the State's Type 2 database.

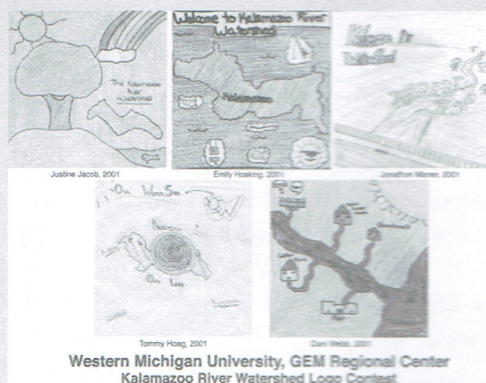
The third project, Nottawa Creek, will come to an end early in the next fiscal year. This project worked toward good land use management, resource protection, and investigated local land use and its effect on ground and surface waters. Gerald Unterreiner, a Ph.D. candidate is working to finish up final drain tile sampling and analysis which is the basis for his final dissertation.

Other changes to the GEM Center were the addition of two new staff members.

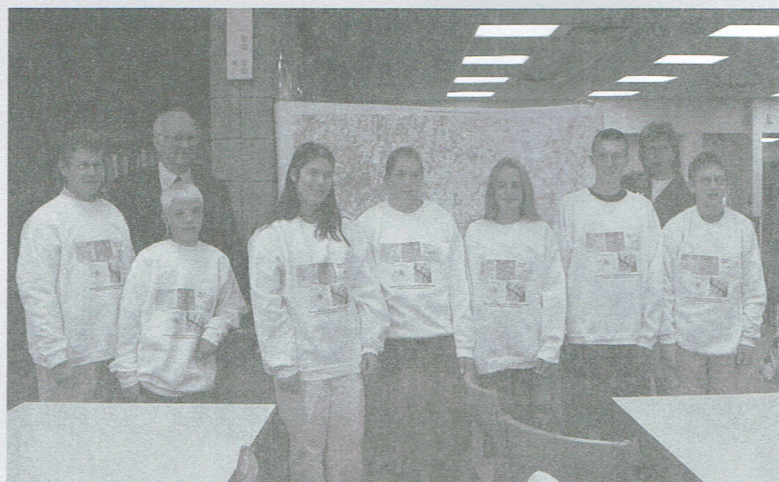
Betsy Luczaj started working with the GEM Center in October 2000 to work on the projects with the Kalamazoo River Watershed (KRW) Data Information Center discussions, as well as the Source Water Assessment Program. The GEM Center held bi-monthly meetings with local groundwater resource providers to discuss and develop a strategy for the development of a KRW water quality data information center. Through these discussions, a strategy was developed as well as an Internet based pilot design website. Betsy completely overhauled the GEM Center website so more current project information, and available resource materials would be available to participants in these grants and to local educators. The GEM website can be viewed at: www.wmich.edu/geology/gem. The pilot water quality website can be accessed through the GEM website. The pilot design is a simple initial design that could be used as a base to develop a more thorough water quality data center in the future. Betsy will continue on with the GEM Center at least through the next year as the Groundwater Specialist for the SWAP program.

Charles Barr worked with the GEM Center on the Kalamazoo River Watershed Education project from June 2000 through the end of September 2001. This project worked with various community watershed leaders to develop a strategy for Kalamazoo River Watershed education. Monthly meetings were held to develop a consensus on how to increase awareness and recognition of the Kalamazoo River Watershed. One exciting element of this process was the success of the "Kalamazoo River Watershed Logo Contest" held this spring by the GEM Center. The focus groups along with the GEM Center agreed that a beginning step in building awareness of the watershed is to have an identifiable logo that could be used on roadside signs pointing out watershed boundaries, watershed educational handouts, and any other watershed related materials. The contest was a first step in creating a recognizable watershed logo. The Kalamazoo Gazette advertised the logo contest, and information was provided to all the middle schools in Kalamazoo, Allegan and Calhoun Counties in May of 2000. We had several really nice submissions from Harper Creek Junior in Battle Creek. Six of the top submissions were selected as contest winners. An awards ceremony was held on September 25, 2001 at Harper Creek Junior High where the winning entrants were awarded sweatshirts with designs bearing their artwork on the front, and a watershed map with the winning slogan, "There really is a Kalamazoo, did you know there's a watershed, too?" on the back. A large scale map (1"=2 mile) of Calhoun County, created by the WMU GIS Center was also awarded to the school. The City of Battle Creek used one of the winning logo's as part of their designs for the October 6th, Kalamazoo River Cleanup day. Pictures of the logo contest winning entries and of the contest awards ceremony are available to view on the GEM website.

In the coming year, GEM will be focusing on the SWAP project. Sue Nap began working with the Dean's office three days a week as of October 2001, so will only be with the GEM Center two days a week. Kathy Wright and Beth Steele will be taking over any remaining IWS responsibilities.



Logo contest designs and winners



graduate student news

Delwar Ahmed, Ph.D. Candidate

My research interest is to look into the natural attenuation of ketones, alcohol and ether in the leachate from West KL Avenue Landfill site in Kalamazoo, Michigan. The plume extends westwards about 7200 feet from the west edge of the landfill site over the last 22 years since the closure of the site in 1979. Until now I have analyzed well logs from 12 wells and their geochemical data to calculate the rate constants for the above mentioned three groups of volatile organic compounds (VOC). The wells have records ranging from 8-20 years of time. I am using three methods, such as, Buscheck and Alcantar (1995), Weidemer et. al. (1996) and Mann-Kendall Statistic test.

My future goal is to incorporate as many well data as possible from the impacted area that is being monitored on regular basis. If we could calculate the attenuation rate constants then it would be possible to predict the extent of the plume over distance and it will also give us idea about the interaction of the compounds with the subsurface material. It is planned to construct a 3D geologic and geochemical model of the area based on available well logs and geochemical data from the groundwater samples that were analyzed over the years since the closure of the landfill in 1979.

Steve Beukema, M.S. Candidate

Since my arrival on the WMU campus about 6 months ago I've solidified that I'm both pleased to be here as well as pleased to be concentrating my efforts on geology. I'm working with Dr. Kehew and friends on glacial geology, with my work ranging from mapping the western-most area of Van Buren County to such lab activities as sieving and XRD analysis of clay mineralogy of the diamictos. I'm just beginning to catch a glimpse of the seemingly impossible nightmare we're all facing in this project, but I've already experienced some of the fascinations and joys of working with glacial deposits.

Brian Bird, M.S. Candidate

Hello once again. Still working on the glacial stratigraphy of the Lawrence, Paw Paw, and Decatur quadrangles. Having a fun time with ArcView and Rockworks. I recently presented a poster dealing with the 3-D glacial mapping of the Lawrence quadrangle at the national GSA conference in Boston. I'm currently co-authoring one with Dr. Kehew and Andrew Kozlowski for the North-Central GSA on using digital elevation models to help characterize the glacial landforms on a regional level. We merged over 100 DEMs at the 1:24,000 scale to produce a map of southwest Michigan. As far as the Technician position is concerned it's been a rather busy time. This summer I helped Andrew Kozlowski drill a bunch of test borings with the department drill rig, with a little TLC it's been working fine. I have had many school tours come through the museum. We even had 60 3rd grade students at once, thanks to Andrew Kozlowski and Shannon Wong for their help keeping all those future geologist together. I'm looking forward to coordinating the Hydrogeology Field Camp this summer. I've already had a few inquiries from prospective students. Make sure to check out the web page at <http://www.geology.wmich.edu/fhydro/index.htm>. I would appreciate any feedback on the web page so be sure to drop me a line.

Kurt Carlson, M.S. Candidate

The last of taking water samples at the refinery is not too far away. This is sort of bad in that funding will disappear, but good because things are progressing. I do not know if there will ever again be such a wide variety of weather conditions for taking water samples as in this project. Literally, there has been everything from blizzards and biting cold to very uncomfortable heat and humidity. As somewhat of a surprise, the Water Quality Lab is a source of usable instrumentation for analyzing water samples. The chemistry department was gracious enough to let me get a new key for the place and Dr. Barcelona said I could

use the ion chromatograph. This is really a good thing, since samples ran through the IC at low cost very closely matched some more pricey lab results from July. That will save a bunch of funding on the last round of samples. Well, winter is coming soon-maybe it will be a real winter this year so my sled won't be abandoned so much.

Andrew Kozlowski, Ph.D. Candidate

At present I am continuing my research into the Origin of the Central Kalamazoo River Valley. I am finishing up final fieldwork, and simultaneously writing chapters for my dissertation. Recently my colleagues Brian Bird, Steve Beukema, and Dr. Kehew and I have made some advances in understanding of the influence of bedrock and subglacial hydraulic conditions of the glaciers that were responsible for creating the landscape in southwestern Michigan. These finding will be presented at the GSA north central meeting in April. In November we presented posters on the results of last summers glacial mapping at the annual meeting in Boston. Our projects were well received and I hope to start work on some manuscripts to publish our results this spring and summer.

Franklyn Legall, Ph.D. Candidate

Franklyn was awarded \$5,000 funding from the Michigan Space Grant Consortium (MSGC) Graduate Fellowship program for 2001-2002.

Ahmed Murad, Ph.D. Candidate

Hi there!! My life changed dramatically this year after I had a new baby girl who was born on June 19, 2001. Her name is Rand. The name means a beautiful tree that grows near the mountains. I can't describe my feeling after that time except to say that I am filled with happiness. I am so busy this semester because I am training in the isotope lab with my friend

Loago under the supervision of R.V. Krishnamurthy. My research involves using chemical analysis and isotope technique to identify different sources of salinity at the United Arab Emirates (UAE). For that reason, next semester I will stay away from snow and winter season. I plan to visit my country to see my family and then start sampling and collecting data at the beginning of the New Year. Anyway, I am spending most of my time in the lab from Monday to Thursday, and sometimes on Friday.

Kennedy Mwanda, M.S. Candidate

Hi to all

I first want to thank the Department of Geosciences for the good times my family and I have had.

My thesis project involves multi method geophysical examination of a hydrocarbon-contaminated site, Crystal Refinery, Carson City. This project is to characterize the site at fewer costs without causing further environmental damage to the site and will bridge a gap of the work the department has carried out to the north and south of the former petroleum refinery.

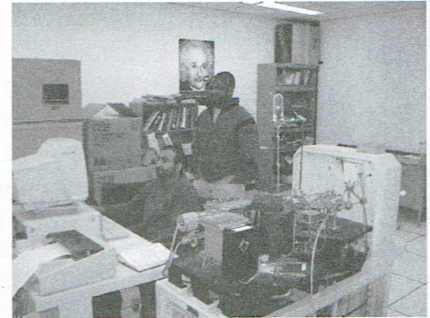
Last spring through summer I spent good time collecting data and now report writing and hoping to get done next year.

Paul Pare, Ph.D. Candidate

I am currently working on my dissertation whose site is the Lee Baker Farm/Business Research Park/Asylum Lake area. Two of the more interesting components are the compilation of existing data archived over the years for the site and the use of this and new data in GIS/baseline study of the area. I am using a variety of modelling, GIS, and chemical analysis tools to accomplish these tasks. I hope to finish any new data collection in the new few months and then complete my dissertation and my doctorate.

Gerald Unterreiner, Ph.D. Candidate

My dissertation describes how geochemical, isotopic, and hydrologic data were utilized to help understand the transport of nutrients and herbicides in a study of a private farm and surrounding area within southwestern Calhoun County, Michigan. This research was partially funded by an EPA 319 grant through the Michigan DEQ and the WMU GEM Center and is part of the Nottawa Creek Watershed Project. A sampling network provided water quality data from 9 glacial drift observation wells, 2 streambed wells, 4 domestic drift wells, Nottawa Creek surface water, and 8 tile drains. The 22-month study, from December 1999-September 2001, afforded 12 sampling events to characterize relationships between groundwater flow systems and Nottawa Creek.



Ahmed Murad and Loago Molwalefhe work in the Isotope Lab.



Andy Kozlowski and Brian Bird at a drilling site.

2001

**Geosciences Department
Awards**

**Graduate Research and Creative
Scholar Awards**

Andrew Kozlowski
William Van Sickel

**Graduate Student Teaching
Effectiveness Award**

Gerald Unterreiner
Mark Worrall

Presidential Scholar

Laura Sherrod

Senior Honor Awards

Earth Science

Nicholas Forfinski
Caren Ihle

Earth Science Education

Heather Hedtke

Geology

Laura Sherrod

**Advisory Council Field Camp
Scholarship**

Neal Dannemiller
Heather Nicholas
Justin Vetter

Laton Field Camp Scholarship

Kimberly Wilson-Amos

**W. David Kuenzi Memorial
Scholarship**

Kennedy Mwanda
Bonny True
Gerald Unterreiner

Lloyd Schmaltz Award

Peter Voice

Elizabeth Garrett Scholarship

Jane Westphal

**Distinguished Student Service
Award**

Andrew Kozlowski

**The Kalamazoo Geological and
Mineral Society Scholarship**

Peter Voice

Recent Graduates

Bachelor's Degree Recipients

Earth Science Majors

Nathan Becker
Heather Hedtke
Geoffery Howe
Dana Janiak
Teresa Murphy
Rachel Ramey
Michelle Smith
Charles Tallinger

Geology Majors

Stephanie Kohlhaas
Heather Nicholas
Mary Savillo

Hydrogeology Majors

Andrew Whelpley

Master's Degree Recipients

Earth Science

Darren Lamsma

Geology

Andrew Hudak
Eric Steeves

Sunny Thiessen Hicks (BS, 1987)

I did attend graduate school at the University of Alabama, hoping to complete a master's degree in structural geology (I ended up an hour short). I also worked for a geologist in Tuscaloosa who turned me on to subsurface mapping.

Since Tuscaloosa, however, my life has been almost devoid of geology. I have husband who enjoys examining road cuts and river cuts with me, and most of our kids know slate from chert. Our youngest was out in the yard banging rocks with a hammer just hours ago. But mostly, I teach the kids here at home and run a dissertation-editing business in my spare time.

Lisa Anderson (MS, 1996)

She is currently a Geologist with the Michigan Department of Environmental Quality, Geological Survey Division, Kalamazoo District Office. She entered the WMU Geology Ph.D. Program in Winter 2001.

Jacob Sarna (BS, 2000)

I transferred to PSI's Nashville, TN office and am still a Staff Geologist in the Geotechnical Services Department.



Geology Club field trip participants at a mine.

The Geosciences Advisory Council sends greetings to faculty, students and alumni.

The Council met twice during 2001. The first meeting was on April 6, and the second meeting was on October 12 (Homecoming Weekend). Members of the Council continued their support for a number of Department functions and activities, including, initiatives on the Core Lab, acquisition of computers for the undergraduate students, the granting of undergraduate cash awards and a potential scholarship, and recruiting programs for undergraduate and graduate students. Members also received updates on enrollments and on faculty-funded projects. An informal meeting between students and Council members was also held to discuss employer/employee expectations from different perspectives. At the October meeting, Dr. Charles Harrington was presented the Geosciences Department College of Arts and Sciences Alumni Achievement Award for 2001, and was a guest at the meeting. Several members of the faculty were also present at both meetings. The Council appreciates this interest from the faculty.

The Council strongly supports the expansion of the Core Lab to become a state depository for core and well data, and will continue to support the work of Dr. William and Linda Harrison, Dr. Robert Gillespie, Dr. Alan Kehew, the WMU Foundation, Dean Elise Jorgens, Dr. Elson Floyd and the geoscience faculty as a suitable location and mechanisms for funding are sought. The Council members have supported the Core Lab for a very long time. With the proposed expansion, the Core Lab can bring both state and national recognition, and become a center for excellence within the University.

The Council is considering several ideas for increasing the number of available computer workstations for the Geosciences Department. A coordinated approach with the University is needed to achieve a fully wireless campus. Future plans will be coordinated with the Department prior to recommending any purchase program.

The recruitment of quality undergraduate and graduate student candidates continues to be a high priority for the faculty. The Council and Alumni could assist the Department to continue to attract the highest caliber students. A coordinated effort with the Alumni Association Ambassador program could assist faculty at regional, sectional and national meetings or conferences. Alumni and Council members could relate their educational experience with prospective student candidates, and direct them to a faculty member for further, in-depth, discussions. We hope this program can be implemented as soon as possible.

An endowed scholarship fund is under consideration by the Council. Preliminary discussions with the WMU Foundation indicate that an endowed scholarship can be established. The Council currently provides funds for field camp cash awards to students during the spring. The Council is also considering a mechanism to expand our current cash awards to support students who present papers at professional meetings. We hope to implement the cash awards next year, and we will work at establishing the scholarship endowment.

John A. Yellich
Co-Chairman
Tom Kamin
Secretary

Geosciences Department Staff

<i>Kathy Wright</i>	<i>Administrative Secretary</i>
<i>Beth Steele</i>	<i>Newsletter Editor</i>
	<i>Dept. Secretary</i>
<i>Sue Nap</i>	<i>GEM/IWS Secretary</i>

donations for 2001

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.

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American Hydrogeology Corporation
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make a contribution for 2001

We hope that you will consider making a contribution to the geosciences community. You may specify that your donation go to the Department of Geosciences Development Fund for any of the purposes listed, or write in a selection of your choice.

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.

Name _____

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GEOSCIENCES DEVELOPMENT FUND

- _____ Unrestricted*
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 - _____ Hydrogeology
- _____ Advisory Council Scholarship Award
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- _____ Core Research Lab
- _____ Lloyd J. Schmaltz Geology Museum
- _____ Other _____

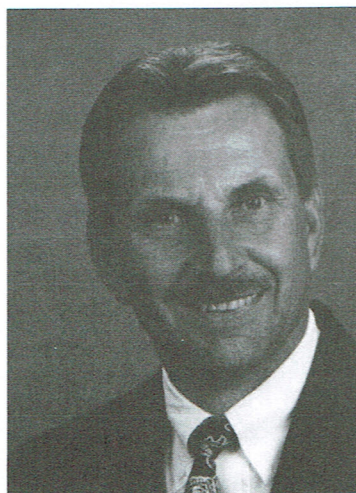
*To support student and faculty travel, field trips, student and faculty research, and visiting speakers

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Department of Geosciences
and send to:

WMU Foundation
Western Michigan University
Kalamazoo, MI 49008

Outstanding Alumni Academy

The Department of Geosciences held an Induction Ceremony and Reception on October 12, 2001 to honor four members of our outstanding alumni and to showcase their distinguished careers in the field of Geology. Each inductee received a certificate and an award presented by Fred Dobney, Provost; Elise Jorgens, Dean, College of Arts & Sciences; and Dr. Alan Kehew, Chair, Department of Geosciences.



JOHN A. YELlich

John A. Yellich is from Downriver, Detroit and graduated from Western Michigan University with a BA in December 1968 with a major in Geology and minor in Mathematics and attended Graduate School in Geology at Western until 1971 when to begin work in the mineral industry in Wyoming. Mr. Yellich progressed from a mineral exploration field geologist to a District Exploration manager in 1979 with Union Pacific's mining company. He then assumed the role of Environmental Coordinator for their mining activities in 1980 and was subsequently promoted to Project Manager for mine development. He left Union Pacific in 1984 to assume the role of Vice President for a small uranium mining company in Virginia and completed that assignment in early 1985. He returned to Colorado and worked for the Colorado Attorney Generals office as a geologist, research economist and settlement negotiator for the State on Superfund suits against two national mining companies.

He was asked to return to Union Pacific in 1987 to develop an internal technical organization that would work to resolve the environmental liabilities facing the Corporation. In eleven years as a

manager, director and Vice President, Mr. Yellich established an environmental consulting organization that conducted environmental studies and remediation in 26 western states and had more than 70 scientists, engineers, geologists and hydrogeologists working for him in offices in Boulder, Colorado and Houston, Texas.

In 1997, Mr. Yellich returned to mining activities and has been working as a consulting geologist and manager for industrial minerals and precious metal projects where he has served in multiple technical and management roles. These included appointment as a CEO and General Manager, a President and Director, a Vice President, and a Director for four publicly trading companies

Mr. Yellich has continued to support Western throughout his professional career. In the early and late 70's, he returned to Western and interviewed and hired staff and at one point hired a total of fifteen geologists as summer interns. In 1980, he was asked to serve on the initial Advisory Council to the Geoscience (Geology) Department, where he has served as co-chairman. In 1988, he was elected to the board of Directors of the Western Michigan University Alumni Association and served for 6 years and was elected President in 1992. He was awarded the Alumni Achievement Award from the Geosciences Department of the College of Arts and Sciences in 1998.



PATRICK M. LYNCH

Patrick M. (Mick) Lynch was born and raised in the Kalamazoo area. After graduation from Kalamazoo Central High School and work in the family masonry business for six years, Mr. Lynch entered Western Michigan University, from which he graduated in 1980 with a major in Geology and minors in Biology and General Science. He started his career as a hydrogeologist with Keck Consulting Services in Williamston, Michigan, where he progressed to project manager and started a branch office in Kalamazoo in 1986. In 1989 Mr. Lynch and his wife Lisa founded American Hydrogeology Corporation (AHC), a hydrogeologic based environmental consulting firm with fifteen employees. Mr. Lynch has combined his interests in hydrogeology with his love for architecture and historical preservation. AHC is housed on Sprinkle Road in a unique office park consisting of historic buildings from around the area that have been relocated to the site and restored. Mr. Lynch is a Certified Professional Geologist, serves on the board of directors of the Kalamazoo Historic Society, and is a member of the Portage Historic Commission. He is also Co-Chair of the Geosciences Department Advisory Committee.

outstanding alumni academy



JULIE K. STEIN

Julie K. Stein was appointed in 1999 as Divisional Dean of Computing, Facilities, and Research in the College of Arts and Sciences, and remains a Professor in the Department of Anthropology. Dr. Stein graduated from WMU in 1974 with a B.A. in Geology and Anthropology. She received her M.A. and Ph.D. degrees from the University of Minnesota. Her research interests are primarily concerned with geoarchaeology, especially studies involving sediments found within archaeological sites and archaeological stratigraphy. She also emphasizes coastal adaptations of prehistoric peoples, specializing in the Northwest Coast. She has published *Deciphering a Shell Midden*, a book about her excavations of a Northwest Coast shell midden; *Effects of Scale on Archaeological and Geoscientific Perspectives*, a book dealing with the problems of interdisciplinary research; and *Archaeological Sediments in Context*, a book about the formation of archaeological sites. Two books in press are *Exploring Coast Salish Prehistory: Archaeology of the San Juan Islands* a book about archaeology for the public, and *Sediments in Archaeological Context* a new version of her previous book. She is Adjunct Curator of Archaeology at the Burke Museum and uses the archaeological collections in research about radiometric dating, settlement pattern, and sediment analysis in Northwest sites from the Coast and Plateau.



CHARLES D. HARRINGTON

Charles D. Harrington is Project Leader for Science and Program Management for the Yucca Mountain Project at Los Alamos National Laboratory, Earth and Environmental Sciences Division. Chuck received his B.S. in 1966 from WMU and his M.S. (1968) and Ph.D. (1970) from Indiana University. Currently, Yucca Mountain is the site in Nevada where high-level radioactive waste from all commercial nuclear reactors in the United States will be taken for permanent disposal, if it receives approval from the appropriate governmental agencies. The characterization and study of this site has been a massive scientific undertaking that has been in progress for the past several decades.

Dr. Harrington has been at Los Alamos since 1983. Prior to that, he was a consultant for various agencies and held academic positions at North Carolina State University from 1975-1986 and Murray State University from 1970-1975.

Dr. Harrington is an adjunct professor at the University of New Mexico and a fellow of the Geological Society of America. He is the author or co-author of 33 peer-reviewed publications, 19 of which are related to the Yucca Mountain region.

Ceremony Photos



Dean Jorgens, John Yellich, Mick Lynch, Alan Kehew, Charles Harrington



Grad students in Geosciences: Kennedy Mwanda, Baraka Kinabo, Noah Ndenga



Provost Dobney, Carmen and Charles Harrington

Geosciences Community 2001



Back Row: Brian Bird, Peter Voice, Neal Dannemiller, Baraka Kinabo, Hoa Luu, Dale Werkema, David Barnes, Geoffrey Batchelor, Zachary Jarvie, Amy Nowakowski, Bill Jackson

Middle Row: Andrew Hudak, Noah Ndenga, Heather Nicholas, Andrew Kozlowski, Shannon Wong, Bill VanSickel, Beth Steele, Nicole Risky, John Luczaj

Front Row: Bill Sauck, Michelle Kominz, Alan Kehew, Sue Nap, Betsy Luczaj, Kathy Wright



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GEOSCIENCES

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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.

Name _____

Major _____ Degree _____ Year _____

Address & Phone _____

Current Employment _____

Professional Interests _____

News Items _____

Return to: Dr. Alan Kehew, Department of Geosciences, 1187 Rood Hall
Western Michigan University, Kalamazoo, MI 49008
Phone (616) 387-5485; Fax (616) 387-5513; e-mail alan.kehew@wmich.edu