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MSM-UMR

ALUMNUS

A PUBLICATION OF THE MSM-UMR ALUMNI ASSOCIATION

SPRING 2004

VOL. 78 NO. 1

**exploring
new frontiers**

wonder

achievement

discovery

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MARIANNE WARD
Alumni Association Editor

From the Editor's Desk

discovery...achievement...wonder

We dedicate this *MSM-UMR Alumnus* issue to Mel Carnahan, the late Missouri governor whose 1998 executive order established the Missouri Lewis and Clark Bicentennial Commission. Carnahan's executive order stipulated that the commission would not only promote public awareness of the Lewis and Clark expedition, but also rekindle the spirit of discovery, achievement and wonder the expedition fostered. The UMR researchers featured in this issue embody that very spirit.

Lewis and Clark toiled under adverse conditions for more than two years in the Louisiana Territory, never finding what they were looking for: the Northwest Passage. Yet today their Corps of Discovery mission receives this revered description: the "greatest expedition of exploration and discovery in American history."

When it comes to scientific discoveries, the process itself hasn't evolved much in the past 200 years. As our researchers will tell

you, sometimes the real breakthroughs occur while they're looking for something else.

I was looking for — or at least expecting — something else when I first started working at UMR more than a dozen years ago. Given the school's reputation for excellence in research, I anticipated walking into pristine labs where everyone wore white coats and gloves. I assumed each lab would have its own filtered air, a perfect humidity range, air-lock chambers, and expensive and impressive equipment lining the walls. Instead, I found duct tape and laboratory equipment fashioned from various parts by researchers on tight budgets. Some of that has changed with the advent of new buildings and labs on campus, but many researchers continue to work with whatever they have available, much as Lewis and Clark did. Yet, even under such serious constraints, many of our researchers manage to excel in their fields, and are exploring new scientific territory.

We hope something in these pages will help you rekindle or foster your own spirit of discovery, achievement and wonder. One of the nation's most successful scientific expeditions began in Missouri and that spirit of discovery continues in every part of the world through the work of MSM-UMR researchers and alumni.

BREAKING NEWS:

As we went to press on this issue, we learned that one of UMR's foremost pioneers of research, **Delbert Day**, CerE'58, Curators' Professor emeritus of ceramic engineering, was elected into the National Academy of Engineering, the "hall of fame" for engineers. The news is yet another first for UMR, as Day becomes the first member of our faculty to make it into the academy. He joins eight other pioneering alumni in the prestigious group. We report the news on page 18.

CASE kudos for marketing team

Four UMR communications offices recently won regional and national awards from the Council for the Advancement and Support of Education (CASE) and in the 19th Annual Admissions Marketing Report Advertising Awards Competition.

The CASE awards include:

- Excellence in Institutional Relations, Overall Media Placement Program (Gold, public relations office).
- Excellence in Multimedia, Video, for "Race to the Sun," about UMR's Solar Car Team (Gold, video productions).
- Excellence in Multimedia, Radio, for KUMR's new research program "TechnoFiles," hosted by **Wayne Huebner**, CerE'82, PhD CerE'87, UMR vice provost for research and sponsored programs (Silver, KUMR and public relations).
- Excellence in Graphic Design, Special

Publications, for "A Taste of UMR," an invitation to UMR's Order of the Golden Shillelagh 2003 weekend celebration (Silver, publications).

- Excellence in Writing for "Industrial Ecology: Designing with the Future in Mind" (Bronze, public relations, published in the September 2003 issue of UMR's online research publication *Visions*, visions.umn.edu)
- Excellence in Writing for "No. 1 Under the Sun" (Bronze, public relations, published in the Fall 2003 *Alumnus*).
- Excellence in Multimedia, CD-ROM, for "Designed for Success" DVD about UMR student design teams and projects (Bronze, video productions).
- Excellence in Graphic Design, Series or Multiple-Piece Project — One, Two or Three Colors, for "A Taste of UMR" (Bronze, publications).

Advertising awards

The UMR office of publications received four awards of merit in the 19th Annual Admissions Marketing Report Advertising Awards Competition for five projects:

- "Learning Through Real Experience" ad for Newspaper Advertising/Single Ad.
- The UMR Financial Aid Newsletter in the Newsletter category.
- The Solar Car World Champions Poster 2003 in the Poster category.
- The Joe Miner Table Tent in the Imprinted Materials category.
- The Solar Car Mouse Pad in the Imprinted Materials category.



Exploring new frontiers

Two hundred years ago this May, Meriwether Lewis and William Rogers Clark, along with a cadre of 40 other explorers, launched their dugouts and keel boats into the Missouri River to embark on the first epic quest for a young nation.

The Corps of Discovery's journey into the vast, uncharted wilderness of the Louisiana Territory, newly acquired from the French, was more than a mapping expedition or a search for the fabled Northwest Passage. President Thomas Jefferson, a man of the Enlightenment who loved scientific inquiry for its own sake, also charged Lewis and Clark with observing and recording the whole range of the territory's natural history, botany and ethnology.

The group not only mapped the region and described the West's natural wonders, but also sent Jefferson samples of "literally everything" they found — flora and fauna alike — during their two-year journey, says **Diana L. Ahmad**, assistant professor of history at UMR. "If there was dirt they'd never seen before, he had them send back samples. ... They even spent an entire day chasing one prairie dog" to ship back to the president.

Jefferson's original plan was for a covert mission into Spanish-controlled territory. But after Spain sold the region to France, and France in turn sold it to the United States, plans changed. As Ahmad explains: "What originally started as a covert mission ended up being a journey of enlightenment."

Lewis and Clark's journey resulted in a massive expansion of scientific knowledge. The group described 134 bird species in all, 51 of which were newly sighted in America. They described 178 new plants and wrote the first reports of 122 animals. But they didn't find the Northwest Passage (it didn't exist), and so they

considered the expedition a failure. "They actually came back to Washington with a bit of trepidation," Ahmad says.

Two centuries have passed since the Corps of Discovery set out to explore a new world. Today, we celebrate Lewis and Clark and their band of explorers as heroes — as brave pioneers who not only charted new territory for a young nation, but also advanced the cause of science in ways the adventurers never could have imagined.

The spirit of Lewis and Clark continues in the work of many scientists today. At UMR, researchers continue to investigate the unknown in a broad array of disciplines. The five scientists featured in the stories that follow all exhibit the characteristics of those explorers: courage, determination, ingenuity and, more often than not, that stroke of good fortune that can turn apparent roadblocks into portals of new discovery. And like the Corps of Discovery tasked by Jefferson to observe the world around them, these new scientist-explorers are making some startling discoveries of their own in a diversity of fields — from bioinformatics and nanoscale materials to cyber security and artificial intelligence. These UMR researchers are among the world's pioneers on the new frontiers of science, and already their work is yielding astonishing results. No doubt Lewis and Clark — and even Jefferson himself — would be amazed at the work occurring in laboratories just 200 miles from their point of departure.

The accidental scientist

by Andrew Careaga (acareaga@umr.edu)

Photos by Bob Phelan/Photomasters

The accidental discovery has been a hallmark trait of science since the days of Archimedes, the Greek mathematician who discovered how to measure volume while splashing around in a bathtub some 22 centuries ago, then reportedly ran naked through the streets shouting *Eureka!* (“I found it!”) to anyone who would listen. But in today’s research universities, the rush to tenure and pressure to conduct specific “applied” research often leaves scientists little room for those eureka moments.

While many scientists seem more comfortable with a focused and regimented approach to research, **Jay A. Switzer** seems to be cut from the same cloth as Archimedes, Louis Pasteur and the legions of other accidental pioneers of science. Since the time he used his chemistry set to make his own fireworks — and once, a runaway synthesis of tear gas — in the basement of his parents’ home in Ohio, Switzer has been toying with chemicals, intrigued by experimentation and discovery. Even his title at UMR — he is the Donald L. Castleman/Foundation for Chemical Research Professor of Discovery — reflects his passion for the quest into the unknown.

“He definitely has a creative side,” says **Eric W. Bohannon**, PhD Chem’99, who studied under Switzer and now works alongside him as an X-ray diffraction specialist. Other researchers may be content with “studying the nooks and crannies of science,” but “Jay thinks, ‘Hey, maybe there’s a whole other room out there somewhere.’”

Switzer stumbled into one of those rooms on Feb. 26, 2003. (It’s a date he won’t forget: “I have it recorded in my research log.”) That afternoon, he and his team were meeting in a conference room in UMR’s Materials Research Center to review progress on their latest work with nanoscale materials.

Switzer is an international authority in the field of nano-materials — substances so small they must be measured in nanometers, or billionths of a meter, and can be seen only with a scanning tunneling microscope. His specialty involves electrodeposition, a method of “growing” minuscule ceramic materials, layer by thin layer, on a base surface. It’s a process that mimics the way stalagmites grow from mineral deposits in caves.

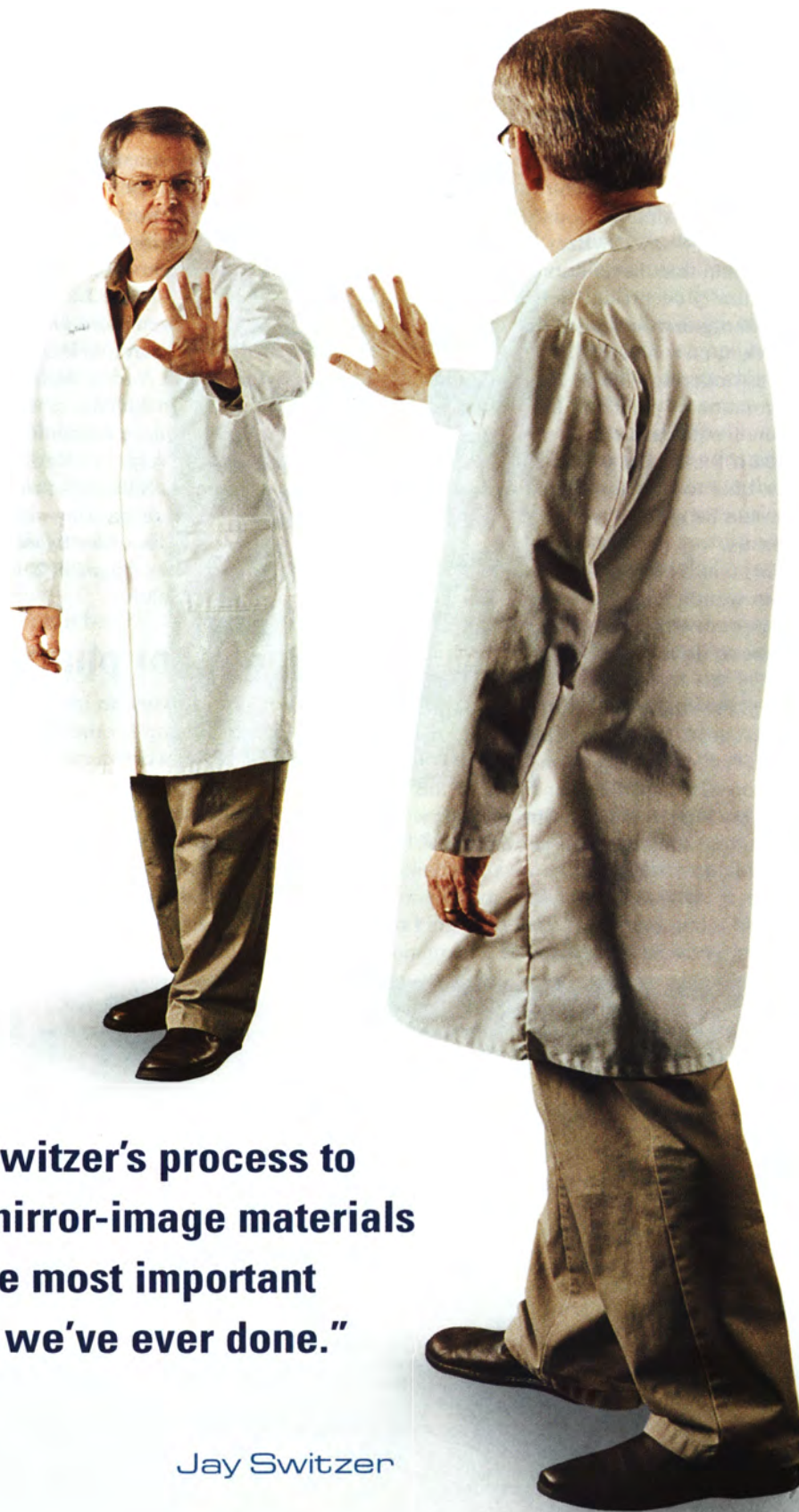
Throughout the 1990s, Switzer published his work in a variety of scientific journals, including *Science*, a prestigious journal that published four of the papers (see sidebar, page 6). Each paper described a new breakthrough in the world of atomic-scale materials.

But Switzer and his team weren’t experiencing any breakthroughs on that February day a year ago. Instead, they were puzzling over something post-doctoral researcher **Philippe Poizot** had turned up in an X-ray image of a copper oxide film they had grown on a gold substrate using a tartrate solution. The image showed a “chirality” on the film that should not have been there.

Chirality, or “handedness,” abounds in nature — from the clockwise or counterclockwise spirals of seashells to the spin of galaxies. The mirror-image counterpart of a right-handed chiral molecule — the left hand — is called an enantiomer. And just as left-handed people accomplish tasks differently than their right-handed counterparts, chiral molecules and their enantiomers exhibit different characteristics. Sometimes these differences can lead to detrimental consequences, as was the case with the sedative thalidomide. Prescribed in the 1960s to help fight morning sickness in pregnant women, the right-handed enantiomer was effective, but its left-handed counterpart caused severe birth defects.

Copper oxide — the substance Switzer and company grew in their lab — is not inherently chiral, yet the X-ray results showed that it was. Taking an overhead slide of

(continued on page 6)



**Jay Switzer's process to
sort mirror-image materials
"is the most important
work we've ever done."**

Jay Switzer

Poizot's image, Bohannon hit upon the possibility that the copper oxide film might be exhibiting chirality. Next came the eureka moment. "Almost simultaneously, we all said, 'Oh, it must be the tartrate,'" says Switzer.

It dawned on the group that the solution to grow the film contained the naturally occurring, "left-handed" version of tartrate. (An organic substance that often crystallizes at the bottom of wine corks, tartrate was the substance Pasteur was tinkering with in 1848 when he discovered that the rotation of polarized light is due to the chiral properties of molecules in a solution.) The researchers wondered if the copper oxide film they had grown was somehow able to "catch" handed molecules. If so, then perhaps it could be used to sort chiral chemicals such as pharmaceuticals.

"We thought, 'This could be really, really big,'" Switzer says. "Eric and I both went home to our wives and said, 'This is the most important work we've ever done.' But if somebody had told me to do this, I wouldn't have thought it was worth doing."

To test their theory, the researchers purchased some right-handed tartrate to grow their film. The group's hunch proved to be correct. An X-ray image from the new film looked like the flip-flop of Poizot's earlier figure of the left-handed tartrate. This proved that the film they grew could indeed capture chiral molecules on its surface.

Switzer, Bohannon and Poizot, along with **Hiten M. Kothari**, ChE'02, now a Ph.D. student in chemical engineering, and post-doctoral researcher **Shuji Nakanishi**, described their findings in a paper they submitted to *Science*, but the journal rejected it. They then submitted it to the British journal *Nature*, viewed by many to be an even more prestigious publication. *Nature* published the research in the Oct. 2, 2003, edition.

The editors at *Nature* thought this work to be such a big deal they included a piece in their "news and views" column. In that piece Rasmira Raval, director of the University of Liverpool's Surface Science Research Center, describes Switzer's process as "an appealing alternative way" of creating chiral materials. In addition, the discovery made *Chemical and Engineering News* magazine's list of breakthrough discoveries for 2003.

A boon for pharmaceuticals

Why is this work so important? For one thing, it could prove to be a boon for the pharmaceutical industry. More than half of the world's top 100 drugs are chiral. The list includes Lipitor, Paxil, Zoloft and Nexium, each of which yields annual sales of more than \$1 billion. A new, inexpensive method to synthesize or analyze chiral

The nano-materials world

Jay A. Switzer made his name in the nano-materials world. Some of his most significant findings were first reported in the pages of the journal *Science*.

The first of four *Science* papers, published in 1990 while Switzer was at the University of Pittsburgh, described the electrodeposition process for growing a certain breed of nano-materials called ceramic superlattices. Then, in a 1992 *Science* paper, Switzer, by then a UMR professor, hinted that certain ceramic nano-structures held promise as materials for

superconductors or optical switches because they conducted electricity nearly as well as metal. In 1994, Switzer's group described a new type of nanolayered material known as a defect-chemistry superlattice. And in 1999, Switzer's research team showed *Science* readers that single-crystal films of a material normally stable only at high temperatures – between 729 and 825 degrees Celsius, or 1,344 and 1,517 degrees Fahrenheit – could be grown at 65 degrees Celsius (149 degrees Fahrenheit) and handled at room temperature.

These days, however, the field of nanotechnology is "getting pretty crowded," Switzer says. With their October 2003 *Nature* publication, Switzer and his team are heading into the relatively new frontier of producing chiral surfaces by electrochemistry.



substances could lead to breakthroughs for the pharmaceutical industry. For instance, the common pain reliever ibuprofen is chiral, but the molecule's right hand is 100 times stronger than its left. A simple, low-cost method to sort the left from the right could lead to purer, stronger pain relievers. Switzer believes his discovery could result in such a method, or even a future manufacturing process. "I think if you could use it to make the drugs, it would be a bigger deal than the analysis," Switzer says.

The work also could affect a broad array of other fields, such as optical computing and the development of electrochemical sensors that could be used to detect biological weapons — or to create the weapons themselves.

Already, the pharmaceutical industry is expressing interest in the work. Following the *Nature* publication, a scientist from AstraZeneca, maker of the acid-reflux medication Nexium, contacted Switzer to discuss possible collaborative work. For now, however, the UMR scientists are building on the discovery to see if it can be done with less expensive materials. Their latest paper, published in the *Journal of the American Chemical Society* and written by Bohannon, shows that a copper substrate works as well as gold. Forthcoming work will describe the use of amino acids, the building blocks of life, in place of the tartrate.

A knack for accidents

Like Archimedes, Pasteur and legions of other scientists before him, Switzer seems to have a knack for accidental discoveries. It began soon after his parents bought him a chemistry set when he was 12. Switzer took the set to the basement, where he set up his lab. Growing up in Ohio, where fireworks were illegal, the young chemist set about making his own pyrotechnics — and more. "One day I made tear gas down in the basement," he says. "I made too much and it got loose and went upstairs through the vents." He ran upstairs to warn his parents, who evacuated the house before his concoction assaulted their tear ducts.

Switzer went on to earn a bachelor's degree in chemistry from the University of Cincinnati and a Ph.D. in inorganic chemistry from Wayne State University in



**Like Archimedes,
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Detroit. While working on his Ph.D., a photochemist turned him on to the chemistry of solar power. In another fortunate accident, Union Oil Co. in California offered him a job in the field, even though he had no photochemistry experience. While there, he learned how to use electrodeposition to attach metal oxides to the silicon surfaces of solar cells. "At that point, I decided I was no longer a chemist but a materials scientist," he says. He went to the University of Pittsburgh, then joined the UMR chemistry faculty in 1990. The campus' collaborative environment drew him in.

"This was one of the few places where I could be in a chemistry department and have access to materials scientists," Switzer says. "I was also impressed by the fact that there aren't barriers here between departments."

This openness at UMR helps to fuel Switzer's lifelong curiosity, as well as his own openness toward science. His inquisitive approach is one reason Bohannon and other researchers enjoy working with him. "He gives you a lot of freedom," says Bohannon. "He wants you to work, and he wants you to pay attention, but if you see something you don't understand, that's the stuff he wants to explore. The things you don't understand are the things he wants you to concentrate on, instead of trying to pretend you know what's going on."

Switzer's work is currently funded by the National Science Foundation, the U.S. Army, the Department of Energy and the Castleman/FCR professorship. For Switzer, support from the professorship — established through donations from the late Rolla businessman **Donald L. Castleman** and the chemistry department's Foundation for Chemical Research — affords him more freedom for pursuing his own research interests rather than those on a more focused national agenda. In addition to that support, Switzer's work has also benefitted from unrestricted funding from the National Science Foundation. "This allows me to try new things, and gives me a chance to learn something new," he says. Given Switzer's track record, that "something new" could be yet another eureka moment.



Living by the code

by **Claire Faucett (denboc@umr.edu)**

Photos by Bob Phelan/Photomasters

During her sophomore year at an all-girls Catholic high school in East St. Louis, Ill., **Ann Miller** visited her guidance counselor to discuss her post-graduation plans. Miller was thinking about becoming a medical doctor, but “she (the counselor) said, ‘No, you can be a nurse if you want, but remember your family has to have a lot of money to send you to medical school. Now, I don’t know your family, but chances are they don’t, so you can be a nurse, a school teacher or a secretary. Those are your options.’”

Miller says she thought at the time the counselor was probably right, but decided to apply to colleges anyway. Not only did she end up attending college, but she earned three degrees — her bachelor’s, master’s and Ph.D., all from Saint Louis University in 1968, 1970 and 1972.

In a sense, her counselor’s words proved prophetic. “I’m not a nurse or a medical doctor, but I got my Ph.D., so I am a doctor. She (the counselor) said I could be a school teacher, and I am a university professor. She said I could be a secretary. I never made that, but I was the deputy assistant secretary of the Navy.”

Throughout her career, Miller, the Cynthia Tang Missouri Distinguished Professor of Computer Engineering at UMR, has lived by her own code: “Don’t be limited by what somebody else tells you.” Now known as a pioneer in cybersecurity, Miller is on the Midwest Alliance for Countering Agricultural Bioterrorism, a group of experts from the four University of Missouri campuses and industries from Missouri, Kansas, Iowa and Nebraska.

In college — before cybersecurity was an issue — Miller first studied engineering, then switched to pre-medicine before moving into mathematics, where the structure and organization appealed to her. She then went back to engineering because she likes to turn abstract concepts into real-world applications. “It’s making it and seeing it work,” she says. “I feel really good when I design something and I test it, and I test it some more and I turn it on and it looks the way it is supposed to.”

After college Miller taught for a number of years at a variety of universities, including Michigan Technological University, before trying her hand in industry. After a year in industry, she spent the next 12 years in a variety of positions at Motorola Inc. Then she became involved in governmental relations, serving as the information technologies director for the U.S. Department of Defense, Research and Engineering. Following this she worked at the Pentagon as the deputy assistant secretary of the U.S. Navy for command, control, communications, computing, intelligence, electronic warfare, and space. She was, essentially, in charge of all communications for the Navy.

Miller is considered an expert in satellite communications and information assurance. Active with NATO since her Navy days, she is now a member of the NATO Research and Technology Organization’s Information Systems Technology Panel, which advises NATO on counter-terrorism measures.

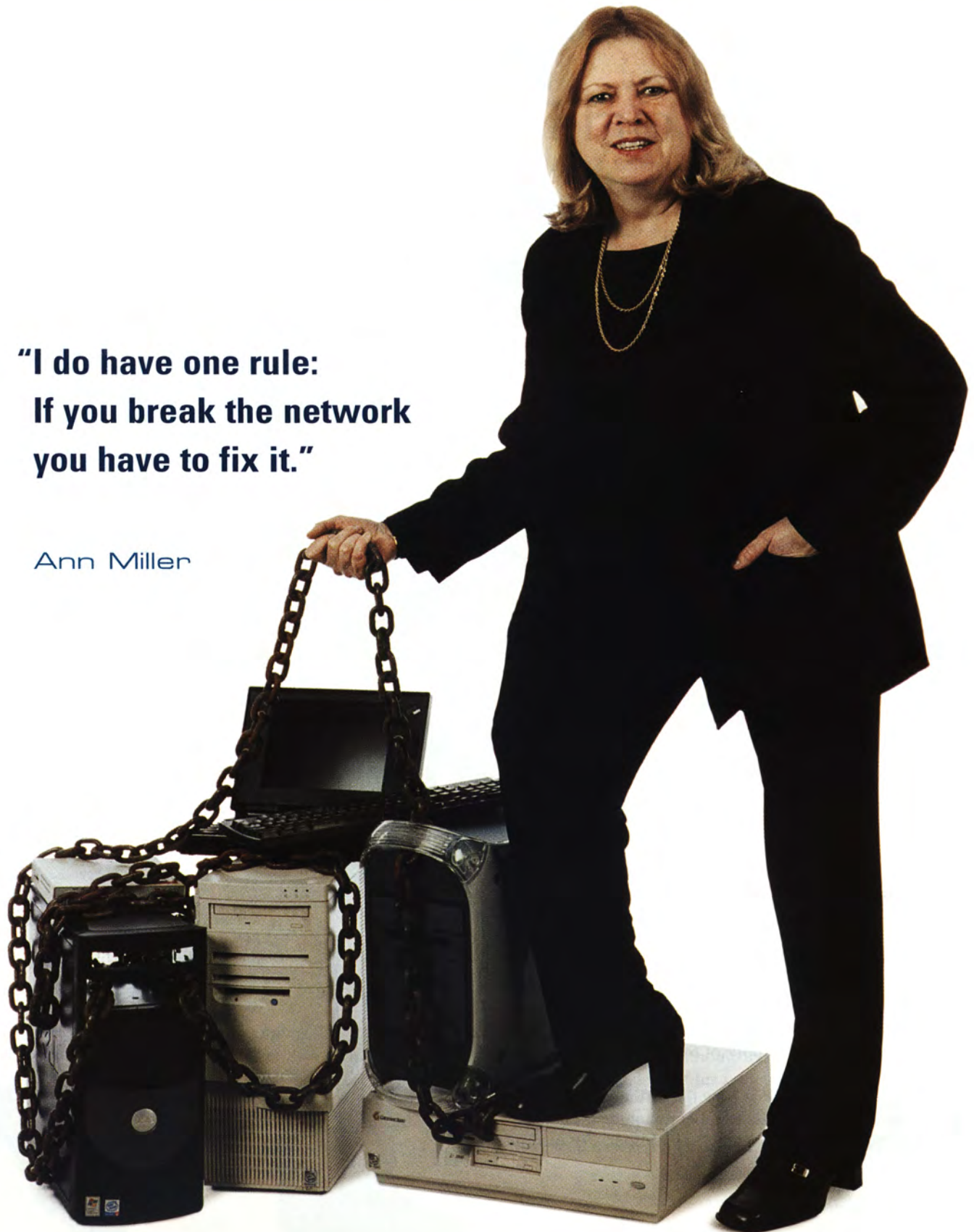
“I loved teaching in the university, but I’m glad I had the industry experience,” she says. “And it was really good for me to work with the government because I got to see what it’s like from their perspective.” But after all this, she yearned to go back to teaching. “I came full circle — academia, industry, then government and now back to academia.”

Four years ago, Miller sent out two applications — one of which was to UMR — with search criteria including teaching at a good school in the Midwest (because she has family in St. Louis), or a city where she really wanted to live, and she wanted it to be an endowed position. An endowed professorship, created through private donations, would provide unrestricted funds that Miller could use to support research, graduate assistantships and other endeavors. UMR looked attractive to Miller because **Keith Stanek**, the Fred W. Finley Distinguished Professor of Electrical and Computer Engineering at UMR, was

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**"I do have one rule:
If you break the network
you have to fix it."**

Ann Miller



department chair at UMR when she applied. Stanek was Miller's boss when she taught at Michigan Tech.

"I knew he was a great boss to work for," she says.

"Having served as Dr. Miller's department head at MTU, I had no doubt whatsoever that she would be a valuable addition to the electrical and computer engineering faculty," Stanek says. "She is talented, focused, hard-working and is a good team player."

On the frontier's edge

Miller's latest team venture is as a researcher in the Midwest Alliance for Countering Agricultural Bioterrorism. The alliance is poised to become one of two planned national centers for agroterrorism through the U.S. Department of Homeland Security.

"Dr. Miller is one of our nation's leading experts in analyzing the vulnerabilities of integrated systems," says Meredith Hay, one of the leaders of the alliance and associate professor of veterinary biomedical sciences at the University of Missouri-Columbia. Hay says the alliance sought Miller's expertise for the project because of Miller's leadership in the University of Missouri Institute for Trustworthy Systems, a multi-disciplinary center formed to improve the security, reliability and survivability of critical systems. At UMR, an entire laboratory is designated for these purposes.

Hay says the greatest threats to the agricultural and food industries are disease and contamination. The agricultural industry accounts for about 20 percent of the nation's gross national product and 25 percent of our export market. "A terrorist attack or natural disaster impacting the U.S. agricultural and food supply would have enormous economic and social consequences and would threaten the supply of food to American families," Hay says.

"My portion is to look at how the different components of the network work together and communicate together and what the vulnerabilities are," says Miller. For example,

small networks hooked to much larger ones are controlling sensors that monitor methane or antibiotics and water. Miller is looking at the networks' vulnerability to attack and then will determine ways to make them more secure. Other members of the alliance are checking the agriculture, veterinary, antibiotic levels, or air quality for such vulnerabilities.

The UMR Trustworthy Systems Lab was formed when Miller joined UMR in 1999. Because it exists on its own server separate from UMR's, the TSL allows students to do things such as run attack scenarios and password "sniffers."

"The students can do anything they want on our stand-alone network, like create brand-new attacks that nobody has done before and see if the attack works," says Miller.

"I do have one rule: If you break the network, you have to fix it."

Other projects students work on in the lab include network security, web security, and survivability and reliability testing of systems. Several of Miller's students say that she made a positive impact on their experience at UMR — from academics to future employment.

"Dr. Miller has helped me to make contacts with potential employers," says **Mike Butchko**, CmpE'02, of St. Louis, a graduate student in computer engineering. "Also, because her class projects are usually much more practical and useful than other classes, I have been able to use those

projects as material for discussion in my interviews."

Another student, **Jason Trent** of Springfield, Mo., a senior in computer engineering, says, "Dr. Miller has great experience in her field, which allows her to bring interesting stories and real-world examples to the classroom."

If only Miller's high school counselor could see her now. With three successful careers under her belt, she has broken through the fabled "glass ceiling" on numerous occasions and emerged on top. "I just sort of ignored the road blocks and plowed right through them," she says.



The UMR Trustworthy
Systems Lab allows
students to run
attack scenarios ...



The pursuit of fun

by **Mindy Limback**
(limbackm@umr.edu)

Photos by Bob Phelan/Photomasters

Beaming with pride, a seven-year-old watches as his father walks across the stage at New Mexico State University in Las Cruces to accept his doctorate in electrical engineering. He listens closely as his mother tells him, "You have to be very smart to get a Ph.D." Facing 11 more years of school just to earn his high school diploma, the second-grader decides right then that he, too, would earn a Ph.D. someday.

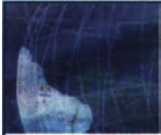
For **Donald Wunsch**, the path to earning that degree wouldn't come easily. It would mean simultaneously working and going to school most of his academic career. "I don't recommend it to students usually," Wunsch says. "In the Bible, it says no man can serve two masters. That's true. When working and going to school, one of the down sides is that one or the other is going to have to come first, and whichever one doesn't come first will suffer from being second priority. It worked out very well in my case and it worked out very well for my dad. But I've seen a lot of people who've gotten distracted and didn't complete their degrees."

Yet while working as a coating technician in New Mexico, Wunsch found another reason to earn an advanced degree. As an undergraduate applied mathematics student at the University of New Mexico, he saw that people with higher degrees were treated differently than those without; for example, he often was asked to do the tasks that his college-educated colleagues didn't want to do.

"This was a research lab, so even the managers all had Ph.D.s, as well as the top researchers," Wunsch explains.

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new frontiers artificial intelligence

“To me, a Ph.D. became equated with all the highest level professionals in the organization. When I saw the advantages of that type of job, that’s when I decided that for sure I was going to get a Ph.D.”

It was during this time that Wunsch, now the Mary K. Finley Missouri Distinguished Professor of Computer Engineering at UMR, formed his philosophy of working on projects he thought would be the most fun. “Whenever I’ve chosen between two opportunities, I’ve always taken the one that looked like more fun,” Wunsch says. “Sometimes it’s been the path of most resistance, but it’s always been the most fun.”

The search for fun continued as Wunsch balanced his academics and career, enrolling in the University of Washington in Seattle to earn a doctorate degree in electrical engineering while working for the Boeing Co. After a year, the military contract he worked on was completed, and all of the people who were working on the contract looked for other opportunities within the company. While several opportunities presented themselves, Wunsch again chose the one that looked like the most fun.

“There was an optical computing group that resided next to an artificial intelligence group,” Wunsch says. “The optical computing group wanted to hire someone to figure out how optical computing might be related to artificial intelligence, since none of the people in either group had any suggestions. About my second week on the job, my lead engineer came back from a conference and said, ‘Why don’t you look at this paper?’ It was a paper about some people using optical computing to implement a neural network. I knew at the moment I saw that paper that my life was being changed. That was it for me. From that point on, I’ve been working in neural networks.”

Neural networks are computer systems that borrow very loosely from ideas in neurobiology, Wunsch explains. “Communication between the computational elements is more important than the computation itself,” he says. When working on a problem, the neural networks “learn” based on the successful connections they make. “Neural networks are typically slow to train, but once they are trained, they are very fast,” Wunsch says. “They are

massively parallel, but even if they are not running on a parallel machine, they can solve problems faster than other techniques sometimes.”

In the late 1980s, the neural network community became excited about a highly studied and long-standing problem known as the Traveling Salesman Problem (TSP). According to Wunsch, the TSP involves creating a route for a sales representative so that he visits all the cities in a set location in the shortest distance possible. The TSP is useful to help map real-world problems, such as circuit board layout, airline routing, job shop scheduling and the manufacturing environment.

This resurgence of interest in neural networks came about when a pair of researchers published a paper showing that neural networks could solve the TSP for 30 cities. “Despite the puny size, this generated a lot of excitement in the field due to the fact that neural nets were self-organizing and promised massive parallelism,” Wunsch says. “They should be good at solving this type of problem. However, for about the next decade and a half, the results with neural networks turned out to be quite disappointing.”

Wunsch began studying the problem a year after he came to UMR in 1999. At that time, the largest neural network solution of the TSP was for 11,849 cities, dismally smaller than the multimillion-city problems that had been solved without using neural networks. “I was very dissatisfied because I thought neural networks could do better,”

Wunsch explains. “In 2000, we were able to publish a paper where we got up to 30,000

**In the late 1980s,
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cities. We did that by using a technique that was fairly similar in character to where we are now but much more primitive in implementation.”

Wunsch’s approach involved “a divide-and-conquer method. We found cities that were located in the same region, and we would solve the tour we would take in a region first.”

Working with **Narayan Vishwanathan**, MS EE’01, Wunsch essentially cut the map up into segments where the cities were and formed clusters, or groups of nearby cities. Then they solved the problem within each cluster before breaking them apart and connecting them together for an overall solution.

Wunsch then involved **Sam Mulder**, a graduate student in computer science at UMR. “Being a computer scientist, Sam was able to do a lot of things about computational efficiency that are hard for engineers like me,” Wunsch says. “He was using the same basic philosophy, divide and conquer, but he also took a more liberal implementation of ideas that other people published as well. We used the best from what other people published and combined it with our own ideas and found a much faster clustering algorithm.”

In early 2003, Wunsch received a grant from the National Science Foundation to support the work. His group was the first to use neural networks to solve the TSP for a million cities and published the results in July in the journal *Neural Networks*. “We compared our results to the Concorde algorithm, which was the best algorithm in the world to use before we attacked this problem,” Wunsch says. “We have dramatically superior speed and the quality of our tour is very close. We solved the million-city TSP in just under 1,500 seconds, and it takes the Concorde algorithm 9,000 seconds. Also, my students started with parallel processing, and using two processors, the million-city TSP can be solved in under 1,000 seconds.”

Since that publication, Wunsch and his team have generated results for 10 million cities. “The results are even a bigger difference,” Wunsch says. “It took us 10,528 seconds to solve it to a high degree of accuracy. The Concorde algorithm took 43,630 seconds to solve the same problem. We’re really pleased with the progress we’ve made.”

Recently, the team ran a simulation for 25 million cities, solving it in 13,000 seconds. “We haven’t compared it to the Concorde algorithm yet because it’s so slow that it takes us forever to run the comparison,” Wunsch says.

“And we’ve got more good news. Right now we’re just clustering, but we

think we can connect this to our work in reinforcement learning, which is something UMR, in general, is pretty well known for.”

Wunsch has a decade of experience each in academics and industry but says his current position provides him with a unique sense of freedom. “I could not take the research risks that I do without the endowment,” Wunsch explains. “It enables me to start something without being able to prove that I can do it. Nobody would have funded the TSP research when I started working on it.”

Wunsch says he places a lot of value in working for a

university that values both teaching and research. “You meet the young people who are just starting their careers and you also meet people who are the very best in the world at what they do,” Wunsch says. “That’s very motivating, stimulating and rewarding. Some of the people that I count among my friends are people whose work will be remembered at least a century from now — people who will go down in the books of history of science.”

“We solved the million-city TSP in just under 1,500 seconds.”

Don Wunsch



The way of the frog

by **Mary Helen Stoltz (mhstoltz@umr.edu)**

Photos by Bob Phelan/Photomasters

Two hundred years ago, explorers Meriwether Lewis and William Clark joined forces to scout new geographical frontiers. Their travels provided valuable information about the western United States, including crucial trade routes to the Pacific Ocean.

Today, two UMR researchers — biologist **Anne Maglia** and computer scientist **Jennifer Leopold** — are explorers in their own right. Much like Lewis and Clark, they are combining their talents and interests to search for new biological frontiers in the online world, using bioinformatics.

Maglia studies frogs — specifically, the decline in their populations and the malformations that show up in frog development. Her research is a natural progression for the little girl who took every opportunity to bring home the “pet” frogs she caught in the yard. She is now an assistant professor of biological sciences at UMR.

Leopold builds databases. A pre-med student in college, she enjoyed biology, but preferred mathematics and ended up in computer science — what she calls “the fun extension of mathematics.” Now she’s an assistant professor of computer science at UMR.

Together, their work is a textbook example of bioinformatics — researchers solving biological problems using computational methods. Maglia and Leopold have built MorphologyNet, a web-based library that houses 3-D images of frogs that can be dissected by any computer user with any web browser.

Through MorphologyNet (www.morphologynet.org), researchers, students and teachers interested in studying frog biology can sit at their computers, look at a three-dimensional representation of an actual frog, customize the color and texture of each biological component — the skull, jaw bone, jaw muscle, tongue, etc. — then proceed to dissect the frog. No blood, no guts. Users can remove each layer entirely or make it transparent and view

everything behind it, just as they would with a real frog in biology lab. They can slice the image in as many layers as are imaginable, in any direction. With another click of the mouse, they can rotate the image 360 degrees in any direction.

Through MorphologyNet, researchers can share images across continents, effectively limiting the samples of endangered species that are destroyed in the research process. But, more importantly, the site enables biologists to take a closer, more precise look at what they’re studying. Eventually, MorphologyNet could be the instrument that helps Maglia determine the effects of pesticides on declining amphibian populations.

The project started as a tool to help Maglia study her young developing frogs, which are small enough to fit comfortably on the face of a quarter, legs and all. In particular, Maglia spends a great deal of her time studying frog facial anatomy, which can only be seen under a microscope.

“Hours of trying to look at tiny things,” Leopold says, is what brought Maglia to her with the idea for MorphologyNet. “We’re not the first people on the planet to do 3-D reconstructions,” Maglia says, but the others either focus only on humans, show only bone structure or don’t allow for interaction or customization. “None of the ones out there did what I wanted to do: have a big object I could dissect and customize.” She told Leopold what she wanted, and the project was born.

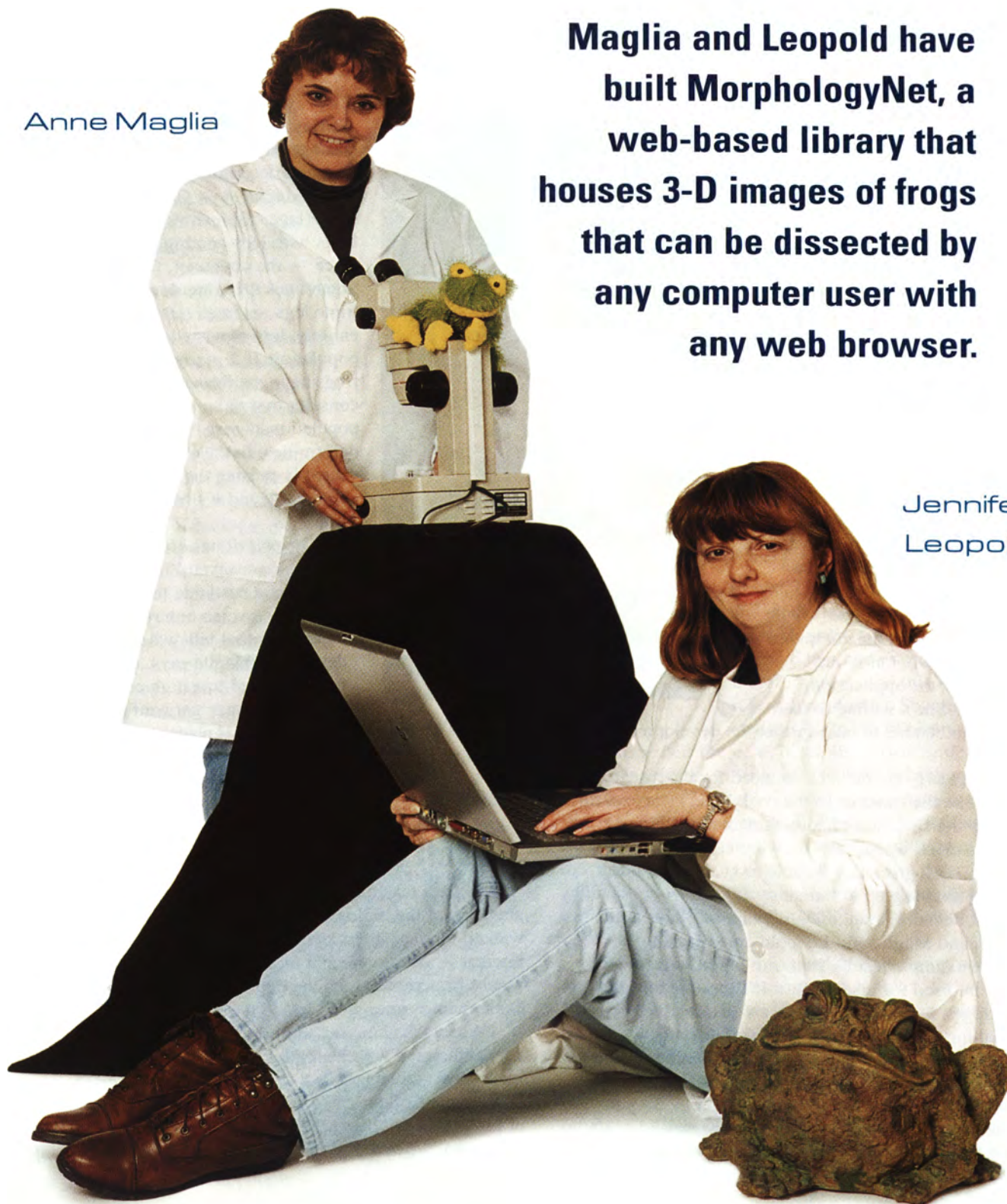
Maglia and her students slice each tiny frog into layers — hundreds of layers for each frog. Then they scan each layer into the computer, labeling each by the body part it represents. Once in the computer, those images are put back together to form the 3-D representation viewed on the screen — “which translates to a lot of data,” Leopold says. She and her students created a database to store all of these images, and developed the program to run the visualization

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Anne Maglia

Maglia and Leopold have built MorphologyNet, a web-based library that houses 3-D images of frogs that can be dissected by any computer user with any web browser.

Jennifer Leopold



on the website. Student researchers in both biology and computer science helped with data gathering and program development and customization.

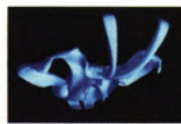
“Computer scientists are trained to go understand what their customers want,” Leopold explains. “In this case, we see the biologists as the customers. But you can’t just sit in your office and try to figure out what they want. You need to go there and see what these researchers are doing, ask them questions about what they’re doing.” Leopold and her students spent time in the field with the biologists as they studied the environment and caught frogs, noting the types of data they collected and how it could best be housed in a database. “With her biology background, Jennifer can be interested not only in the computer science application, but in the biology behind the application,” Maglia says. “She’s willing to learn the biology to be able to help further the development of the software.”

Leopold clearly appreciates the need for the research. “Frogs are like the canaries in the coal mine,” she explains. “They show the first sign of something wrong. Frogs swim in water; we drink water.” By studying effects of chemicals on the frogs, biologists may be able to keep these side effects from showing up in humans.

In recent decades, amphibian populations have been on the decline, and Maglia and Leopold are searching for causes. One example results from run-off in fields where pesticides are used for insect control. These chemicals mimic estrogen to make all the insects in the affected area female, halting reproduction. When rainfall sends the pesticide draining into ponds and streams, biologists see the same effects in frogs. “We are finding male frogs with testes that are producing eggs instead of sperm. So you have male frogs, but they don’t produce sperm and can’t reproduce,” Maglia says. “And they’re very confused,” Leopold adds with a smile. “Soon you don’t have any more frogs.”



frog eyeball



frog jawbone

Maglia also studies other malformations. “We have a couple of common deformities we’re seeing now,” Maglia says. One is a deformity of the legs. “Sometimes we’ll have frogs with legs coming out of the wrong place — the abdomen, for example. Sometimes there are double legs or triple legs, or frogs missing legs entirely, lots of nasty things.” In a given population, if 5 percent or fewer of the frogs have malformations, researchers consider that to be natural, but there are populations where 70 percent show deformities. In these cases an outside source is causing the frogs to develop abnormally and it’s Maglia’s goal to find it.

The culprit has not yet been found, but there are several likely suspects.

“There is a pesticide that mimics vitamin A, which controls the gene expression that tells where a limb develops,” Maglia says. Genes of frogs exposed to a high concentration of this substance get confused, causing

the frogs to grow limbs in unnatural places.

Using MorphologyNet, researchers can easily study the frog’s normal tissue development, then compare it to the mutated tissue.

Each a ‘natural fit’

Maglia’s teaching and research abilities caught the attention of the biological sciences faculty as soon as she walked into her interview. They already knew her areas of interest — developmental biology and bioinformatics — would fit perfectly with the department’s needs, but her excitement for her work sealed the deal.

“When she came for an interview, I remember being very impressed with her enthusiasm and her dynamic, innovative research style,” says **Paula Lutz**, LSci’76, dean of the College of Arts and Sciences. (Lutz was chair of biological sciences when Maglia interviewed at UMR.) “She also ‘wowed’ the students and that is very important to us.”

The campus' push toward bioinformatics research meant the faculty and administration had high expectations for Maglia, but it was nothing she couldn't handle. "She has not disappointed us," Lutz says. "She's a gem!"

When Maglia heard UMR was also searching for another expert in bioinformatics to fill an open position in the computer science department, she immediately thought of Leopold, a University of Kansas colleague, and asked her to apply. The two had worked together on a bioinformatics project as post-doctoral fellows. Leopold's computer skills, combined with a knowledge of biology, made her the perfect collaborator for Maglia and a great asset for UMR. Leopold was nearing the end of a grant-funded project and ready for a change, so Maglia's call was a welcome one.

Right away, Leopold "seemed like a natural fit," says **Dan St. Clair**, chair of computer science. "The faculty were quick to point out they, too, wanted her to come to UMR."

Leopold's quiet, unassuming personality contrasts with Maglia, whose obvious enthusiasm spills out as she clicks the mouse button, peeling away another layer of the virtual frog. But once the topic turns to how the system works, Leopold jumps right into the discussion, deciphering computational jargon into an explanation even the most technologically challenged listener can understand — and using her quick wit and dry sense of humor to keep the discussion fun.

In addition to her work with Maglia on bioinformatics, Leopold shares her database expertise with UMR's computer science students, who count her as one of their favorites.

"I kid Jennifer about being a student magnet," St. Clair says with a laugh. He says Leopold's popularity with the students started as soon as she got on campus. "She is extremely genuine and students pick up on that," he says. "She treats them like real people — it's amazing how well



**"Frogs are like
the canaries in
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**They show the first
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Jennifer Leopold

students respond to that. Jennifer listens well and really can connect to the students."

Maglia's enthusiasm and genuine interest in her work inspires her students to work at their full potential. "She inspires me every day, through her persistence and positive attitude," says **Paul Hoglebe**, a sophomore in biochemical engineering and one of Maglia's students. "She keeps me excited about the work I'm doing and reminds everyone how important this project is."

They must be doing something right

"Their research is going well," reports Lutz. The faculty are impressed and students are lining up to join their research team. Last fall Maglia and Leopold taught a course on bioinformatics, and this spring their research continues. Several of the students from the fall semester are

continuing their projects. In addition, two computer science graduate students are working on enhancing the MorphologyNet software, a biological sciences graduate student is generating more 3-D images, an undergraduate biological sciences student is comparing nasal anatomy in frogs using the 3-D online images, and Hoglebe, an undergraduate student in biochemical engineering, is generating lifelike, high-resolution movies of the virtual frogs.

Maglia and Leopold frequently make joint presentations on their work at colloquia around campus. Typically, Maglia starts out discussing the biological implications of their work, then Leopold jumps in with details about the computational side. Audiences seem to enjoy their talks, and it's obvious they, too, love what they do.

"They have such a good time and play off of each other," St. Clair says. "At the end of every talk they give, people are having so much fun they can't believe it's over."



DELBERT DAY, CerE'58

Delbert Day elected to 'hall of fame' for engineering

"In the more than two decades since beginning his work with glass beads to treat liver cancer, Delbert Day has become recognized internationally as a pioneer in the emerging field of biomaterials."

Chancellor Gary Thomas

Delbert Day, CerE'58, Curators' Professor emeritus of ceramic engineering, recently became the first UMR faculty member elected into the

National Academy of Engineering. Day was elected into the elite group — what he calls the "hall of fame" for engineering — for his work to develop microscopic glass beads to treat liver cancer. Day is a co-inventor of the beads, which can be irradiated and injected into the liver, where they bombard malignant tumors with concentrated doses of radiation. The invention is now marketed under the name TheraSphere and is being used in dozens of hospitals in the United States and Canada.

Election into the NAE is one of the highest professional distinctions in the field of engineering. Academy membership honors those who have made "important contributions to engineering theory and practice, including significant contributions to the literature of engineering theory and practice," according to the academy.

"In the more than two decades since beginning his work with glass beads to treat liver cancer, Delbert Day has

become recognized internationally as a pioneer in the emerging field of biomaterials," says UMR Chancellor **Gary Thomas**. "His election into the National Academy of Engineering is a well-deserved recognition of one of our most eminent researchers and scholars."

Day's work with glass has led to several other innovations, including treatments for rheumatoid arthritis and the repair of human bone. He also invented "glasphalt," a mixture of recycled glass and asphalt, which has been used to pave roads, parking lots and airfield strips throughout the nation.

Day is co-founder of Mo-Sci Corp. in Rolla, which manufactures specialty glass products used in the transportation, electronics, sporting goods, aerospace and health care industries. He currently serves as chairman and chief executive officer.

Day is the ninth MSM-UMR graduate to be elected into the academy. He joins **David E. Crow**, ME'66; **Sidney J. Green**, ME'59; **Gene H. Haertling**, CerE'54; **Robert C. Hansen**, EE'49; **George E. Mueller**, EE'39; **George Stegemeier**, PetE'52; **Richard Stegemeier**, PetE'50, and **Larry F. Thompson**, PhD Chem'70.

Tour de Lance

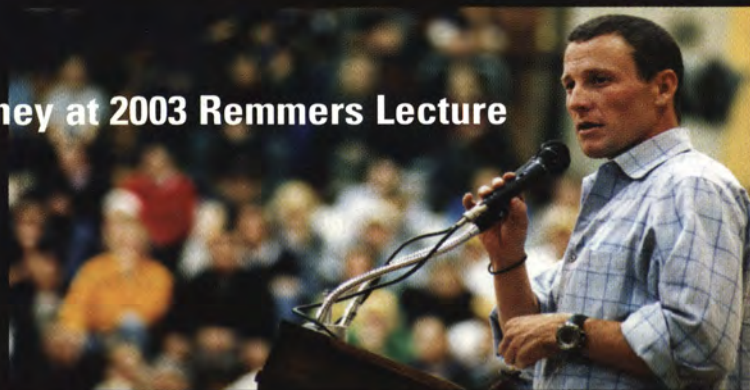
Cyclist Armstrong recounts life's journey at 2003 Remmers Lecture

Five-time Tour de France winner Lance Armstrong told a packed house at Gale Bullman Multi-Purpose Building last November that winning the first four races through France was no problem at all. But the fifth Tour de France victory, which he claimed in 2003 — that was the tough one.

"For the first time in my career, I wasn't leading by six or seven minutes — I was leading by 15 seconds," said Armstrong, who visited campus as the latest presenter in the Remmers Special Artist/Lecturer Series. "For the first time in my career, if I had the yellow jersey, I knew I could lose it."

Armstrong's speech underscored the theme of his latest book, *Every Second Counts*. Also recounting his most famous battle — against cancer — the Texas cyclist encouraged the audience to make the most of the chances life offers. "I'm not a big believer of second, third and fourth chances," he said. "I believe we all have one chance and I'm living proof of someone who made the most of that chance."

The Remmers Special Artist/Lecturer Series is supported through a fund established by **Miriam Remmers** and her late husband, **Walter**, MetE'23, MS MetE'24.



PHOTOS BY BOB PHELAN/PHOTOMASTERS



Lance Armstrong addressing the crowd (top) and with lecture series benefactor Miriam Remmers (right).



UMR PARENT OF THE YEAR: Sheila Agee, second from left, is honored during Family Day 2003 activities as the UMR Parent of the Year. Agee is joined by her son, R.J., Rachael Gliottoni, parent/alumni relations chair of Student Council, and Julia Rosemann, president of Student Council, during the presentation.

Parent of the Year a 'pillar of support'

Former Student Council President **R.J. Agee** describes his mother as a "pillar of support" who "has helped me through the hardest of times, often single-handedly." The UMR Parents' Association agrees, and named Agee's mother, **Sheila Agee** of St. Joseph, Mo., the 2003 UMR Parent of the Year. Mrs. Agee was honored during UMR Family Day Nov. 1, 2003.

In the letter nominating his mother for the award, Agee described how she helped him and others cope with a tragic automobile accident that killed two UMR students and seriously injured another. In the days following the fall 2002 accident, Sheila Agee opened her home to friends and family members of the injured student, feeding and accommodating them at every turn. "Even after most everyone had left again for school, my mom continued to visit (the injured student) on a regular basis and to talk with his parents, who were basically living at the hospital," he says. "She told me numerous times that she couldn't imagine what they were going through and she wanted to help them however she could. I know that I could not have made it through such a hard time without the love and support of my mother."

Outstanding GTA

Also on Family Day, the UMR Parents' Association named **Emily A. Rueck** as the Outstanding Graduate Teaching Assistant of the Year. She is a graduate student in mathematics and statistics and a TA in that department. The annual award, which includes a \$500 stipend, is based on student evaluations.

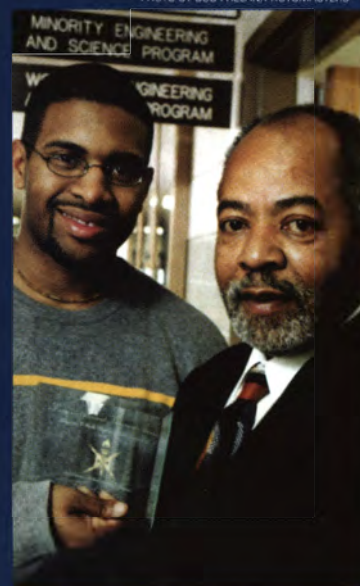


OUTSTANDING GTA: Emily A. Rueck, teaching assistant in the mathematics and statistics department, is congratulated by Joseph Ricca, vice president of the UMR Parents' Association, on her award.

Honors at regional conference

Christian Washington of St. Louis, a senior in electrical engineering, and **Floyd Harris**, Psyc'74, director of UMR's Minority Engineering and Science Program (MEP), received top awards at the National Society of Black Engineers Region V Fall Conference held Oct. 31-Nov. 2 in St. Louis.

Washington received the NSBE's Esprit de Corps Member of the Year award, which is presented annually to a member who fulfills the organization's mission of increasing the number of culturally responsible black engineers. He also chaired the conference. Harris received NSBE's Lifetime Achievement Award for his work with MEP and NSBE. He joined the MEP in 1974, the year it was created, and served as a counselor until assuming his current position in 1978. For the past 12 years, he has served on NSBE's regional advisory board.



Christian Washington of St. Louis, a senior in electrical engineering, and Floyd Harris, Psyc'74, received top awards from the National Society of Black Engineers.

"Over the years I have received some awards, but to be recognized by your peers and colleagues is one honor — to be recognized by your students is just a greater honor," Harris says. "I think that there are probably others who deserve it more but there's no one who appreciates it more."

More than 480 people from 10 states attended the conference, including 40 students from UMR's NSBE chapter, other UMR students and staff, and 20 Normandy High School students who take part in UMR's Mathematics Engineering Science Achievement Program (MESA) at the St. Louis school.

If you have any questions or comments about campus news articles, contact Public Relations at news@umr.edu or call 573-341-4328.

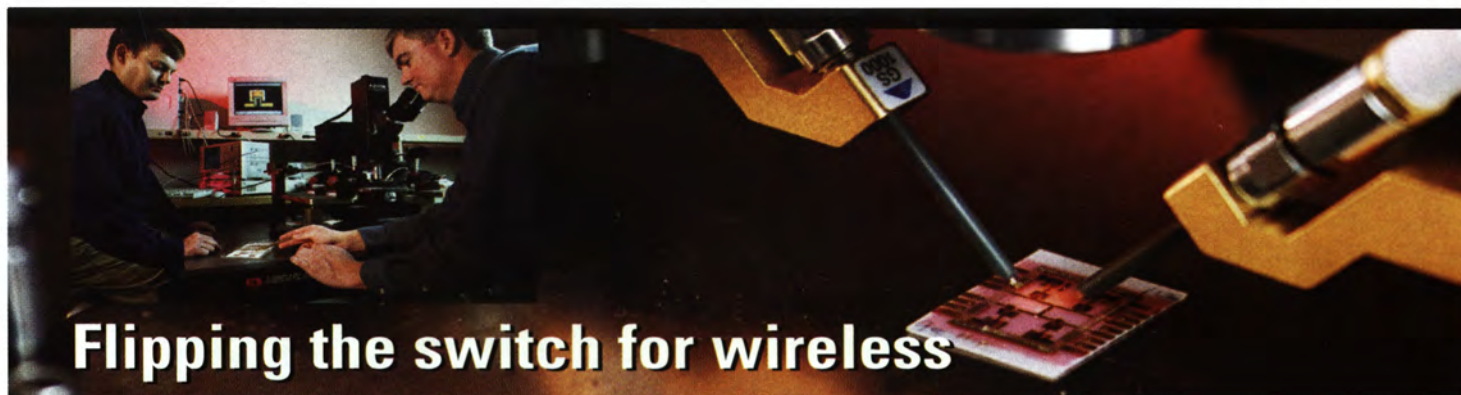
This class is a **BLAST**



UMR students are lighting up the skies across Missouri, thanks to the training they're getting from the nation's only pyrotechnics course offered for college credit. UMR's Commercial Pyrotechnics Operations course, offered last fall, gave 29 students hands-on training in the art of setting up and setting off fireworks displays. The students displayed their talents at a variety of fireworks shows throughout Missouri. The most recent display was at the "KUDL Christmas in the Sky" last November at Longview Lake and Beach near Lee's Summit, Mo.

UMR offered the class as an off-campus course with students from as far away as New York participating. The course covered safety, design, choreography, permitting and other aspects of pyrotechnics. Course instructor **Paul Worsey**, professor of mining engineering, worked with Richland, Mo.-based Premier Pyrotechnic Inc., which handles more than 2,000 displays in the United States annually. Some of the students enrolled in the course because of their interest in a career in pyrotechnics, but others just signed up for fun. "This is the only college opportunity in the country where you can get this kind of hands-on experience in pyrotechnics," Worsey adds.

PHOTOS BY BOB GREENSPAN



Above: close-up of a Meso-MEMS switch. Inset: Matt O'Keefe (right) and Eric Dahlgren examine a set of Meso-MEMS switches.

Witnessing a car accident, you reach for your cell phone, only to be frustrated by static on the line. Fortunately, your cell phone is equipped with a Meso-MEMS switch. You easily change your frequency to a stronger signal and call for help.

This cell phone of the future is on the horizon, thanks to wireless research being conducted by UMR and Motorola. Researchers are developing 3D switches and tiny fuel cells to improve the quality and longevity of all manner of wireless communications — not only cell phones, but wireless sensing devices used by the military.

“We are trying to make better switches, called Meso-MEMS, for wireless technology,” says **Matthew O’Keefe**, MetE’85, associate professor of metallurgical engineering and one of the project leaders. The use of Meso-MEMS (micro-electro-mechanical systems) as switches will not only improve reception quality, but also will save energy, says O’Keefe, who is working with **James Drewniak**, professor of electrical and computer engineering and director of UMR’s Graduate Center for Materials Research, and Keryn Lian of Motorola Labs. The work is funded by the U.S. Defense Department

and the Defense Advanced Research Project Agency.

“The basic switch technology gives you lower electrical loss and a higher quality signal,” says O’Keefe. A Meso-MEMS switch would enable a cell phone, for example, to be used anywhere by simply changing its frequency operation band. Recent tests have shown this approach is an improvement over current technology. “This system will actually enhance the consumer’s cell phone performance by providing a cleaner, stronger signal with less static,” says O’Keefe.

Like a light switch, a Meso-MEMS switch can be turned on or off. That makes it more energy efficient than the current solid state technology, which is on at some level at all times, O’Keefe says.

The researchers also will begin developing tiny fuel cells to power these wireless devices. The fuel cells would last longer than lithium ion batteries currently used in cell phones and other instruments. “The military could conceivably put a sensor out in the desert and leave and it would be capable of sending information for an extended period of time,” says O’Keefe.

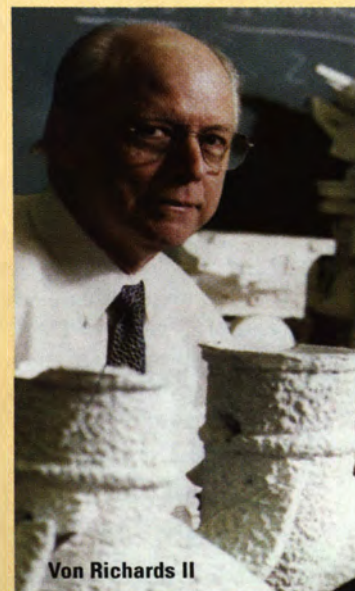
STRONGER wax, *faster cars*

A good wax mold lies behind every fast car, and a UMR researcher’s efforts to improve those wax molds should make fast cars even faster in the future. **Von L. Richards II**, the Robert V. Wolf Professor of Metallurgical Engineering at UMR, is working to improve the quality and strength of the mold shells used to create engine parts.

“A lot of high-performance engines use wax investment casting because manufacturers can make them with low-alloy steel in a very complex shape and actually save weight over using a previously stamped and formed component,” says Richards, who is interested in improving the process to make the mold. Creating the mold involves the use of a ceramic material — a “slurry” or paste made up of fine grains and a bonding agent — that surrounds and coats a wax mold. The slurry is heated at very high temperatures, which melts the wax away. But the process often causes the ceramic mold shell to crack, says Richards.

Richards has developed a method to test the wax to determine its “crystallinity.” Crystallinity occurs when the wax melts from the mold and patterns of crystals form in the wax. The more crystallinity in the wax, the more pressure the ceramic shell comes under — and the more likely it is to crack, says Richards.

In addition to automakers, the high-temperature ceramics, food processing, defense and marine-engine industries are interested in Richards’ findings.



Von Richards II

Journey to the center of the reactor

Nuclear engineers consider a nuclear reactor's core a no-man's land. It sits under at least 25 feet of water and is so radioactive that no living thing should go near it.

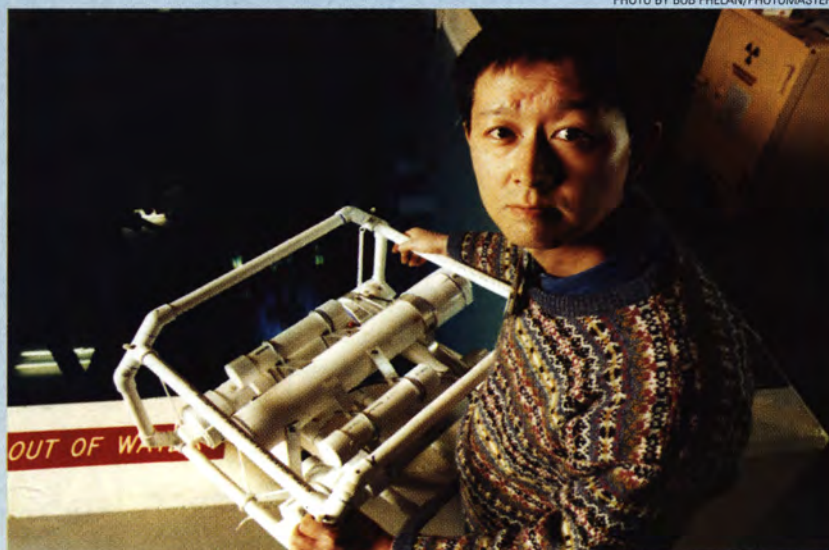
But **Akira Tokuhiro**, assistant professor of nuclear engineering and director of the UMR Reactor, is hoping to find a way to safely inspect that no-man's land via a submersible watercraft.

A water-submersible craft containing a radiation-resistant camera could venture down to a reactor's core and record images of its components, says Tokuhiro, who is developing such a craft. Such machines, if produced, could help maintain and secure the nation's nuclear reactor facilities, he says.

"Because the radiation level near the core is lethal, we cannot put on a wetsuit and go down 25 feet into the pool and examine the reactor components," Tokuhiro says. "The submersible craft with the camera can withstand a high level of radiation and functions as an in-service inspection device (ISI)."

Initial tests of the submersible have been conducted in the UMR swimming pool. "Within the next year, we hope the submersible will be fully operational and it will go down into the reactor core and take some images of the components," says Tokuhiro. The images recorded by the device can be studied to determine the condition of the reactor components, and the kind of maintenance that may be required.

According to Tokuhiro, reactor components are in many ways vulnerable to corrosion despite the high purity of the water. "Many nuclear reactors are water-cooled or are boiling water, so all the components are either in contact with water or steam," he says. "If you keep your water low in impurities, the reactor components are less likely to corrode, but it's very difficult to keep the water pure. Now we will have some means for in-service inspection of reactor components."



AKIRA TOKUHIRO KNOWS THAT SECURITY ENGINEERING WILL BECOME A NEW FIELD.
Tokuhiro with the submersible watercraft in front of UMR's reactor pool.

UMR's reactor was built in 1961 and Tokuhiro says the facility is in good condition, but some of the components have been under water for 40 years. "The grade of aluminum that we have here has been used at many other research reactor facilities and it has held up extremely well, and all of the remaining reactors are about 40 years old," he says. "We don't have any doubts that it's in good condition, but we would like to confirm it visually."

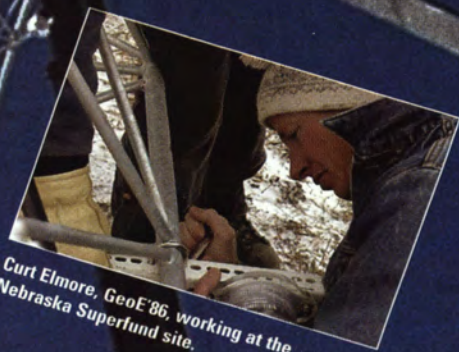
The submersible craft is one of several robotic projects at the UMR reactor. Collectively called Reactor Robotics Development and Deployment, or R2D2, the projects focus primarily on security issues for the facility. Tokuhiro is driven by the fact that "we should educate engineers to know about security, because in the post-9/11 environment, security engineering will become a new field of employment. We need to start producing engineers that know about security issues."

The submersible craft is one of several robotic projects at the UMR reactor collectively called Reactor Robotics Development and Deployment, or R2D2.

WINDS of change for Superfund cleanup



Geological engineering seniors Lori Greer, Matt Harold and Dan Bailey review the plans for the clean-up of the Nebraska Superfund site.



Curt Elmore, GeoE'86, working at the Nebraska Superfund site.



Assembling the wind turbine.



Support structure takes shape.

HARNESSING THE POWER OF THE WIND TO SOLVE GROUNDWATER CONTAMINATION

A group of geological engineering students hopes to harness the power of the wind to clean up contaminated groundwater at a Nebraska Superfund site. Under the direction of **Curt Elmore**, GeoE'86, assistant professor of geological engineering, the students are developing a plan to remove contaminants from the water through a wind turbine-powered groundwater circulation well. This is the first attempt to use renewable energy for a Superfund cleanup, says Elmore.

As part of a senior design project in geological engineering, the group is working on the 17,000-acre site known as the Former Nebraska Ordnance Plant. Located just south of Mead, Neb., the site was used to produce munitions during World War II and the Korean War. Declared a Superfund site in 1990, the soil is contaminated with TNT (trinitrotoluene) and other hazardous materials. More than 400 people have wells within three miles of the site and use the water not only for drinking, but also for livestock and irrigation.

"The groundwater circulation well removes contamination from an aquifer by extracting water from one interval, treating it, and putting it back in the same aquifer at a different depth, so nothing is wasted. The only thing that comes out is the contamination," says Elmore.

This approach releases no contaminants as well. "Because we are using renewable energy, we won't be contributing to potential pollution of one resource — the air — while we clean up another resource — groundwater," says Elmore. "We are hoping to achieve total resource conservation. It's kind of a holistic approach, that you can remediate the groundwater without doing anything to it except removing the contamination."

The \$300,000 project is funded by the U.S. Environmental Protection Agency, the Kansas City District Corps of Engineers, UMR and Bergey Wind Power Co. of Norman, Okla.

PHOTOS COURTESY OF CURT ELMORE



Anne Goodwyn Jones

Weiner Professor shares expertise on women writers of the South

Anne Goodwyn Jones, an expert on women writers of the American South, is on campus this semester as UMR's fourth Maxwell C. Weiner Distinguished Professor of Humanities. Jones is teaching the English course "Southern Women Writers" this semester

while working on her latest book projects.

The professorship, funded through a gift from the estate of **Weiner**, EE'41, is rotated among academic departments in the UMR College of Arts and Sciences.

Jones has served on the English faculty at the University of Florida in Gainesville, Fla., since 1984. Her books include the Jules F. Landry prize-winning book *Tomorrow Is Another Day: the Woman Writer in the South* and *Haunted Bodies: Gender and Southern Texts*, which she co-edited. She has three additional books scheduled for publication after 2004.

Manufacturing expert is new ISC director



Ming Leu

Ming Leu, the Keith and Pat Bailey Missouri Distinguished Professor of Integrated Product Manufacturing, became director of the UMR Intelligent Systems Center last October. He replaced **Vittal S. Rao**, the William A. Rutledge Emerson Electric Distinguished Professor of Electrical and Computer Engineering at UMR.

A former faculty member of Cornell University's School of Mechanical and Aerospace Engineering, Leu held the State Chair

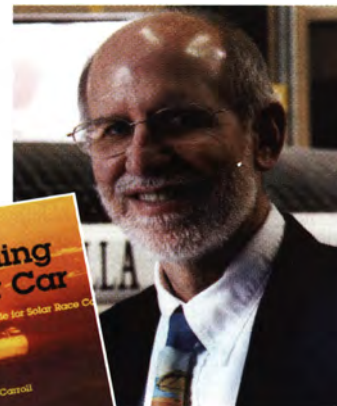
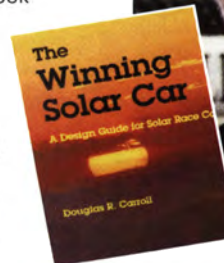
Professorship in manufacturing productivity at New Jersey Institute of Technology from 1987-1996. He then directed the National Science Foundation's activities in manufacturing processes and equipment until joining UMR in 1999. His professorship, housed in the mechanical and aerospace engineering department, was established through a gift from **Keith Bailey**, ME'64, former CEO of The Williams Companies Inc., and his wife, **Pat Bailey**.

Founded in 1987, the ISC is a major research unit at UMR and includes 25 faculty and 40 graduate students from various academic departments.

UMR prof writes the book on solar racing

The advisor to UMR's championship Solar Car Team has now written the book on solar racing — or at least the textbook.

Douglas Carroll, PhD EMch'91, is the author of *The Winning Solar Car: A Design Guide for Solar Race Car Teams*, published last October by the



Douglas Carroll

Society of Automotive Engineers. The book, suitable as a text for college courses on solar car design, may help level the playing field in solar car races by teaching students to focus on what matters — such as making their cars energy efficient, says Carroll.

"There are a million things you can do to design a solar car, and most of them don't make much difference in the final performance of the car," says Carroll, who is also a professor of basic engineering. "You have to understand what matters, where to focus your energy. The book helps students understand what really matters the most when making a fast car."

Carroll's textbook is based on his decade of experience as advisor of the student group, which has designed and built six solar cars during that time. The most recent model, *Solar Miner IV*, won the 2,300-mile American Solar Challenge last July, finishing nearly five hours ahead of the second-place team.

Managen

www.managen.org

Managen Enterprises is a student-run company, created as part of a capstone course in UMR's School of Management and Information Systems.

Laser engraved and dye sublimated products are available for alumni to purchase online at www.managen.org.

All profits are donated to local charities. Contact info@managen.org for more information.



Hamera picks up All-America award at NCAA Cross Country Championships

UMR senior **Kate Hamera** finished in 33rd place at the NCAA Division II Cross Country Championships in Raleigh, N.C., Nov. 22, but it was good enough to earn her All-America honors. Hamera also earned a berth to nationals by finishing second in the NCAA South Central Regional in Commerce, Texas. She became the first Lady Miner in a decade to qualify for the national cross country meet.



Kate Hamera

Porter chosen to all-Central region team; earns first-team All-MIAA honors

Barb Porter, a senior midfielder for the UMR women's soccer team, was named to the All-Central Region team for NCAA Division II for the 2003 season. Porter, who ranked among the scoring leaders in the MIAA last fall, was named to the second team at her position after compiling 11 goals and six assists for a team that finished third in the conference. The Central Region consists of schools from the MIAA, North Central Conference, Northern Sun Intercollegiate Conference and schools playing as independents within the region.



Barb Porter

Goalkeeper **Brittany Parker** was a second-team selection to the All-MIAA team, while a quartet of players – **Lauren Wilkinson**, **Lisa Suiter**, **Danielle Lyman** and **Colleen Connors** – received honorable mention.

Drussa claims All-America honors



Cole Drussa

UMR junior **Cole Drussa**, the leading pass catcher among tight ends in the Mid-America Intercollegiate Athletics Association in 2003, was named to Football Gazette's All-America team for the 2003 season. He was a second-team selection following a season in which he caught 55 passes for 601 yards and five touchdowns. Drussa became the first Miner football player to earn All-America honors in a decade; the last one was placekicker

Eivind Listerud in 1993.

UMR also had a second-team All-MIAA selection in **Clint Moss**, a wide receiver who caught a school-record nine touchdown passes this year as part of a 60-catch season — the second-best ever by a Miner receiver. As a team, the Miners tied or broke 22 offensive records during the 2003 season.

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A public service announcement of the MSM-UMR Alumni Association

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UMR basketball players honored

Three members of the UMR basketball teams have been honored by the MIAA for their play on the court during the first half of the 2003-04 season. Senior center **Brian Westre** earned the conference's first "Player of the Week" award after averaging 22.5 points, 14.5 rebounds and 3.5 blocked shots per game in a pair of UMR wins to start the season.



Brian Westre

The Lady Miners' **Emily McCord**, meanwhile, was chosen after her performances in the Lady Miners' 74-69 win over eighth-ranked Quincy University on Nov. 25, 2003. She scored 20 points and pulled down eight rebounds in the game, while also drawing a key foul in the game's final seconds to help secure a Lady Miners win. Finally, **Ike Muonelo**, who shouldered some of the scoring load while Westre was recovering from a broken hand, won his award Jan. 20 after a week in which he averaged 28 points a game. That included a career-high 35 points in a game at Missouri Western in which he made seven-of-10 from three-point range; he moved into UMR's top 10 list for three-pointers.



Emily McCord



Ike Muonelo



Member Benefits

As a graduate of MSM-UMR, you are automatically a member of the MSM-UMR Alumni Association and are entitled to:

MSM-UMR:

Chairs, lamps, watches, rings, pendants, Platinum/Gold MasterCard, license plates for Missouri residents.

Career Assistance:

UMR's Career Opportunities Center will help you in your job search!

Services:

Online Community, including searchable directory. Access to alumni office via email (alumni@umr.edu).

Alumni locator service to help you find friends.

Address update service so you don't miss your MSM-UMR mail.

To take advantage of these offers, contact the alumni office:

MSM-UMR Alumni Association
Castleman Hall
University of Missouri-Rolla
1870 Miner Circle
Rolla, MO 65409-0650

Phone: (573) 341-4145
Fax: (978) 926-7986
Email: alumni@umr.edu
Web: alumni.umr.edu

Association endows Norman Family scholarship

During its Dec. 18, 2003, meeting in St. Louis, the MSM-UMR Alumni Association Board of Directors Executive Committee established the following endowments:

- **Amos and Lois Norman Family Scholarship** for an upper-level mechanical engineering student with preference given to students who graduated from the North Kansas City High School and district. This endowment is in memory of the late Amos Norman '49. From the proceeds from the sale of donated real estate:
- **Unrestricted freshman scholarship fund:** \$70,000 to help recruit prospective students.
- **Faculty/staff awards program endowment:** \$60,000 to fund the association's annual faculty and staff awards program.
- **Endowment:** \$25,000 to name a room in the Havener Center.

The remaining proceeds from the sale of the home will stay in the association's unrestricted endowment fund to provide income to help fund scholarships and the association's expenses.

In other business, the Enchanted (New Mexico) Section gained official status, becoming the association's 43rd section (see page 30 for their section update).

The executive meeting was held at Burns and McDonnell Corporate Offices in St. Louis, thanks to **Bob Berry '72**. The association's full board of directors will meet Saturday, April 17.

Online community goal reached

The alumni association reached its goal of having 10 percent of all alumni become active users on the online community in December 2003.

As of Dec. 15, 10 percent – 4,905 alumni – are registered and using the community. Of those, 1,903 have signed up for permanent email addresses. The online community receives more than 150,000 hits each year. The searchable alumni directory remains the site's most popular feature. You can locate former classmates or, through an advanced search, find alumni living in your area.

This site at www.umr.edu/index.php?id=1267 also offers you an opportunity to reconnect with fellow alumni, exchange ideas and access career and networking information. Best of all, it's completely free to our alumni!

If you haven't already registered and would like to do so, you'll need your alumni ID number (not your student ID number), which is the six-digit number that begins with a 7 on your mailing label. If you have any problems, email us at alumni@umr.edu or call us at (573) 341-4145.



MSM-UMR Online Community — alumni.umr.edu

MSM-UMR Alumni Association Mission and Goals

MISSION

The association will proactively strive to create an environment — embodying communication with and participation by MSM-UMR alumni and friends — to foster strong loyalty to UMR and growth of the association. The association will increase its financial strength as well as provide aid and support to deserving students, faculty, and alumni friends.

GOALS

- Assist university with recruitment and retention.
- Improve communication with and expand the involvement of alumni, especially recent graduates and current students.
- Increase financial resources of the association and the university.
- Strengthen alumni section activity.
- Increase volunteer support to the university and its students.

The officers and other members of the association's board of directors provide leadership and actual participation to achieve these goals and fulfill this mission. For their efforts to be a success, they need YOUR active participation as well, in whatever alumni activities you choose.





THE ALUMNI ASSOCIATION GAVE 279 SCHOLARSHIPS AND FINANCIAL AID TOTALING MORE THAN \$500,000

Each of these students pictured above receives annual scholarship support ranging from \$250 to \$5,000 from the alumni association. The association's scholarship recipients will be honored at a banquet on Friday, April 16. Donors who have provided named scholarships through the alumni association will dine with the students who benefit from their generosity. Alumni association directors will also attend and congratulate these scholars.



ZETA TAU ALPHA'S 30TH ANNIVERSARY: Attendees: first row, LeAnn Fantini; Tricia (Lurk) Grass '03; Amanda Robart; Kathryn (Holcomb) Lange '00; second row: Katie Cooke Danzo '81; Alexis Collins; Julia Nadler (student); Christy (Land) Witte '95; Christina Sfredo '94; Jackie DeThorne '78; and third row: Holly Gillam '02; Christina Welch '03; Donita (Pickens) Meyer '81; Janet (Rimmey) King '80; Sue (Walker) Holcomb '75; Mary (Hoffman) Hood '82; Laura (Riegel) Rickman '94

Alumnae attend ZTA anniversary event

Approximately 30 alumnae attended the 30th anniversary of the Eta Theta Chapter of Zeta Tau Alpha Nov. 7-9, 2003. The weekend kicked off with a winery tour on Friday, a brunch and White Violet Formal and dinner on Saturday, and ended with a farewell breakfast on Sunday.

On May 5, 1973, UMR's Eta Theta Chapter became the 161st ZTA chapter. From its original 16 members, the chapter now boasts more than 450 alumnae. Since 1992, Breast Cancer Awareness and Education has been ZTA's national philanthropy. The chapter also helps raise funds for free mammograms locally. The chapter received the 2002 Student Council Best Community Service Award for the members' dedication and service to the community.

Pizza party a hit

About 140 graduating seniors braved frigid temperatures and blowing winds on Dec. 10, 2003, to attend the Senior Pizza Party in the Alumni Lounge of Castleman Hall. They enjoyed free pizza, soda and door prizes.

Susan Watson '83 generously donated a Palm Zire 71 for the grand door prize, with Amanda Merwin, a mechanical engineering major, being the delighted winner. Many other students went home winners, thanks to **Bob Berry '72**, who donated mugs, survival-tool cards, golf balls, a mini maglight and hats, compliments of Burns and McDonnell.



During the pizza party, graduates were welcomed into the alumni association family and given an MSM-UMR Alumni Association Membership Kit with information about alumni benefits. All seniors who attended Commencement on Dec. 20, 2003, received a diploma case courtesy of the MSM-UMR Alumni Association.



Parents' Association officers nominated

Part of the agenda for the fall board meeting of the UMR Parents' Association included electing new officers to serve through November 2004. Results of the election are as follows:

President

Max Trueblood
trueblud@umr.edu

Vice President

Joseph Ricca
joe.j.ricca@honeywell.com

Treasurer

Barbara Robertson
barb@umr.edu

Secretary

Sandy Perdue
sandyperdue@hotmail.com

If you have any questions about the UMR Parents' Association, or if you would like to become involved, please feel free to contact any of the officers. You may also contact Stephanie Martensen at (573) 341-4897. We could use your help!

JOIN US

UMR Parents' Association: get involved

If you have ever thought of becoming active in the UMR Parents' Association, now is your chance.

Why be involved in the UMR Parents' Association? The organization was formed in the 1970s to allow parents to share more fully in their students' college experience. The association continues to provide an added column of support for our students through the following mediums:

COMMUNICATION

The university encourages you to use the Parents' Association as a vehicle for communicating with university administration. For example, parents worked together through the association to build the tunnel that connects Thomas Jefferson Residence Hall with the campus. Through this cooperative effort with the university, TJ residents no longer have to cross the busy U.S. Highway 63.

HELPING A STUDENT IN NEED

The association also sponsors programs to benefit your students while they're at UMR. One of the most important is the Educational Assurance Program, which provides a grant of emergency funds up to \$1,000 to a student whose father or mother dies while they are enrolled at UMR. The association has provided more than \$50,000 in these grants since 1986.

FUND-RAISING PROJECTS

The Parents' Association has a tradition of fund-raising support for UMR as well. The association is in its third year of a \$50,000 pledge to build a study lounge in the new student center to be built on campus. The lounge will honor retired UMR Chancellor John T. Park and his wife Dorcas for their many years of dedicated service to UMR's students. Former parents projects include a \$25,000 gift to fund the "Green Room" in Castleman Hall and a \$100,000 fund-raising project to help renovate the University Recreation Center.

Help UMR recruit students in your area

Volunteer to become an Alumni Admissions Ambassador and help UMR recruit students.

As an ambassador, you may:

VISIT HIGH SCHOOLS

ATTEND COLLEGE FAIRS

CALL ADMITTED STUDENTS to congratulate them and answer questions

ATTEND PROSPECTIVE STUDENT RECEPTIONS in your area

Our alumni share information about their careers and how UMR helped launch their careers. Both students and parents appreciate being able to talk with our alumni at these receptions.

To help update you on the latest information on campus, UMR's Admissions Office will provide you with fact sheets and a DVD. If you would like to become an ambassador, contact Sarah Salmons in admissions at salmons@umr.edu or call (573) 341-6085.





Sandy Perdue with her son, Andrew.

Meet my Mother

Sandy Perdue is the mother of Andrew Perdue, a sophomore in business and management systems. She and her husband, David, also have three other children.

Sandy has been employed by Wal-Mart for the past 18 years, has been an Avon representative for the past 16 years and does volunteer work for Rolla Public Schools and her church youth group. She has been involved with school PTOs and parent advisory committees for many years. Her interests include attending sporting events, travel, family activities, the beach, shopping, camping and movies.

Sandy has been involved in the UMR Parents' Association since March 2003. She was recently elected as the secretary of the association during the Nov. 1, 2003, fall board meeting of the association, in conjunction with Family Day.

It is my privilege to have my mother working with the UMR Parents' Association, in order to help me have a better college experience. All my life, my mom has directly helped me through the many things a child encounters. Many times, she has put her own needs aside in order to make me happy. She motivated me to stay involved in church, school and athletics. Now that I am a young man in college, she is able to help me indirectly through the Parents' Association by taking the interests of fellow college students and myself to heart. She often asks for our opinions, and then presents them at the board meetings. I am thankful to have a mother that cares greatly for me and in my success in life.

by Andrew Perdue

The Parents' Association

NEEDS YOU

Call (573) 341-4753

Parents — Wish your student a Happy Birthday!



For just \$15 you can have a personalized birthday cake or fresh flowers delivered to your student on his or her birthday.



Sponsored by the UMR Parent-Alumni Relations Committee of the Student Council. All proceeds go to benefit UMR's Student Council.

Cakes are purchased from Country Mart. Flowers are purchased from Blossom Basket Florist. The cakes and flowers are individually priced at \$15; however, both items may be purchased for \$28.

If you have any questions or comments, call the Student Council office at (573) 341-4280 or email stuco@umr.edu. Forms may also be completed online at campus.umr.edu/stuco/

STUDENT INFORMATION

Name: _____

Address: _____

Phone #: _____ Birthday Delivery Day: _____

PARENT INFORMATION

Name: _____

Address: _____ Phone #: _____

Please attach a sheet with the message to be printed on the cake or the card with the flowers. Please mark the item(s) you are ordering below, and remember to check the options you want for each item. This form may be copied if needed.

CAKE

CAKE FLAVOR: White Marble Chocolate

ICING TYPE: Whipped Cream Butter Cream

CAKE DESIGN: (Please add \$2.50 for special designs/ No additional charge for floral design)

- Floral Baseball Construction Site Football Hockey Hunter
- Mickey Mouse Hiking Military Nascar Jeff Gordon Scooby Doo
- Soccer Star Wars To Be A Winner Winnie the Pooh, Piglet, Eeyore
- Winnie the Pooh and Tigger WWF 4-Wheeler

FLOWERS

FLOWER TYPE:

- Three Roses in Vase Mixed Plants in a Basket
- Decorated Carnation with Smiley Face

TOTAL ENCLOSED: _____

Please mail form with check to:
Parent-Alumni Relations Committee c/o Student Council
202 University Center West, Rolla, MO 65409-0770





Sections receive honors during Homecoming 2003

The alumni association presents two awards to sections each year during the homecoming awards banquet. To compete, sections must complete an annual report by Aug. 1. Both awards are calculated on a "fiscal year" basis (July 1 to June 30). Selection criteria include items for which specific point values have been assigned.

The points of accomplishment are totaled and the section with the most points receives the Outstanding Section of the Year Award. The section whose point total exceeds the previous year's total by the most points receives the Phoenix Section Award for greatest improvement.



Outstanding Section Award

Gary Hines, of the Kansas City Section, accepts the Outstanding Section Award from Chancellor Gary Thomas and Larry Hendren, MSM-UMR Alumni Association president-elect, during the 2003 Homecoming awards banquet.



Phoenix Section Award

Chancellor Gary Thomas and Larry Hendren, MSM-UMR Alumni Association president-elect, bestow the Phoenix (most improved) Award to Greg Skannal and Bob Morrison of the Chicago Section during the awards banquet.

ALBUQUERQUE

An enchanting evening for MSM-UMR alumni

Congratulations to all MSM-UMR alumni and friends living in the Albuquerque, N.M., area! The Land of Enchantment became the 43rd colonized alumni section of the MSM-UMR Alumni Association. The designation occurred after the Dec. 18 alumni association executive committee approved the bylaws and signed petition of the 17 alumni who came together to form the Enchanted Section.

The initial meeting was held on Nov. 13, 2003, at the Albuquerque Petroleum Club, with 23 alumni and friends celebrating the second gathering of the group. (They first came together to celebrate the UMR Solar Car Team's progress as it traveled down Historic Route 66 during the American Solar Challenge



Miner pride in the enchanted land of Albuquerque, N.M.

in July 2003.) Stephanie Martensen, coordinator of alumni and constituent relations, welcomed the newly formed section, discussed current events on campus and provided a glimpse of what is in store for the future of the university.

Alumni from all ages and backgrounds joined in recounting life in Rolla. With nearly seven decades of storytelling, it was easy to see why so many people wanted to share their experiences at their alma mater. Guests were surprised to learn from Dwayne "Friday" Freidank that it is only a nine-mile trip to roller skate from Rolla to St. James!

A very special thank you goes to Todd Rastorfer for his organization and energy in making this evening possible.

Those attending included C. Dennis Croessmann '81; Fred Dickey '64; Dwayne "Friday" Freidank '38 with Roger and Cindy; Bill Heitz '78; Stanley '78 and Jeanne '80 Lewis; Carl Lippitt '80; David Owsley '61; Patrick Schroeder '00 and guest; James Studer '84; Ben Weidle '42; Joan Woodard '73 and Mark; David Bardsley '84; Nick '01 and Christina '02 (Eck) Streeter; Todd Rastorfer '98; and Stephanie Martensen of alumni relations.

ARK-LA-TEX

Ark-La-Tex alumni keep Cajun turkey tradition alive

Alumni and friends gathered in Longview, Texas, for the ninth consecutive year to enjoy

a feast featuring a Cajun-style deep-fried turkey. Along with side dishes prepared by the area's own alumni, the main course continued to be the main attraction of the meal.

The evening began with socializing and a brief overview of campus by Marianne Ward, assistant director of alumni relations. Section members were fortunate enough to see the video made of the UMR Solar Car Team, and



Gene and Judy Rand arrive by boat from Phoenix to attend the Ark-La-Tex event with fellow alumni and friends.

their experiences during the 2003 American Solar Challenge. While alumni were impressed with the efforts of this team, they did request to see footage of the mucking team next time around!

Special thanks go to Kenny and Beth Cochran for organizing and hosting this annual Ark-La-Tex event.

Those attending included Jerry '82 and Tammy Poland; Gene '62 and Judy Rand; John Livingston

WE WANT YOUR NEWS:

Submit your Section News and Alumni Notes, by May 25, 2004, to alumni@umr.edu for inclusion in the fall 2004 issue



'39; Clydelle Compton (widow of Basil '39); Helen Bruening; Louise Patton; Rande '73 and Judy '74 Grotefendt; Gary '63 and Janie Pointer; Connie Meyers '02; Erin Swearngen '02; Kenny '83 and Beth Cochran; Dennis and Peggy Boykin; Greg and Sally Wood; Bob and Marti Kannealy; Brandon and Tabi Bussey; Josh and Katie Poland; Chuck and Liz Willman; and Marianne Ward of alumni relations.



MSM-UMR alumni start recruiting future miners at a very early age.

CHICAGO

Thomas delivers promising news to the Windy City

Chicago area alumni gathered at the Goose Island Brew Pub on Oct. 6, 2003, to welcome Chancellor Gary Thomas to their area. Thomas was the guest speaker for the evening, delivering positive news about enrollment and retention on campus. Thomas also spoke of the future building plans for mechanical engineering, and cheered on the

advances made in civil engineering since the recent renovation and dedication.

Chicago Section President Fred Niemeier was the master of ceremonies for the remainder of the evening. He shared his vision for the section for the upcoming year, spoke of the newsletter that was in production and awarded door prizes to a few lucky alumni.

Many thanks go to Kerry Knott and Niemeier for organizing and hosting this event.

Those attending included Eric Achelpohl '97; Mark '94 and Mellanie Goldsmith; Scott Jackson '92; Greg Junge '65; Kerry Knott '96; Stephan Magenta '99 and guest; Mike '77 and Sandy '77 Marx; Dennis '58 and Rhea Mason; Bob Morrison '71; Matthew '96 and Katherine Mogg; Jon '99 and Melinda '99 Morgan; Stephen Schade '74; Fred '95 and Jessica '97 Niemeier; Colleen Stucker '00; Angie Nappier of development; and Chancellor Gary Thomas.

FLORIDA

Sunshine state welcomes Chancellor to Orlando

Unfortunately, Chancellor Gary Thomas did not have time to make it to Sea World or Epcot, but he did get to have dinner with Orlando-area alumni on Oct. 20, 2003, at the Steak and Ale Restaurant downtown. Thomas spread some positive news to area alumni, despite the continuing challenges of the budget situation in the state of Missouri. As always, the opportunity for alumni to help with the rising costs of tuition for current students is always appreciated!

Thanks to the efforts of Warren Unk, the group in Orlando met Thomas during his trip along the east coast of Florida. Area alumni hope this initial meeting will spur future meetings, as there are certainly a wide variety of activities in the Orlando area to keep a section active.

Those attending included John M. '85 and Maribel Ay; Warren '91 and Julie Unk; Mark Cyr '92; Mike Schlumpberger '85; Kurt '94 and Samantha Leucht; Robert E. '50 and Peggy Peppers; Kirk Palicki '95; Brandt Modlin '98; Randy Jones '98; Kim Kline '81; Connie Eggert of university advancement; and Chancellor Gary Thomas.

HOUSTON



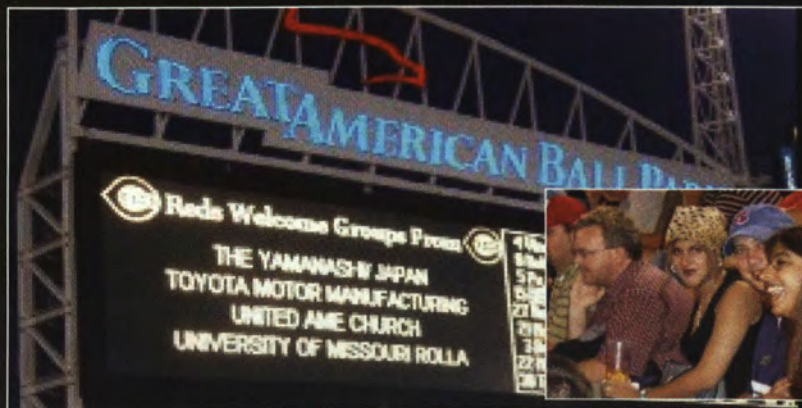
TranStar welcomes prospective students and alumni.

TranStar welcomes prospective students and alumni

High school students in the Houston area experienced "Intro to UMR 101" on Nov. 8, 2003, as they joined MSM-UMR alumni and several university staff members for a prospective student reception at the Houston TranStar Facility near Memorial Park.

The morning began with a high-tech tour of the TranStar Facility (Houston's Transportation & Emergency Management Center) led by TranStar Director Jack Whaley and assisted by Rolla alum Russ Pfeifle. Parts of the tour were reminiscent of the "Star Trek" series, as various sectors of the Houston metro area highways were simultaneously observed from wall-sized monitors while the on-duty emergency/traffic specialists maintained an immediate readiness for action.

Following the tour, Chancellor Gary Thomas provided attendees with a keen appreciation of why UMR should be their top choice for college. Thomas relayed information regarding research possibilities, faculty-to-student ratios and unparalleled outside-the-classroom activities (i.e., student design teams). Lynn Stichnote, director of



While the Great American Ballpark extends a bright welcome to the MSM-UMR alumni on Aug. 30, 2003, members enjoy catching up with each other during the game.



admissions, then followed with a whirlwind DVD tour of campus and different types of organizations and activities that are available to all students.

The morning ended with all MSM-UMR alumni sharing their experiences while attending school in Rolla. Many alumni cited their alma mater as the reason for their current successes in life.

Thanks go to Curt Killinger for organizing this event, and to Pfeifle and Whaley for their assistance in hosting the event at TranStar.

Those attending included Wayne '58 and Betty Andreas; Ed Creamer '53; Mike '81 and Rosie Flannigan; John Furby '65; Vanessa Goodwin '99; Robbie '02 and Margie '02 Gordon; Curt Killinger '73, '80; Jim '67 and Carolyn Medlin; Russ Pfeifle '74; Justin '99 and Melissa '97 Ryan; Nicole Talbot '77; Lynn Stichnote of admissions; Louise Morgan of development; and Chancellor Gary Thomas.

Houston welcomes Chancellor Thomas to brunch

Following a fun-filled day at TranStar with prospective students and their families, alumni and their families joined Chancellor Gary Thomas for brunch on Nov. 9, 2003, at Rio Ranch Texas in Houston. Thomas expanded on several themes he touched on during the student reception regarding enrollment and retention, student competitions, research grants, and future building and landscaping plans for the campus.

Alumni were extremely vocal in questioning Thomas about the future of the university, particularly in regard to budget issues facing the state of Missouri. Louise Morgan, of UMR's development office, also spoke to the group about the various ways that alumni may contribute to the future of the university in relation to donations and scholarship assistance for students.

A special thanks goes out to Nicole Talbot for organizing and hosting Thomas in the Houston area. Congratulations go to Dan Ponder and Linda Wright for winning the door prizes for the event. Thomas was also presented with a special door prize: a Houston Astros baseball cap.

Those attending included Wayne '58 and Betty Andreas; Bob '55 and Irene Bening; John Furby '65 and son, John; Zeb '72 and Harriet Nash with Barbara, Robert and Theo; Russ Pfeifle '74; Dan Ponder '85; Joe Ponder '81; Nicole Talbot '77; Fred '74 and Rosa Thompson; Newton '59 and Marilyn Wells; Linda Wright '88; Louise Morgan of development; and Chancellor Gary Thomas.

Holiday cheer spreads to Houston

Alumni, family and friends came together at the home of Rob and Becky Riess on Dec. 5, 2003, to celebrate the friendships and warmth of the holiday season. Guests found it hard to ignore the approaching holidays, as the Riess home was beautifully decorated for the season. An incredible buffet of tempting food items was also available for everyone to enjoy.

A special thanks goes to Rob and Becky Riess for organizing this event, and for opening their home for this evening of celebration.

Those attending included Mike Miles '03; Gerry '71 and Aurora Hart; Will '72 and Julie Bertrand; Mile '75 and Leeann Sewell; Jim '67 and Carolyn Medlin; Rob '79 and Becky Riess; Fred '74 and Rosa Thompson; Maryann Fox '79; Doug Fuchs '77, '79; Doug '91 and Leigh '92 Cordier; David '61 and Jody Furnish; Nicole Talbot '77; Russ Pfeifle '74; Wayne '58 and Betty Andreas; and Curtis Smith '96 and Jennifer.



Members of the Houston Section gather at the home of Rob and Becky Riess to ring in the holiday spirit.

INDIANAPOLIS

Indy alumni celebrate one year at Easley Winery

Members of the Indianapolis Section met on Dec. 4, 2003, at the Easley Winery in downtown Indianapolis to celebrate one year as a colonized section of the MSM-UMR Alumni Association. Guests enjoyed a tour of the winery, samples from 24 different wines and champagne, hors d'oeuvres, dinner, and a souvenir glass.

Following the winery experiences, Indianapolis Section President Dawn Stufft conducted a business meeting with all guests to discuss section goals for the upcoming year, student recruitment activities and the election of more section officers. Alumni were also presented with various volunteer opportunities to assist with the efforts of the alumni association and the university, as well as a chance to talk about what type of activity they would like to see for St. Pat's 2004.

After the business meeting, special guest speaker Lindsay Bagnall gave a PowerPoint presentation on current campus events and upcoming projects. Members of the group had so much fun together, they were asked to leave the winery due to running out of their allotted timeframe. Therefore, Bagnall gave the fastest update on campus current events in the history of the alumni association!

Special thanks go to Dawn Stufft for organizing and hosting this wonderful event.

Those attending included Joshua '00 and Dawn '99 Stufft; Les Stewart '66; Emily Wehmeyer '97, '00; Roger '82 and Marvilyn Jones; Tara Algreen '98; Aaron Rues '01; Tim Brown '02; Laura Wagner '02; Kyle Koederitz '96, '99, '03; Angie Shores; John Brannon '85, '87; and Lindsay Bagnall '76, director of alumni and constituent relations and executive vice president of the MSM-UMR Alumni Association.

JEFFERSON CITY

UMR gives POWERful presentation to high school students

High school students from the Jefferson City area were invited to join members of the UMR staff and several MSM-UMR alumni at ABB Power on Nov. 18, 2003, to hear about the advantages of attending UMR.

PowerPoint presentations and a special question-and-answer session with alumni helped make the event a huge success!

A special thanks goes to ABB Power for hosting this event, and to Jim Grace for his assistance in coordinating the effort.

Those attending included Paul Jobe '95; Storm Russell '87; R.J. Wilson '62; Mike Taylor '72, '87; Jim Grace '76; Larry '73 and Polly '73 Hendren; and Lindsay Bagnall '76 of alumni relations.

HELP UMR AND HIGHER EDUCATION:



KANSAS CITY

UMR builds relationship with KC students

Thanks to the coordination and efforts of John Frerking, close to 50 prospective students and their families met several staff and alumni from MSM-UMR in the ornate offices of Burns & McDonnell in Kansas City, Mo., on Nov. 23, 2003.

Always keeping a watchful eye on the clock due to an approaching Chiefs kick-off time, the full house heard about the many opportunities available in Rolla.

Those attending included John Frerking '87; Joe Reichert '59; Les Hamilton '77; Bill Zaner '74; Bill Fellows '98; Alan Carson '72; George Stegner '74; and Stephanie Martensen and Marianne Ward of alumni relations.

LINCOLNLAND

Lincolnland fall dinner features update on campus student affairs

Debra Robinson, vice chancellor for student affairs, served as the guest of honor for the fall dinner and meeting of the Lincolnland Section on Oct. 29, 2003, at the Springfield Motor Boat Club. Robinson shared a wide range of information with members of the group surrounding changes in the athletic arena, services offered at the Career Opportunities Center, a detailed overview of the Havener Center, and the programming of the new residential college.

Prior to Robinson's presentation, alumni enjoyed a social hour at the club, and were thrilled to welcome some new attendees to the group. One of the section's goals for the upcoming year is to find more young alumni to step in and take over the day-to-day operations of the section activity.

A special thanks goes to Jerry Parsons and Tom Feger for organizing and hosting this annual meeting.

Those attending included Tom Feger '69; John '77 and Kathy Stutsman; Bill '73 and Peggy Giles; Amanda '99 and Andrew Withers; Rich '71 and Cathy Eimer; William '88 and Anna Sinnott II; Jay '98 and Elizabeth Jordan; Jerry '70 and Mary Parsons; Rich '64 and Sandy Mochel; Ed '69 and Anne Midden; Chris Billingsley '02 and Jennifer

Elam; Will Sudduth '66; Ken '85 and Debbie Miller; Rich '69 and Carolyn Berning; Terry '72 and Debbie Burke; Debra Robinson of student affairs; and Stephanie Martensen of alumni relations.

MD/VA/DC

Fall fellowship in Maryland

Members of the MD/VA/DC Section kicked off the nation's fiscal year with a post-Halloween party and business meeting at the home of Doug and Sandy Hughes on Nov. 1, 2003, in Arnold, Md. After reminiscing about days gone by at MSM-UMR over a potluck meal and televised football, attendees heard a campus update from special guest Judy Cavender of UMR's development office.

Section President Joe Schumer followed Cavender's uplifting news with discussions around starting a section website, the institution of a social committee and recent involvement in student recruitment efforts. Alumni from the area participated in two college nights for Virginia high school students, with hopes of representing the area more heavily in the overall Rolla student population. The MD/VA/DC Section also looks forward to hosting the UMR Solar House Team during future competitions.

Following the business part of the agenda, guests toured Doug's model train system, and engaged in conversation with Kathleen Beres, a teacher and astronaut who also is the wife of a fellow alumnus, Miller Einsel.

Many thanks go to Doug and Sandy Hughes for organizing and hosting the events of the afternoon.

Those attending included Ben Hankins '82; David '96 and Jodie LaFreniere-Dajc; Doug '63 and Sandy Hughes; Joe Stahl '69; Bob '73 and Janet Scanlon; Ken Erwin '97; Miller Einsel '62 and Kathleen Beres; Mike Call '01, '03; Joe Schumer '92 and Nate; John '64 and Ruth Ann Hoel; and Judy Cavender of development.

TULSA

Chancellor Thomas helps Tulsa alumni celebrate the holidays

Thanks to the hospitality of Craig and Laraine George, MSM-UMR alumni living in the Tulsa, Okla., area kicked off the holiday season at an alumni event on Dec. 6, 2003, with special guest Chancellor Gary Thomas.

Thomas spoke to the group about the exciting changes that continue to make Rolla an excellent location to obtain a degree. Sketches of proposed building plans and landscaping visions were available for all guests to see. News of the student design team competitions and the teams' never-ending quest to be number one was also a favorite topic for attendees.

Guests enjoyed a wide array of games at the George home, as well as a wonderful variety of holiday appetizers and drinks.

Those attending included Rich Brown '83; Lewis Cappellari '60; Preston Carney '02, '03; Tim Madden '01 and Lindsey Barrows; Frank '82 and Itzania Marcott with their two kids; Terry '61 and Louella Mills; Steve '98 and Arnie '98 Squibb; Joe '59 and Mary Vitali; Ted '82 and Donna Wooten; Phil '71 and Diane Wade; Paul '90 and Jane Tobben; Craig '74 and Laraine George; Angie Nappier of development; and Chancellor Gary Thomas.



MD/VA/DC alumni gather for their fall party and business meeting. Front row (left to right): Ben Hankins, Jodie LaFreniere-Dajc, Sandy Hughes, David Dajc. Back row (left to right): Joe Stahl, Janet Scanlon, Doug Hughes, Bob Scanlon, Ken Erwin, Miller Einsel, Kathleen Bores, Mike Call, Judy Cavender, Joe Schumer with Nate, Ruth Ann Hoel, John Hoel.

check out the volunteer-run website www.joe-miner.com

19 30s

1933

Arthur E. Shrubsall, MetE: "I attended the 70th reunion, captured the oldest living grad title and received an Exceptional Achievement Certificate. I had the time of my life!"

1939

Charles E. Boulson, EE: "Yes, fellows, I am still alive, age 93."

19 40s

1942

Austin E. Schuman, ME: "We enjoy spending summers in Maggie Valley, N.C., at our summer home with its splendid view."

1944

Daniel T. Blount, ChE: "A big hello to all of my old buddies at Rolla. I recently celebrated my 79th birthday. My wife and I are doing just fine and will soon be celebrating 53 years of married bliss, spending summers at a cabin in northeast Pennsylvania and winters in Florida."

1947

James D. Sullivan, MetE: "I found **Joe Hepp**, MetE'48, also living here in St. George, Utah. It's nice to see old friends."

1949

David F. Brasel, ChE: "Continuing to enjoy retirement and activities with senior citizen groups."

19 50s

1950

Joseph E. Halleemann, EE: "Our domestic and foreign travel, including to MSM reunions, has been considerably curtailed. My wife, Mary Ann, does all of the driving and most everything else. The Department of Veterans Affairs continues to be of much help, including prescription drugs."

1951

John W. Brilllos, ME: "My wife, Jacque, and I are still enjoying life, liberty and the pursuit of happiness." • **Larson E. Wile**, MetE: "I have been blessed with good health and am enjoying retirement, especially my Morgan horses, church and traveling. I have a small tree farm, so I keep abreast of forestry and metal casting."

1952

Clarence M. Tarr Jr., MetE: "Gay and I celebrated our 50th last year by taking our family to Disney World for Valentine's Day."

1953

William W. Kronmueller, CE: "I enjoyed the tour through the new civil engineering building at the 50th reunion. The new facilities are almost unbelievable."

1954

James A. Gerard, CE, is in administration of new patent-pending co-polymer polypropylene septic tank kits for EZ Tanks Inc. in Orlando, Fla.

1955

Richard L. Jones, MetE: "After 11 years of retirement, I have gone back to work as a metallurgical engineer for Lockheed Martin Aeronautics Co. in Fort Worth, Texas. In 2002, I worked for three months in South Korea as technical advisor on KAI's T-50 jet trainer. Still have time for travel, with two weeks in Eastern Europe in September."

1958

James E. Twyman, MetE: "My wife, Jane, recently retired from geriatric nursing and I am semi-retired, having returned to my engineering services consulting business, based on structural steel fabrications metallurgy. We have five children and seven grandchildren."

19 60s

1960

Bruce L. Bramfitt, MetE, MS MetE'62, PhD MetE'66: "I survived the bankruptcy of Bethlehem Steel in May. I now work for the International Steel Group, who purchased Bethlehem Steel. Still doing research on new steels, I'm having too much fun to retire." • **Anthony Prete Jr.**, GGph, MS GGph'63: "Gloria and I have been retired and living in St. George, Utah, for six years and we love it. I teach geology for Elderhostel, and Gloria teaches gourmet cooking. We also travel quite a bit in our motor home." • **Glenn I. Swartz**, MetE: "I am enjoying retirement, fishing and spending time with the grandkids. I am also very active in Rotary, serving as past president of Mt. Pleasant, Iowa, Noon Rotary."



1967-68 basketball team reunites in Rolla

THE 1967-68 BASKETBALL TEAM held a mini-reunion on Saturday, Dec. 13, 2003, and attended the Miners basketball game that night. They toured the campus early in the afternoon, viewed films of their games, enjoyed dinner together and overall had a great reunion. Mac Andrew '68 organized the reunion with assistance from Coach Billy Key.

Alumnus lends talents to historical commemoration

Dedicated to the cause of preserving Missouri history, **Bill Stine**, EE'64, has been involved in the Lewis & Clark Task Force in Jefferson City, Mo., since its creation in 2000 and currently serves as co-chairman of public relations for the organization. Stine says his interest in historical commemoration began in 1976, when he performed in the Albuquerque Civic Light Opera Company's production of *1776*. "That experience was so rewarding," he says. "Participation in an event enhances one's appreciation of it."

The task force's theme, "Great Expectations: The Return of the Corps of Discovery in 2004," centers around the historical re-enactment of the Discovery Expedition. The re-enactment, complete with a replica keelboat and crew, will occur in June 2004. "It is a one-time event," Stine says. "The Discovery Expedition is a living history lesson to commemorate the vision of Thomas Jefferson and the skill, courage and teamwork of the members of the Corps of Discovery."

In addition to serving on the task force, Stine will also lend his creative talents to the Lewis & Clark Singers as a performer during the June 2004 event.

1961

Jeremiah W. Jamieson, EE, has been promoted to utility engineer in the Southeast Missouri State University facilities management department.

1962

Arthur J. Jacobsmeyer, CE: "In May 2000, after 37 years of service with Alberici Constructors, I retired as vice president. In September 2000, I took the position of senior director, an advisor to Jacobsmeyer-Mauldin Construction Co. Inc."

1963



Earle M. Hughes, CE, at left, has been named a senior vice president of Gannett Fleming Transit & Rail Systems in its Valley Forge, Pa., office.

- **J. Lisle Reed**, ChE, MS ChE'64, PhD ChE'66: "I retired on Aug. 1, 2003, after 31 years of federal

government service and about seven years in the private sector. I served as director of the Department of Energy's office of oil and gas during the 1970s energy crisis. I was acting director of the Department of the Interior's

office of surface mining in 1984, and deputy undersecretary for several years during the 1980s. I finished my career as Pacific regional director for the Minerals Management Service, and continue to reside in California. I have lived in several regions of the U.S. and traveled to all 50 states, but I am glad I was born and raised in Missouri, and I am thankful for the sound, practical education I received at MSM-UMR."

1965

Donald A. Bugg, ChE, and his wife, Jeanine, are the proud grandparents of Sydney Ann Torres, born on Jan. 4, 2003. All three of their children are now married.

1966

Allen Behring, ME, was recently elected vice president of MWH Americas Inc. He is responsible for coordinating mechanical design for the state and local government east division of the global engineering and construction firm. He and his wife, Liz, reside in Lake Bluff, Ill., and have a son, a daughter and a grandson.

- **Olin R. Raby**, CE: "After 34 years with Ralston Purina Co. and spin-off company Ralcorp Holdings, I have retired. Since I am still so young, I plan to seek part-time positions in program, project or construction management."

(continued on page 36)

Becher named to National Advisory Board

Paul Becher, MetE'63, MS MetE'65, research group leader at the Department of Energy's Oak Ridge National Laboratory (ORNL), was recently named to the National Research Council's National Materials Advisory Board. Becher has been with ORNL's metal and ceramics division since 1980. ORNL is a science and technology laboratory managed by the University of Tennessee and Battelle for the Department of Energy. Becher is a member of the American Ceramic Society.

GM CIO inducted into IT Hall of Fame

Ralph Szygenda, CSci'70, chief information officer at General Motors, was recently inducted into the IT Industry Hall of Fame, which honors innovators, entrepreneurs and leaders in the high-tech industry. *CAN*, a magazine covering the technology and business of the computer industry, co-hosts the awards ceremony with the Computer History Museum and universal information technology marketplace COMDEX. Szygenda, who has been in the IT business for 35 years, was honored for helping to change the way large corporations solve technology challenges by implementing outsourcing, which uses business and technology partners rather than maintaining in-house information technology systems.

W H A T ' S N E W W I T H Y O U ?

Send us your alumni notes via:

EMAIL: alumni@umr.edu
 FAX: MSM-UMR Alumni Association, (978) 926-7986
 MAIL: MSM-UMR Alumni Association, University of Missouri-Rolla, Castleman Hall, 1870 Miner Circle, Rolla, MO 65409-0650

UMR Homecoming 2004

Make your reservations now for Oct. 15-16

Precollege Summer Programs

Do you have a budding engineer or scientist at home? Do you know some students who are interested in math or science?

If so direct them to Rolla for one of UMR's precollege summer programs. The programs include:

- Aerospace Camp*
- Introduction to Engineering*
- Jackling Institute*
- Minority Introduction to Engineering and Science*
- Nuclear Engineering Camp*
- Summer Solutions (for girls)*
- Summer Transportation Institute*
- Hy-Tech Camp*

For specific requirements, costs and more information call 573-341-4132 to request a copy of the 2004 PreCollege and Summer Programs brochure. For information on UMR's sports camps, call 573-341-4175.

For more information go online
summer.umn.edu
Start the UMR experience early!

1967

Ivan A. Erwin, ChE: "Linda and I both retired in 2001 and are juggling our winters between skiing in Colorado and enjoying the sun in our second home near Las Vegas." • **David M. Welsh**, MetE: "Retirement has given me that important asset – time. I am able to indulge my passion for antique cars to the max, while enjoying my home and family."

1968

Bobby T. Cox, MetE: "This has been a tough year for us with the loss of Sandy's father last fall and her fight with cancer this spring. She completed the radiation treatments and is now recovering. It looks like she is going to beat it. In April, we became grandparents when our son, Jeremy, and daughter-in-law, Karrie, had Madeline Grace. Business has been growing well and we are filling up the new facility." • **Donald Fleming**, CE, senior vice president of Hanson Professional Services Inc. recently marked his 35th anniversary with the company. He managed Hanson's Peoria office for 28 years and serves as the company's national railroad bridge specialist. • **William J. Green**, CE, MS CE'69, and his company, SCI Engineering Inc. were featured in the June/July 2003 issue of the *St. Charles Business Magazine*. The article describes the shortfalls and long-term success of the company Green built into a \$12 million engineering business.

1969



Claude (Norm) Strauser, CE, at left, was elected a Fellow by the Academy of Science of St. Louis at an induction ceremony held Oct. 14 at the Chase Park Plaza. The grade of

Fellow recognizes distinguished scientists or engineers renowned worldwide for accomplishments in their fields and contributions to science and engineering and/or science education. Strauser is the chief of the hydrologic and hydraulics branch of the U.S. Army Corps of Engineers, St. Louis District.

1970s

1970

Jerrey D. Finnegan, ChE, MS ChE'71: "I retired from Abbott Labs and am now working as a consultant engineer for PACIV-USA (www.paciv.com). I live in Indianapolis and can be contacted at finneganj@paciv.com." • **Tom Nebel**, EE: "I am still enjoying retirement after moving from southwestern Ohio; however, I'm keeping busy traveling to see our three children in Columbus, Ohio, Greenville, S.C., and Houston. Susan and I are really enjoying living in Tennessee after 32 years of marriage. I am very involved with our church, I assist at the local soup kitchen and work with Habitat for Humanity. As if golf, boating and flying weren't enough to fill my schedule, I now drive a local school bus. Something I did 40 years ago in Rolla working my way through school!" • **Thomas A. Selden**, ME, joined the Cleveland Clinic Health System as president of its Eastern region. Selden previously served as president and chief executive officer of Parma (Ohio) Community General Hospital.

1971

David W. Bondurant, EE, is consulting with investment analysts and working toward a master's degree in business administration.



Robert G. Butchko, CE, MS EMgt'83, at left, joined Cole & Associates as director of engineering. He previously served as director of engineering for the Metropolitan St. Louis Sewer District. •

James A. Faletti, EMgt, founded a second company, HR Insights, which develops and markets human resources software tools for small businesses. • **Robert S. McCormick**, Phys: "My health has been going from bad to worse, since my recent back operation. I should not be surprised, as I turned 88 in September."

1972

Kent W. Mueller, ME: "Cindy, my wife of almost 29 years, passed away on Nov. 29, 2002. I have been the sales manager for Brayden Automation for three years. Prior to getting back in the work force, I spent six years playing 'Mr. Mom' and enjoying every minute of it. My daughter, Courtney, is a sophomore in college and my son, David, is a sophomore in high school." • **Gary W. Vandiver**, ChE, retired from Solutia Inc. and joined Emerson Process Management as program director on Dec. 1, 2003. He and Donna are enjoying life on the golf course in St. Albans, Mo.

1973

J. Curtis Killinger, Math, MS EMgt'80: "I am continuing as a senior reservoir engineer and economist for Challenger Minerals, an affiliate of Global Santa Fe Drilling, exploring and developing prospects in the Gulf of Mexico, the North Sea and selected international venues. Houston is still home base. Marybeth and I enjoy raising Catherine, 15, and Joseph, 12. Catherine did well in cross country and Joseph plays the saxophone and guitar in his spare time. I am hoping to get back for homecoming next year." • **Mehmet N. Taner**, CE: "If any of you plan to visit Turkey, let me know. I will be happy to assist you in every way I can. Best regards to fellow alumni."

1974

Jonathan Motherwell, CE: "After 20 years with Dames & Moore/URS, I resigned in September to accept a new position as director of oil and gas sector services at Environmental Resources Management (www.erm.com)."

1977

Jack S. Thrower, MetE: "My wife and I sold our business of three years. I stayed on as general manager and continue to be involved with the Federal Aviation Administration reverse engineering aircraft components."

1978

Michael G. "Mick" Bayer, EE, ran five marathons in 13 months, including the 31-mile Texas Sunmart ultra-race, and achieved his first-degree black belt in Taekwondo. He's been with Dow Chemical for 25 years and is currently a senior electrical design engineer in industrial power systems. As a voting member of the IEEE Insulated Conductors Committee, he co-authors IEEE wire and cable standards. He is a 20-year veteran professional photographer, and enjoys acting and singing in local plays and musicals. Visit his website at www.michaelbayer.com. He will be glad to answer any general photography or digital camera questions from other alumni. • **Harold Deckerd**, CE, MS CE'79, was promoted to assistant state conservationist for water resources for the Natural Resources Conservation Service in Columbia, Mo. He supervises a multi-disciplinary staff of 12 and serves as program manager for the Small Watershed Program, the Wetlands Reserve Program, and the Emergency Watershed Program. • **Dan Reed**, CSci, became the first Kenan Eminent Professor at the University of North Carolina at Chapel Hill, a \$3 million endowed professorship. The position is the first of 10 such endowed chairs funded by a recent \$27 million gift to the university from the William R. Kenan Jr. Charitable Trust. • **Johnnie C. Roberts**, Math, MS Math'81, PhD CSci'88, joined Syntel LLC as a senior software developer. The company provides mail-automation software for the financial industry. He is a senior software developer.

1979

Michael W. Noble, ChE, was recently appointed chair of the division of oral and maxillofacial surgery and facial trauma services at St. John's Mercy Medical Center in St. Louis.

(continued on page 40)

Greensboro College honors UMR grad

James Llewellyn's name is now on a scholarship at Greensboro College in Greensboro, N.C., in recognition of his volunteer work to repair and upgrade the campus' telephone system. Llewellyn, EE'70, volunteered his services to this two-year project, saving the college \$500,000 on equipment, fees and repairs. At a recent college assembly, Greensboro President Craven Williams announced the creation of the Llewellyn Presidential Scholarship, which is valued at about \$85,000, and pays for tuition, fees, room and board.

Llewellyn was inspired to contribute to the college that his oldest child, Donna, had attended on a scholarship and where she had worked in the financial aid office. Along with her sister and boyfriend, Donna died in the tragic Campus Walk apartment fire in February 2002. "I always appreciated that the college had given a scholarship to Donna," Llewellyn said.

Wu wins the Otto Haas Award



Soon we may never have to worry about smeared ink on documents from our inkjet printers, thanks to **Richard Shu-Hua Wu**, MS ChE'71, PhD ChE'75, a research fellow at the Rohm and Haas Co.

Wu was awarded the Otto Haas Award for Scientific Innovation in Inkjet Printing in 2003. He is credited with developing ways to make printer ink more durable and water-resistant.

Named for the co-founder of the company, the Otto Haas Award recognizes the highest level of achievement among researchers, scientists and technical services.

Along with his award, Wu received a \$5,000 grant from Rohm and Haas, which he has designated for the UMR chemical engineering department.

PINNING CEREMONY

for Class of 1979 during Homecoming

A special "pinning" ceremony will be held for the Class of 1979 on Saturday, Oct. 16, during Homecoming 2004. Class members who return for Homecoming will receive a silver Joe Miner pin to commemorate the occasion. For more information, please send us your email address at alumni@umr.edu.

HOME COMING

100 Reasons To Celebrate

Three fraternities at UMR each had 100 reasons to let loose at the 2003 Homecoming. The Beta Chi chapter of the Kappa Sigma fraternity, the Gamma Xi chapter of the Sigma Nu fraternity, and the Beta Alpha chapter of the Kappa Alpha fraternity each observed their 100th anniversary at MSM-UMR during the weekend's festivities.



KAPPA SIGMA: Approximately 320 Kappa Sigma alumni and guests watched as the 2003 Hall of Fame and Beta Chi Men of the Century awards were presented.



SIGMA NU: More than 400 Sigma Nu alumni, active members and guests gathered for a three-day celebration, which culminated in the burning of the fraternity house's mortgage note.

Kappa Sigma

Approximately 320 Kappa Sigma alumni and guests watched as the 2003 Hall of Fame and Beta Chi Men of the Century awards were presented. New Hall of Fame members were **Theodore Ruppert** (PetE'53), **Mike Wrob** (ME'81), **Rich Manning** (GeoE'82), **Paul Fleischut** (MetE'85), **Jerry Borman** (ME'59) and **Robert Dietz** (ME'44). Guest speaker **Gary Forsee** (CE'72), CEO of Sprint Corp. and a member of the Beta Chi class of 1969, discussed how his experience in the fraternity helped him form the skills needed for a successful career.

The event culminated with the presentation of the Beta Chi Men of the Century Awards. The awards were presented to those members who have contributed greatly toward sustaining Beta Chi's legacy for the future, demonstrating community involvement and dedication to their families, and achieving professional success. Receiving the awards were Forsee; **John Ricketts** (ME'61), president of EMCO Building Products Group; and **Robert Hoffman** (ME'81), owner of Hoffman Brothers Heating and Air Conditioning.

Sigma Nu

Burn baby, burn! More than 400 Sigma Nu alumni, active members and guests were on hand to witness the burning of the fraternity house's mortgage note, made possible by generous alumni donations.

The three-day celebration included a golf tournament, casino night party, alumni meetings, hog roast, winery

tours and a banquet where \$50,000 was raised to pay off the mortgage 15 years early. "In total, \$130,000 was received in donations over the past three years toward our goal of paying off the house at our 100-year celebration," says **Tom Hughes** (EMgt'91). "The highlight of the weekend was the hilarious speeches about Sigma Nu's past from brothers **Carl Zerweck** (CE'50), **Lou Goldfeder** (ME'67), and **Jeff Meyer** (EE'91). The event capped our first 100 years as we celebrated being the first fraternity on the MSM-UMR campus beginning in 1903. A great time was had by all in attendance."

Kappa Alpha

Despite celebrating its centennial milestone months after the actual date, a crowd of more than 200 alumni and guests were present for the momentous occasion. "With the house full of alumni, it looked as if it were St. Pat's weekend," says active member **Adam Siburt**, a junior majoring in civil engineering.

Following a lunch buffet on the veranda at the chapter house Saturday, the annual homecoming and scholarship banquet was held at the Comfort Suites in Rolla. "At dinner, Province Commander Darren S. Kay and former Knight Commander **Jim Estes** (NDD'84), our guest speaker, were in attendance," says Siburt. "As dinner came to an end, a dozen annual scholarships were handed out to 11 brothers of the active chapter." **George M. Anderson**, MinE'49, then shared his thoughts about his days as an active member before Estes discussed his expectations for the chapter's future.

Scenes from Homecoming 2003

Viva Las Vegas



Alumni and friends at the alumni reunion luncheon.



Above: Elvis was in the building Friday night — singing to the crowd.



Zeb Nash '72, Keith Bailey '64 and Ron Miller '64 enjoy the Silver and Gold Banquet.



Arthur Shrubsall '33 and Roland "Friday" Freidank '38 share memories of MSM during Homecoming 2003.



Left: Stephanie Buffa and Daniel Bailey were crowned Homecoming Queen and King on Saturday during halftime at the football game.

1980s

1980

James R. Arnold, EMgt, has joined Coeur d'Alene Mines Corp., the world's largest

Osborne named VP for Dow Pharmaceutical

David W. Osborne, PhD Chem'85, was recently named vice president of product development for Dow Pharmaceutical Sciences. Prior to this position, Osborne was vice president of the dermatology division at Atrix Laboratories Inc. He co-authored the book *Topical Drug Delivery Formulations*, and has authored or co-authored more than 40 articles and publications. A member of the American Academy of Dermatology, the American Academy of Pharmaceutical Scientists, the Society for Investigative Dermatology and the American Chemical Society, Osborne also holds more than 20 patents.

Daily named CEO of Pedestal Networks

Greg Daily, EMgt'86, MS EMgt'88, was appointed chief executive officer of Pedestal Networks, a broadband Internet service in Fremont, Calif. He brings 15 years of experience in general management and executive sales. Previously, Daily was general manager of the transport products division of ADC, another broadband company.

Birk named VP of AmerenEnergy

Mark C. Birk, EE'86, MS EE'91, was recently named vice president of AmerenEnergy Inc. and Energy Supply Operations, a power marketing and risk management agent for Ameren Corp.'s affiliated companies.

primary silver producer. As vice president of technical services and projects, he directs engineering, metallurgy, planning and project work. • **Kevin D. Watson**, ChE: "I've made a move to Unocal Corp. as a senior advising specialist in the global engineering and construction group. I hope all of my fellow chemical engineers are doing well, and this note finds all to be healthy and happy."

1981

Paul Baldetti, EE, was recently named president of Garlock Sealing Technologies, a division of EnPro Industries. Baldetti previously served as president of the industrial pump group of ITT Industries Inc. • **John A. Kelmelis**, MS EMgt, chief scientist for geography at the U.S. Geological Survey, accepted a temporary assignment as senior counselor for earth science at the U.S. Department of State. He provides policy-level advice on using geography, geology, hydrology, biology, oceanography, climatology and related sciences and technologies in establishing and executing U.S. foreign policy and in building confidence in science and technology in foreign regions of interest to the United States. Kelmelis has written numerous publications, is active in professional and scientific organizations nationally and internationally, and represents the U.S. on several international committees.

1982

Brian Grant, CE, president of Grant Contracting Co., and his business were featured in the June 2003 issue of the

St. Louis edition of *American Contractor*. Owned and operated by Grant and his father, Donald C. Grant, the company was founded in 1946 by his grandfather, Harry E. Grant.

1983

Kenneth W. Gieg II, MetE: "Kathy, Taylor, Sam and I moved from St. Louis to Philadelphia. I took a job with Titanium Metals Corp. to help with the start-up of our new automotive division." • **Dan Harrington**, ME, was recently awarded a patent for a locking and latching system for a telescoping boom. He is a senior engineer at Link-Belt Construction, designing cranes. He and **Laura**, CSci'83, still live in Lexington, Ky. Laura teaches at Asbury College.

1984

Larry T. Birkner, ME: "Busy starting up the Midwest operations for TRICON Metals & Services Inc." • **Cheryl L. Gardner**, CerE: "I am married to a railroad engineer and am home schooling a ninth grader, an eighth grader and a second grader. I am also busy with my church, sports, reading and my children's activities. Those long hours of study in college have enabled me to teach my children more easily. I actually enjoy reviewing every math, science and history concept. I have also discovered a whole new world of literature!"

1985

Sherry Davis, CSci: "I have returned to McKesson Corp. They lured me back with a great research project. Life is good. My email

Striking a successful chord

The media are tuning in to the latest invention of **Don A. Gilmore**, ME'86. It's a piano that allows musicians to tune the instruments at the touch of a button. The self-tuning piano has no moving parts and relies on controlling the temperature of the strings by passing electrical current through them.

The components invented by Gilmore will be installed in Story & Clark Prelude grand pianos to be sold this year. "The cost of the piano with the self-tuning device has yet to be decided," Gilmore says, "but the cost will not be dramatically increased and will be similar to getting air-conditioning on a car."

Gilmore has been playing the piano since he was 8 years old and has combined his musical and engineering interests to create a variety of gizmos. His other musical inventions include a hand-held tuning device that will also be sold later in the year. Gilmore is not limiting himself to musical inventions, but adds that the self-tuning piano is his greatest accomplishment as an inventor thus far.

As a result of his self-tuning invention, Gilmore has been featured in *The New York Times* and National Public Radio's "Weekend Edition," and his invention was featured on Paul Harvey's noon radio program show. He holds three U.S. patents and has two patents pending for various inventions.

Weddings

Matthew Buenemann, ME'93, and **Stacey Cranmer**, EMgt'97, were married on March 29, 2003. The couple resides in St. Peters, Mo.

Brian Chamberlain, CSci'01, and **Erin Gifford**, GeoE'01, were married on April 12, 2003, in Seattle, Wash.

Jason Fanning, Hist'01, and **Jessica Brill**, LSci'98, were married on Aug. 9, 2003, at McMurry United Methodist Church in Kansas City, Mo. The couple resides in Houston.

Jeffrey Field, CSci'03, and **Alicia Cobb**, MetE'02, were married on Aug. 30, 2003.



Jason Fanning, Hist'01, and Jessica Brill, LSci'98

Jason R. Jones, CE'00, and **Sadie M. Burke**, GeoE'88, were married on Oct. 4, 2003.

Steven Kunze, ChE'96, and **Teresa (Brewer) Triplett** were married on June 28, 2003.

Jon Pardeck, EE'01, and **Megan Jekel**, ChE'02, were married on Dec. 7, 2002, in Blue Springs, Mo. The couple resides in Huntsville, Ala.

Florian Rueck, MS Math'03, and **Emily Donaldson**, ME'97, were married on June 7, 2003, in Fort Smith, Ark.

Nicole Winters, MinE'97, and **Robert Porter** were married on Oct. 25, 2003, in Webster Groves, Mo. Both currently work for Halliburton Energy Services and live in Houston, Texas.

Joe D. Young, ChE'02, and **Jill Riley** were married on July 12, 2003, in Shelbina, Mo.



Nicole Winters, MinE'97, and Robert Porter

Sprint promotes Walker

Sprint recently named **Kathy Walker**, MS EMgt'82, as vice president of network services. Walker, who previously served as senior vice president of network services and senior vice president of Global Markets network services, will lead the future development of Sprint's wireless and wireline networks. She also will supervise design engineering and manage operations of Sprint's nationwide PCS network, along with domestic and international wireline voice, data, and Internet networks.

Walker has served in various positions for Sprint Technology and Sprint Business since 1995. She holds a bachelor's degree in civil engineering from South Dakota State University.

Grads on the Great Wall



Russ Harrell, MetE, writes: "All four UMR metallurgical engineers pictured standing on the Great Wall of China are Caterpillar employees. At the time of the photo, **Gary Yerby**, MetE'90, and **Duane Symes**, MetE'88, were working at the Caterpillar Asia Track facility. **Scott Avis**, MetE'86, and I were visiting for a Track Program meeting."

is slk003@mchsi.com." • **Marc W. Eshelman**, CE: "My wife, Jill, and I keep busy with our four children: Nicholas, Matthew, Amanda and Emma, and our very active dog, Mitzi."

1986

Charles B. Emde, EE: "I purchased a steel building manufacturing company in 2003." •



Pamela (Resnik) Gum, MetE, is married with two children: Steven, 16, and Chris, 13. She lives in St. Louis and works as a welding engineer for Nooter/Ericksen. • **David Wray**, EE, at left, joined

Shive-Hattery Engineers and Architects in Cedar Rapids, Iowa, as an electrical engineer. He specializes in electrical and lighting design. Wray is past president of the Central Iowa Chapter of the Iowa Engineering Society.

1987



S. Keith Hargrove, MS EMgt, at left, was appointed chair of the industrial, manufacturing and information engineering department at Morgan State University in Baltimore. He recently served as associate professor of mechanical engineering at Tuskegee

University in Alabama. • **Ronald Schultz**, Chem, has joined Bryan College's academic department. His responsibilities include the master-level instruction of computer programming students.

1988

Robert Tokar Jr., ChE: "**Lori (Ehlmann)**, ME'91, and I are now in Houston. We both work for Shell Lubricants."

1989

Mark J. Buhr, MetE: "I am now married and have four children. We have been living in Minneapolis for seven years and enjoy it here.

(continued on page 42)

FUTURE MINERS



Connor Matthew Adams with big brother, Tyler.



Corbin Crocker

Andrew Scott Adams, EE'93, and his wife, Shannon, had a girl, Kennedy Dianna, on Sept. 30, 2003.

Susan (Koeller) Adams, GeoE'96, and her husband, Timothy, had a boy, Connor Matthew, on Dec. 2, 2002. He joins big brother Tyler.

Chris Boone, CE'90, and his wife, Beth, had a boy, Nathaniel Edward, on May 17, 2003. Nathaniel is the grandson of **Jack L. Boone**, professor emeritus of electrical and computer engineering at UMR.

Eric Bruss, CE'99, and his wife, **Jill Sandifer**, GeoE'96, had a girl, Alyssa Leann, on March 7, 2002. Relatives include UMR alumni **Donald (Gene) Sandifer**, CE'69, who is her grandfather, and uncles **Philip Sandifer**, CE'92, and **Steven Sandifer**, GeoE'00.

Donald Bugg, ChE'65, and his wife, Jeanine, are the proud grandparents of a girl, Sydney Ann Torres, born on Jan. 4, 2003.

Lori (Stapp) Crocker, AE'88, and her husband, Tony, had a boy, Corbin James, on Sept. 16, 2003.

Bobby Scott Dye, MetE'93, and his wife, Debbie, had twin girls, Rachel and Faith, on July 28, 2003.

Diane (Schwalje) Faulkner, ChE'93, and her husband, Jason, had a girl, Olivia Nicole, on July 19, 2003.

Glen F. Forck, ME'79, and his wife, Mary Ellen, had a boy, Matthew, on Aug. 28, 2003.

Jo Ann (Connors) Galakatos, EE'87, and her husband, Greg, had a girl, Kara Nicole, on April 3, 2003. She joins Matt, 11, Kelly, 8, Erin, 5, and Jenna, 3.

Carla (Folkerts) Jones, ChE'96, and her husband, Dan, had a girl, Greta Jane, on Oct. 6, 2002.

Bradford J. Kline, Math'88, and his wife, Anjula Batra, had a girl, Asha, on Feb. 27, 2003.

Anthony McLaughlin, ME'98, and his wife, **Laura (Bandy)**, EE'99, had a girl, Annabelle Victoria, on March 8, 2003.

David L. Moechnig, NDD, had a boy, Clayton Michael, on Oct. 15, 2003.

Brian Schrameyer, CE'98, and his wife, Katie, had a girl, Kaley, on April 3, 2002.

Susan (Housh) Slade, MetE'89, and her husband, Cary, had a boy, Zachary, on June 10, 2003. He joins big brother Ryan, 6.

Michael Stevinson, MinE'99, and his wife, **Heather (Nations)**, BSci'99, had a girl, Anna Ruth, on June 17, 2003. She joins big brother Joseph.

Shawn VanAsdale, NucE'94, and his wife, **Lena (Tsouffanidis)**, ChE'94, had a boy, Vincent Xander, on Feb. 1, 2003.

Scott Volner, MetE'83, and his wife, Cathy, had a girl, Addyson Marie, on July 16, 2003.

Brad Williams, MinE'00, and his wife, **Nichole (Sloan)**, CerE'99, had a girl, Riley Loraine, on Sept. 6, 2003.



Anna Ruth Stevinson with big brother, Joseph.



Riley Williams



Clayton Moechnig



Nathaniel Boone



Annabelle McLaughlin

If you have a birth announcement or a photo of your new little Miner, send it to us and we'll publish it in an upcoming issue of the magazine.



GOLFING ANYONE?

**Chancellor's Cup Golf Tourney & St. Louis Section Tourney
Saturday, June 19, 2004, Wolf Hollow Golf Club, Labadie, Mo.**

The 2004 Chancellor's Cup Golf Tournament and St. Louis Section Tournament will be jointly held again this year, due to the overwhelming success of last year's combined tourney. For more information about the tourney, contact Randy Dreiling '81 at randy@design9.com.

I am thankful for my job after being unemployed for 10 months.” • **Kevin Edwards**, NucE, and his wife, **Suzanne (Bast)**, Phys’90, moved back to Rolla. Kevin is working at Brewer Science. • **Gary Hadler**, ME: “We moved with our five children: Danielle, 10, Nicole, 8, Joshua, 6, Isaac, 4, and Emily, 2, to Hutchison, Minn., where I was transferred with 3M. **Elizabeth (Haning)**, Math’88, will begin serving another United Methodist Church in the near future.” • **Susan (Housh) Slade**, MetE: “We are enjoying life as an expanded family after the birth of our son, Zachary, in June. We also have a six-year-old son, Ryan. I am working part time for Noranda, a Canadian mining and metals company, and enjoying more time with my sons in Naperville, Ill.”

1990s

1990

Kenneth B. Rigsby, MinE: “Still enjoying the mountains of southwest Virginia and eastern Kentucky with Missy and the kids.”

1991

Charles R. Buttry, ChE: “Still enjoying family life in Little Rock, Ark., with Noelle and our three children: Ryder, 8, Wyatt, 4, and Brooks, 2. I would love to hear from old chemical engineering alumni.”

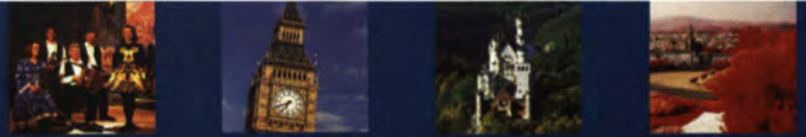
1992

Kirk G. Bast, Hist, reports that his wife, Kennerly Jones Bast, graduated from veterinary school and established practice with the Two Notch Clinic in Columbia, S.C. • **Dutro (Bruce) Campbell**, ChE, was elected to be a member of Husch & Eppenberger LLC effective Jan. 1, 2004. He is an intellectual property attorney in the firm’s St. Louis office.

1994

Stephen Lane, MetE, MS EMgt’00: “I recently took a job as director of manufacturing for American Castings Foundry in Pryor, Okla. My wife, **Shelly (Backues)**, CE’95, and sons Austin, 5, and Brandon, 2, and I relocated to Claremore, Okla.” • **Lena (Tsoufanidis) Van Asdale**, ChE: “**Shawn** (NucE’94) and I are enjoying Reno, Nev., and parenthood.”

(continued on page 44)



Miner Tours

The Order of the Golden Shilleagh invites its members to travel to Ireland with the alumni association this spring. Of particular interest to OGS members will be the chance to visit the Waterford factory where the crystal pieces signifying the various OGS clagh levels — shamrock, Celtic cross, claddagh, etc. — are made.

IRELAND-KILKENNY

June 2-10, 2004, from \$1,795

Experience storied Ireland on this comprehensive travel and educational opportunity from Kilkenny, famed for its ancient castle, Georgian doors, welcoming pubs and picturesque setting. Visit the Waterford Crystal Factory, attend an exclusive performance by an Irish storyteller, and participate in a discussion of Ireland’s rich literary history presented at the renowned Writers Museum in Dublin, followed by a visit to Trinity College to view the Book of Kells. Explore life in modern-day Ireland with a panel of local Irish to gain a unique insight into modern Irish culture.

TUSCANY CORTONA

July 28-August 5, 2004, from \$1,795

Enjoy seven nights in the ancient Etruscan city of Cortona, wonderfully situated in the heart of Tuscany and

the inspiration for the book, *Under the Tuscan Sun*. Explore the UNESCO World Heritage Sites of Siena, Florence and Assisi, learn the glory of medieval history, participate in a presentation of Tuscan cooking with the chef of the award-winning Restaurant Tonino, and participate in a panel discussion with local residents of Cortona to gain a unique insight into modern life in Tuscany.

LONDON

August 6-14, 2004, from \$1,349

One of the world’s great cities, London will enchant you with a variety of sights and sounds — from its pomp and ceremony to its restaurants, museums, galleries, spectacular shopping, and perhaps the best and most diverse offerings of theater and music anywhere.

SWITZERLAND & ITALY’S LAKE GARDA

September 3-11, 2004, from \$1,399

Experience Engelberg, located in central Switzerland close to Lucerne. This picture-postcard resort is nestled in an unforgettable mountain landscape of dramatic panoramic views, a lively town of warm and traditional Swiss character, with flower-festooned wooden chalets and lovely old “Stubli” restaurants.

For more information about these tours, contact Stephanie Martensen in the alumni office, by phone at (573) 341-4897 or by email at smarten@umr.edu.



Hello from Iraq

Scott Preston, CE, MS EMgt'02: "I was stationed at Fort Leonard Wood, Mo., in the 5th Engineer Battalion, which deployed to Iraq on April 3, 2003, with the 4th Infantry Division as part of Task Force Iron Horse. I took command of Alpha Company, 5th Engineer Battalion in May. My company is attached to the 1st Squadron, 10th U.S. Cavalry Regiment. We have been deployed near the Iranian border since the end of May. The combat engineers in the company have been destroying munitions left behind by the Iraqis when they fled. They've also constructed vehicle checkpoints and marked old Iraqi mine fields. The construction engineers have been building force-protection berms and fighting positions for the different units in the sector. I'd like to say hi to the men of Lambda Chi Alpha. I couldn't make it to Homecoming this year. I hope to return before St. Pat's, but it's not looking good with yearlong deployments in the works." (EDITOR'S NOTE: The 5th ENBN returned to Fort Leonard Wood on March 4.)

Policy for publishing Alumni Notes

- We are happy to announce weddings, births and promotions, after they have occurred.
- We will mention a spouse's name if it is specifically mentioned in the information provided by the alumnus/alumna.
- The *MSM-UMR Alumnus* will announce deaths if information is submitted by an immediate family member, or from a newspaper obituary. Notification of deaths that have occurred more than two years before the date of publication will not be published unless a special request is made by a family member.
- Obituary information on alumni spouses will be printed only if the alumnus/alumna specifically requests that we print it.
- We will print addresses if specifically requested to do so by the alumnus/alumna submitting the note.
- We reserve the right to edit alumni notes to meet space requirements.
- We will use submitted photos as space permits.

1995

Christopher M. Scheibelhofer, MetE: "I am now the chief metallurgist for Scott Forge in Spring Grove, Ill. **T.J. (Davenport)**, EMgt'95, is in the Missouri Air National Guard and has been activated since March 2003. She has spent 4 months in the Middle East. Our son, Nate, is 2 years old."

1996

Steven Kunze, ChE: "I married Teresa (Brewer) Triplett on June 28, 2003. We now have Zach, 10, with us all of the time and Jacob, 10, every other weekend. Life is good, but flat, here in Wichita, Kan. I am a process engineer with Vulcan Chemicals, where I have enjoyed meeting several fellow alumni."

1998

Sadie M. Burke, GeoE: "I am still with IDOT. I sat for the PE exam in April."

2000s

2001

Jon Pardeck, EE: "**Megan (Jekel)**, ChE'02, and I are currently living in Huntsville, Ala., where I work for Adtran and Megan attends the University of Alabama in Huntsville for a Ph.D. in biotechnology."

2002

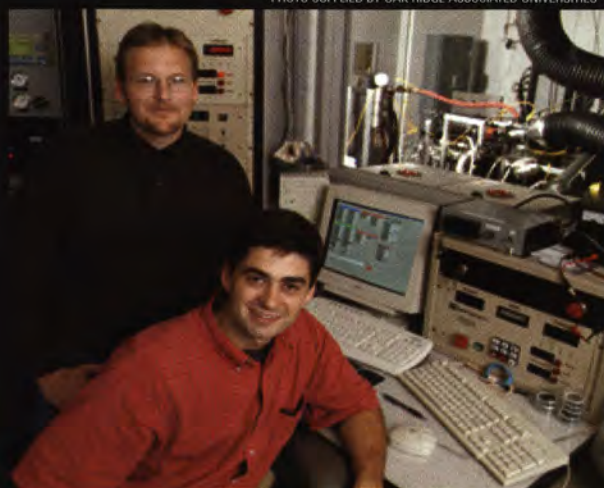
Megan (Jekel) Pardeck, ChE: "**Jon**, EE'01, and I live in Huntsville, Ala., where Jon is working for Adtran and I am attending the University of Alabama in Huntsville for a Ph.D. in biotechnology."

Opportunity of a lifetime

For **Robert Wagner**, ME'93, MS ME'95, PhD ME'99, experience is all about giving something back to the next generation. As program mentor for the Oak Ridge Institute for Science and Education (ORISE) in Oak Ridge, Tenn., Wagner gives his mechanical engineering students hands-on lessons to take into the professional world. "You're here to learn lessons and gain real-world experience relevant to issues facing the nation and the world," Wagner tells his students. He also gives them the same advice that was given to him as a Ph.D. student: "Never be afraid to learn or ask questions. There are no stupid questions."

As an undergraduate at UMR, Wagner completed an ORISE program at the Oak Ridge National Laboratory (ORNL) in 1992, then returned to complete a postdoctoral program in 1999. For the past four years, Wagner has served on the research and development staff at ORNL's National Transportation Research Center.

Wagner now serves as program mentor to students going through some of the same ORISE educational programs that he completed. Experience has given him the opportunity to teach others, but Wagner says he's still learning. "I'd just like to be able to teach these students as much as I can and build their confidence and knowledge. It actually works both ways. We learn from each other. It's an opportunity of a lifetime."

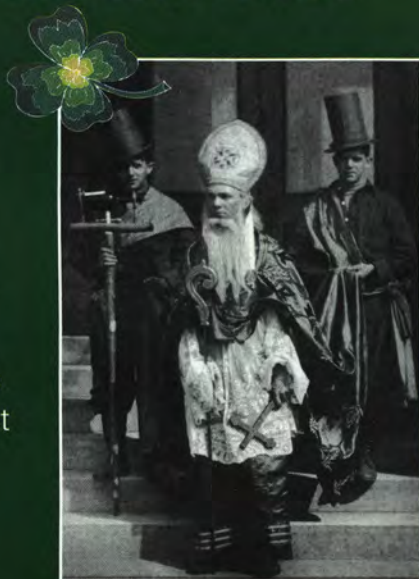


Robert Wagner, standing, with Eric Natziger, a college student whom Wagner mentored.

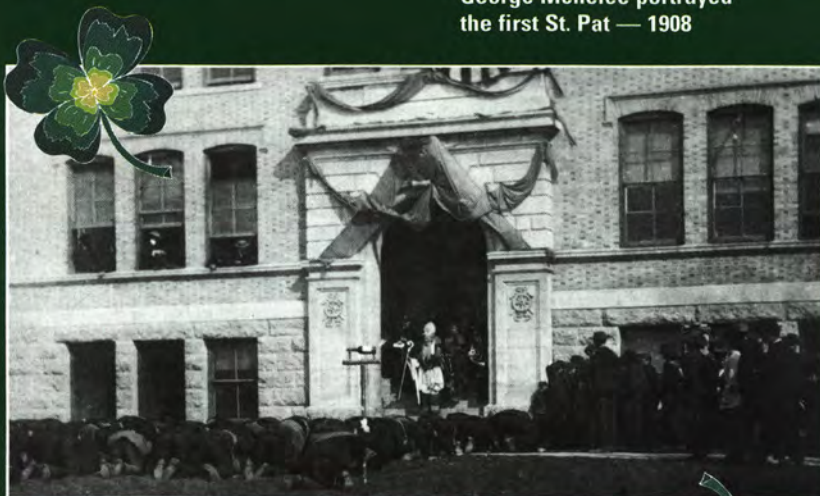
A LITTLE BIT of
HISTORY

**St. Pat's, 1908:
the first ever**

Paul A. Philippi, CE'08, took these photos of MSM's first St. Pat, portrayed by George Menefee, in front of Norwood Hall in March 1908. Philippi's son, Paul A. Philippi Jr., recently donated a photo scrapbook of his father's to the alumni association. The booklet includes more images of campus life from 1904-1908, including freshman fights and "tossing."



George Menefee portrayed the first St. Pat — 1908



Court bowing to St. Pat in front of Norwood Hall.



St. Pat and his court parade down the sidewalk near the Rolla Building.

1927

John C. Brown, NDD, †Sept. 26, 2003

1932

Carl A. Elsea, EE, †May 24, 2003

1934

Gordon H. Gillis, MetE, †Feb. 20, 2002

1938



William W. Decker, CE, was a member of the rifle team, ROTC, the Officer's Club, SAME and ASCE while attending MSM-UMR. One of the original officers of the 82nd

Airborne Division, Decker served in seven combat operations with the division in World War II. He was awarded the Purple Heart, and his unit received numerous citations. Decker was a member of Masonic Lodge No. 59, the Patrick Air Force Base Officers Club and Retired Officers Association, Veterans of Foreign Wars and the Reserve Officers Association. †Sept. 28, 2003

1939

Herbert Sturges, MetE, †Sept. 5, 2003

1940



Laurel B. Frye, ME, a recipient of the Curators' Scholarship, was a member of the Engineer's Club, ASME and Phi Kappa Phi while attending MSM-UMR, graduating with Second Honors.

He worked for the National Advisory Committee for Aeronautics, the forerunner of NASA, from 1940-42, when he enlisted in the Army Air Corps. Following the war, he taught courses in physics, physical science, mathematics, engineering, geology, thermodynamics and astronomy at John Brown University and Cedarville College, retiring in 1985. Frye received seven successive National Science Foundation summer research grants, including NASA-sponsored imaging experiments aboard *Pioneer 10*. †July 13, 2003

1941



Eugene P. Boyt, ME, was a member of ROTC and SAME, played intramural sports, and worked as a student assistant while attending MSM-UMR.

After graduating, he joined the U.S. Army and was sent to the Philippines as a lieutenant in the engineering corps. He was taken prisoner on April 9, 1942, and was

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held for 31/2 years, serving 21/2 years in Japan. Boyt survived the Bataan Death March and was in a Japanese prison camp during World War II, when Hiroshima and Nagasaki were bombed. After his discharge, he worked as an engineer, building hydroelectric dams, retiring in 1975 to Chickasha, Okla. His life and wartime experiences are detailed in *Bataan: A Survivor's Story*, a book co-authored by Boyt and David Burch. The book was published by the Oklahoma University Press in February 2004. †Sept. 11, 2003

1942

Robert P. Howser, NDD, †July 10, 2003

1943

Charles D. Blair, NDD, †Dec. 1, 2002

Rene K. Rasmussen, CerE, †May 25, 2003

1944

John O. Stegner, ME, was a member of Shamrock Club, Alpha Psi Omega and Tech Club while attending MSM-UMR. †Oct. 1, 2003

1949



Leonard E. Dieckman, ChE, was a member of Tech Club, Alpha Chi Sigma, the Miner board, Music Club, Photography Club, AIChE, the *Rollamo* board and the Independents while attending MSM-UMR. †Sept. 12, 2003



William A. Siegel Jr., ME, was a member of Kappa Alpha and ASME and was on the Honor List while attending MSM-UMR. †June 17, 2003



Paul E. Tanner, CE, was a member of ASCE, American Roadbuilder's Association and Tech Co-op Club and was a student assistant while attending MSM-UMR. He worked for the

Illinois Department of Transportation for 30 years before retiring, then worked for H.W. Lochner Inc. for 10 years. Tanner was an Army veteran of World War II and was awarded the Purple Heart and three Bronze Stars. He was a member and past commander of American Legion Post 57 and a member of VFW Post 1307, Elks Lodge 737 and the First Presbyterian Church of Elgin, Ill. †Jan. 7, 2003

1950



Philip Davidson, GGph, was a member of Sigma Phi Epsilon and was on the Honor List while attending MSM-UMR. As a Navy fighter pilot serving on a carrier in the South Pacific

during World War II, Davidson received the Purple Heart, the Air Medal and a Distinguished Flying Cross. In the early years of pipelining, Davidson traveled throughout the U.S. and Canada selling supplies. In 1954, he joined Leland Equipment Co. in Tulsa, Okla., then moved to Irving, Texas, joining K&O Equipment Co. Davidson also served on the board of the Distribution Contractors Association. †July 6, 2003



Robert E. Davis, CerE, was a member of the American Ceramic Society, Keramos, Sigma Pi and M Club while attending MSM-UMR. He served in the Coast Guard from 1945-46, and the Army from 1954-56, where he was a Counter Intelligence Corps special agent in Kaiserslautern, Germany. His industrial experience began in Chicago, as a ceramic engineer with Plibrico Co. He retired from AFG Industries, where he worked as a furnace engineer in Kingsport, Tenn. Davis was a past president of the Kingsport Lions Club and was a lifelong avid gardener. †Oct. 13, 2003



Bernard Dell Hollenbach, EE, was a Navy veteran, serving aboard the USS Intrepid in the Pacific during World War II. He was a member of the IBM Quarter Century Club. †Nov. 14, 2002



Joseph Horsley, CE, was a member of ASCE, MSPE, Phi Kappa Phi and Tau Beta Pi and was on the Honor List while attending MSM-UMR. †Sept. 4, 2003



Wayne E. Kottwitz, ChE, was a member of AIChE and Alpha Chi Sigma and was on the Honor List while attending MSM-UMR. During World War II, he served two years in the Navy in the Philippines. Kottwitz retired from Anderson Clayton in Sherman, Texas, in 1987, after 35 years of service. He was a third- and fourth-degree member of the Knights of Columbus and volunteered for the deaf program of the Texoma Council of Governments. †Sept. 18, 2002

Charles W. Linkeman, MinE, was on the Honor List while attending MSM-UMR. During World War II, he served in the Army Specialized Training Program in the 13th Armored Division. After graduation, Linkeman worked for the U.S. Geological Survey as a topographic engineer. †Sept. 20, 2003

Paul A. Matthews, MinE, †July 9, 2003

Robert S. McElhiney, ME, †Dec. 8, 2002



Anthony J. Pantaleo, PetE, was a member of SAME, the golf team, ROTC and Triangle while attending MSM-UMR. He served in the Army during World War II and the Korean War, then

settled in Louisiana as a field engineer for The California Co. (Chevron). In 1965, Pantaleo founded consulting firm A.J. Pantaleo and Associates Inc., and was one of the first to offer professional engineering to the Gulf Coast oil and gas industry. He retired from consulting in 1988. Pantaleo was a member of Oakbourne Country Club, the Petroleum Club of Lafayette and the Society of Petroleum Engineers and was a registered professional engineer in Louisiana. †Oct. 6, 2003



Earl C. Ralya, MetE, served in the Army during World War II. He retired in 1979 as an engineer for Foote Mineral Co., after 29 years in Keokuk, Iowa.

Ralya was a member of the Elks Club and the Greencastle (Iowa) American Legion. †Oct. 17, 2003

John D. Satterlee, CE, was a member of ASCE and was on the Honor List while attending MSM-UMR. He was an Army veteran of World War II and worked as a civil engineer for the U.S. Geological Survey until his retirement in 1978. †Sept. 17, 2003



Nancy Scofield, GGph, was the first woman to receive a Ph.D. from Michigan Technological University, where she held a research position. She also held a

research and faculty position at South Dakota School of Mines and Technology. As a research geologist, Scofield received many academic and professional honors. She was instrumental in starting two small symphony orchestras and traveled to such locales as Ireland, England, Germany, Antarctica, Easter Island, and the Galapagos Islands. †Nov. 29, 2003



Edward Skalka, MetE, was a member of Alpha Epsilon Pi and the football team and was on the Honor List while attending MSM-UMR. He owned Litas Cleaners in Perth Amboy, N.J., for five years, before retiring in 1999. †Nov. 5, 2002

Georges J. Vigier, MinE, †March 1, 2002

1951



Earl R. Brunkhorst, ME, was a member of ASME and was on the Honor List while attending MSM-UMR. He was a World War II Army veteran. †Aug. 10, 2003



Lyle E. Cantwell, MetE, was a member of ASM and Amercian Foundrymen's Society while attending MSM-UMR. He served in the Army Air Corps of the 15th Air Force in Europe

during World War II, then worked for Bechtel Corp. for 20 years. He was a Mason for 51 years and was a member of the United Methodist Church. †June 6, 2003

Robert E. Dieckgrafe, ChE, worked for Texaco for 34 years, retiring as assistant manager of the Lawrenceville, Ill., refinery, and manager and vice president of the Honduras refinery in Central America. He was an Army veteran and was a member of the First Presbyterian Church, the Elks, the National Rifle Association, Alpha Chi Sigma and the Beta Eta chapter of Tau Kappa Epsilon. †Feb. 2, 2003



Gordon E. Napp, MinE, served in the Army's 13th Airborne Division during World War II. He moved to Miami, Ariz., in 1951, where he worked in copper mining until his

retirement in 1987. Napp was active in the Lions Club and YMCA. †Sept. 18, 2003



William B. Vose, ChE, was a member of the swimming team, Tau Kappa Epsilon, M Club and Detonators while attending MSM-UMR. He was an Army veteran of the Korean War and

a member of the Perry Highway Lutheran Church. He worked for U.S. Steel for 30 years. †Oct. 7, 2003

Edward Wilzer, NDD, worked for Lansing Board of Water and Light until his retirement in 1981. †May 17, 2003

1952

Richard D. Goul, GGph, was on the Honor List and was a member of AIME and the C.L. Dake Geological Society while attending MSM-UMR. †Oct. 29, 2002

Kenneth Whelan, ME, †May 28, 2003

1954

Robert F. Piletic, MetE, was a member of AIMME and ASM while attending MSM-UMR. †May 11, 2003



Richard L. Reeg, EE, was a member of Sigma Pi, the football team, AIEE and M Club and was on the Honor List while attending MSM-UMR. He retired from Crane

Defense Systems (Unidynamics) and Southwest Mobile Systems. †Sept. 9, 2003

1957

Robert L. Biddulph, GGph, †Oct. 16, 2002

1958



Robert J. Wagner, PetE, was a member of Newman Club, APO, Theta Kappa Phi, the *Rollamo* board and the Interfraternity Council while attending MSM-UMR. †June 22, 2002

1959

Thomas J. Street, CE, †Sept. 4, 2003

1962

Dennie L. Adkins, ME, was a member of ASME and SAE and was a student assistant while attending MSM-UMR. He retired from Reynolds Aluminum in Sheffield, Ala. Adkins was a member of the First Baptist Church, the Cheylan, W.Va., Masonic Lodge and the Scottish Rite of Freemasonry. †Aug. 9, 2003



Menard "Mo" O. Smith Jr., CE, was a member of ASCE, '59ers Club, Independents and the Shamrock Club and was on the Honor List while attending MSM-UMR. His

career included positions with the U.S. Army Corps of Engineers, Bechtel Corp., the City of Kansas City during the construction of KCI Airport and the General Services Administration. †June 29, 2003

1963



Dannie C. Barclay, ME, was a member of ASME and Kappa Mu Epsilon while attending MSM-UMR. He retired from Tinker Air Force Base in 1994. †July 31, 2003



Walter R. Bridges, CE, was a member of the Wesley Foundation, ASCE and Chi Epsilon and was on the Honor List while attending MSM-UMR. †June 19, 2003

Dale E. Dobson, CE, †March 16, 2003

1966

Frederick B. Rudolph, Chem, was a member of Tau Beta Pi, Acacia, Alpha Chi Sigma and Intercollegiate Knights while attending MSM-UMR. He was the Ralph and Dorothy Looney Professor of Biochemistry and Cell Biology and the director of the Institute of Biosciences and Bioengineering at Rice University. His research on nucleotide metabolism led to the discovery of an essential dietary requirement of healthy immune function. Rudolph and his research partner, Charles Van Buren, discovered that removal of nucleotides (key metabolites) from the diet delayed key immune responses and reduced the body's ability to fight off infection. In early October, Rudolph was elected to the National Space Biomedical Research Institute Board of Directors. †Oct. 9, 2003

Richard L. Tritschler, CE, †July 8, 2002

1967

Larry D. Getz, ChE, was a member of Alpha Chi Sigma, St. Pat's Board, Independents and the Prospectors while attending MSM-UMR. After graduation, he served two years in the Army. He retired from Conoco after 31 years of service. †March 28, 2003

1968

Charles W. Thresher, ME, †April 3, 2003

1970

George J. Postol, CE, †Jan. 9, 2003

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1971

Vernon R. Edwards, EMgt, was a member of the American Helicopter Society and Looking Glass Corvette Club. He was an aerospace engineer for Westar Corp. in St. Charles, Mo., for the past five years, but had worked for 35 years as a project manager for HQ ATCOM, Department of the Army in St. Louis. †Nov. 5, 2002

Edward C. Liu, ChE, †May 18, 2002

1973

Kenneth H. Gilmore, EE, †Dec. 6, 2002

1975

Michael Woodcock, Psyc, worked as a photographer in St. Louis and for the U.S. Army. He later worked for both the State of Missouri and the County of Riverside, Calif., in the field of family services. †Aug. 3, 2003

1979

Edwin R. Carney, EE, MS EE'86, worked for ITT in Fort Wayne, Ind., Emerson Electric in St. Louis, and Teledyne-Brown in Huntsville, Ala., where he earned his professional engineer license. He returned to UMR in 1994 to teach basic engineering.

Carney retired to Lake Ozark, Mo., where he enjoyed fishing, golfing and gardening. He was a member of the Lake Ozark Rotary Club and owner of Dock Outfitters. †Sept. 23, 2003

1982

Richard B. Corey, ME, †Jan. 4, 2002

1984

Pamela J. Singleton, EE, worked in five cities in four states during her 15-year career as an engineer and manager. She held executive management positions with such leading firms as E.I. Dupont, 3M, Honeywell and Procter & Gamble. She also owned Prosperity Plus, an executive-success coaching business. †June 29, 2003

1988

Thomas J. Omohundro, ME, †Sept. 16, 2003

1996

Peggy J. Smith, Psyc, †Aug. 26, 2003

1998

Kerry Risser, CE, †Oct. 3, 2003

Jacqueline Bryant Lomax
Alumnus proofreader, campus friend

The *MSM-UMR Alumnus* and the MSM-UMR community lost a great friend with the death of **Jacqueline Bryant Lomax**, who passed away Jan. 30 at the age of 74. She was the mother of Lindsay Lomax Bagnall, '76, executive vice president of the MSM-UMR Alumni Association. She also volunteered as a proofreader for the *Alumnus* for several years.

Mrs. Lomax was a member of Chapter HR of P.E.O., Phelps County Alumnae Panhellenic, and the Kappa Alpha Theta Sorority. She also was an avid supporter of UMR's public radio station, KUMR, and the UMR Theater program.

Memorial donations may be made to KUMR or to the UMR Theater program.

CORRECTION:

In the summer 2003 issue, the memorial for **John J. Northcutt**, MinE'44, was incorrectly published with the photo of **Edward Patterson**, MetE'44, MS MetE'47. Mr. Patterson is very much alive and enjoying his retirement in Rowlett, Texas. *The editors regret this error.*



John J. Northcutt

— friends

Rita Besleme, wife of James H. Besleme, MinE'61, †June 1, 2003

Kathryn Bradshaw, wife of George V. Bradshaw, ME'42, †June 14, 2003

Jeanette Brill, wife of Niles K. Brill, MinE'42, †Feb. 1, 2003

Claude Brown, †Feb. 27, 2002

Marion V. Eppelsheimer, wife of Daniel Eppelsheimer, professor emeritus of metallurgical engineering at UMR. She served as a past president of the UMR Coterie Club and was very active in support of scholarships for students in the metallurgical engineering department. She was also a member of the National Scholarship Loan Fund Committee of the women's auxiliary of the American Institute of Mining and Metallurgical Engineering. †July 31, 2003

Tracey Epperson, wife of Joseph Epperson, MetE'78, †December 2002

Jean Erskine, wife of Robert H. Erskine, MetE'50, †Oct. 3, 2003

Madeline Hollenbach, wife of Bernard Dell Hollenbach, EE'50, †Nov. 14, 2002

Charles A. Johnson, professor emeritus of mathematics at MSM-UMR. He and his wife, Peg, were very involved in the Rolla community. They were among the founders of the Civic Music Association, which organized Rolla's first classical concert series. They were also involved in the PTA. †July 23, 2003

Carol Klug, wife of John R. Klug Jr., ME'66, †July 6, 2003

Velma Nunn, wife of Thomas Nunn, †July 11, 2003

Frances Oakley, †Oct. 18, 2003

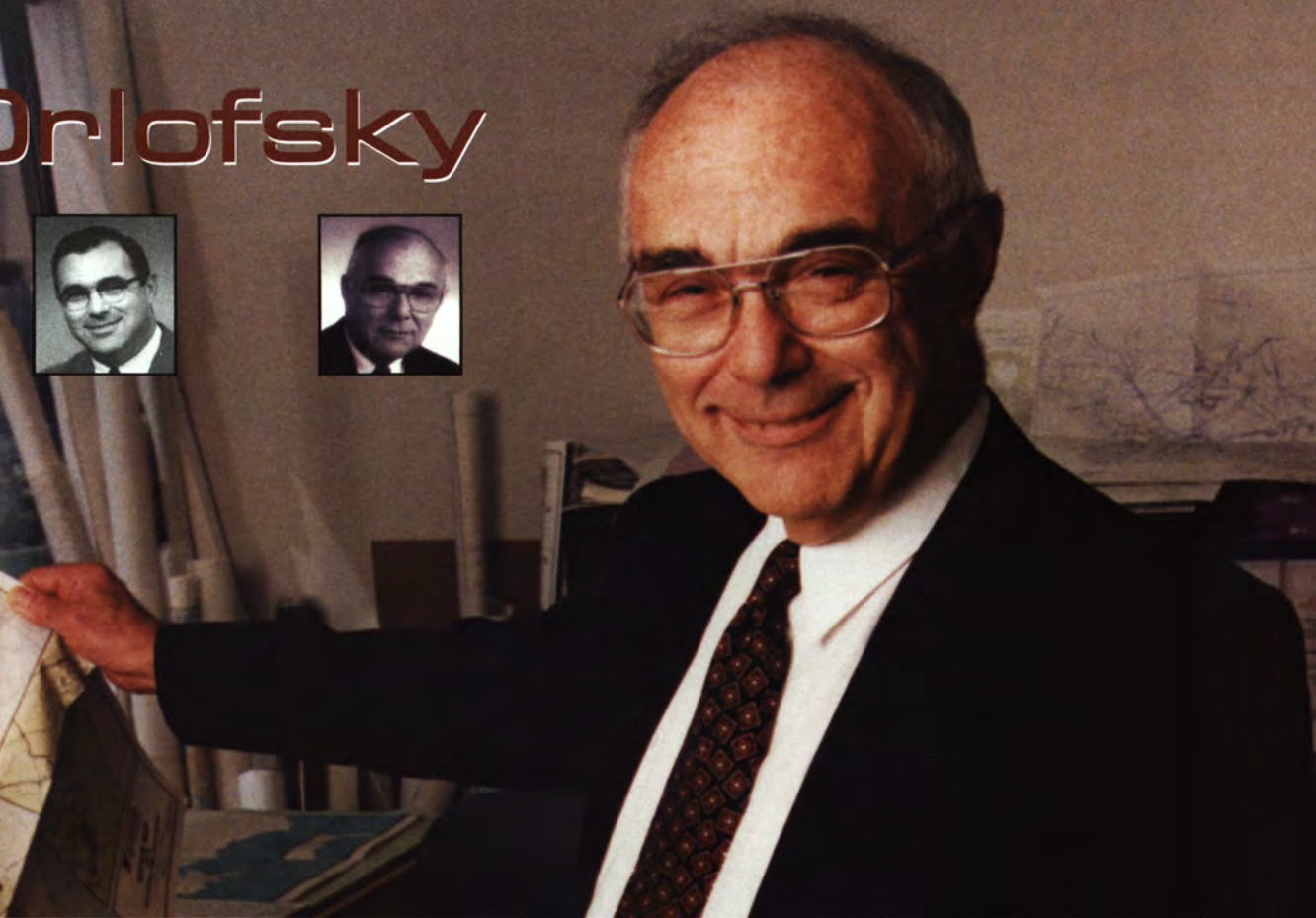
Miriam Planje, wife of Theodore (Ted) Planje, CerE'40, PhD CerE'50, †Aug. 10, 2003

Evelyn Schuman, wife of Charles (Willie) W. Schuman, CE'55, †Aug. 4, 2003

Lucille Sigler, mother of Jim Sigler, manager of UMR's public radio station, KUMR. †Oct. 24, 2003

Joseph D. Wollard, retired business officer for UMR. †Sept. 22, 2003

Sy Orlofsky



The oldest son of a Polish immigrant family, the late **Seymour "Sy" Orlofsky**, ME'44, rose from humble beginnings to become a leader and innovator in the oil and gas industry – and eventually "Pipeliner of the Century." Today, 60 years after his graduation from MSM-UMR, a generous contribution from the Orlofsky estate is helping mold future generations of mechanical engineers by supporting the renovation and expansion of the Mechanical and Aerospace Engineering Complex.

Active in student council, Lambda Chi Alpha fraternity, Miner football, the Society of American Military Engineers and the Missouri Academy of Science while at MSM-UMR, Sy met his wife-to-be Hattie at a fraternity dance, and they were married shortly after his graduation. Sy received midshipmen's training at Cornell University and was commissioned in the Navy in 1945, where he served on the oil tanker *USS Rapidan* in the Bering Sea. He began his civilian career with Panhandle Eastern Pipeline Co. as a designer, construction supervisor and operations manager. He then became general manager of the Gulf Interstate Pipeline, where he pioneered the use of stationary gas turbines and automation on the 1,000-mile pipeline from Louisiana to Kentucky.

In 1963, Sy was named vice president of the Columbia Gas System in charge of engineering and research. He completed new gas supply projects, including the Liquefied Natural Gas Import Terminal at Cove Point, Md., and the Synthetic Gas Plant at Green Springs, Ohio. Sy was named Pipeliner of the Year by the Pipeliner Club of Houston in 1971. Upon retirement from the Columbia Gas System in the late 1970s, Sy founded the Appalachian Co. and Devonian Drilling Co. to explore gas and oil opportunities in the Appalachian basin. In the early 1980s, Sy formed Intercon Gas Com, a subsidiary of Wagner and Brown, where he supervised construction of the NOARK gas pipeline in Arkansas.

In 1994, Sy took on yet another business venture and became president of Enersoft, a software services company that served the natural gas industry. In 1995, Sy joined a partnership to create Pipeline Technology, LLC in Baton Rouge, La., and led the construction and operation of 12 specialty chemical pipelines in the industrial corridor along the Mississippi River from Baton Rouge to New Orleans.

Sy not only established himself as an innovator, but also provided his skills and expertise to the boards of various corporations, including Itel, KC Holding Co., Coastal Service Corp. and Gulf Applied Technologies. In 1977, Sy traveled to Iran to help scout a pipeline route from the Soviet Union to the Persian Gulf. When oil was discovered in the North Slope of Alaska in 1979, Sy promoted the Trans-Canadian gas pipeline to bring natural gas into the United States from the Prudhoe Bay discovery.

An avid golfer and fisherman, Sy had an active sporting life. He and Hattie enjoyed spending time together with their two sons, William of New York City and Thomas of Baton Rouge, La. Hattie died in Wilmington, Del., in October 1999, and Sy passed away in October 2001 in Baton Rouge after a short illness. Sy was a charter member of the Academy of Mechanical Engineers.

The family is fulfilling Sy's pledge through the Orlofsky estate, providing support for the \$25 million mechanical and aerospace engineering project. The project renovates the 1969 addition and replaces the outdated mechanical engineering annex with 66,500 square feet of new construction. The project focus is on providing new instructional labs and classrooms to offer new technologies and research opportunities. The gift's impact is appropriate for Sy: naming the Sy and Hattie Orlofsky Design Studio, a key element of the Product Innovation and Creativity Center.

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Details on page 43



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