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The Magazine of the MU Alumni Association

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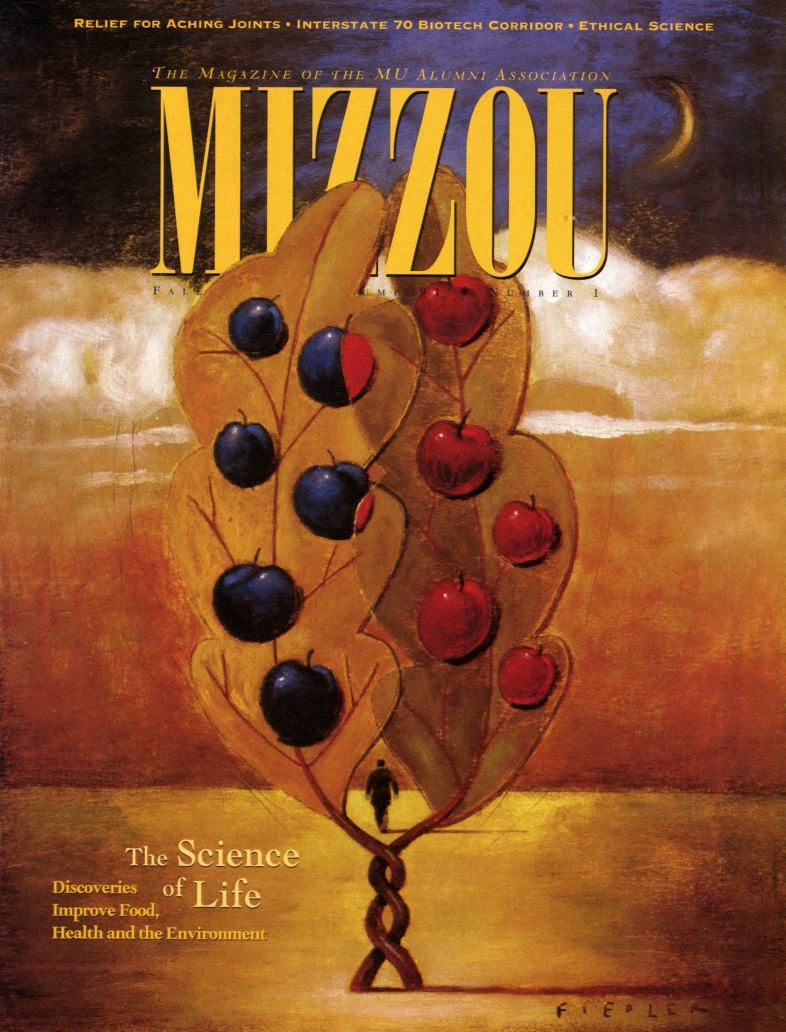

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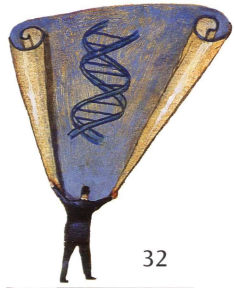
The Magazine of the MU Alumni Association

MIZZOU

Fall 2002 • Volume 91 • Number 1



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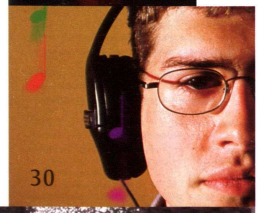

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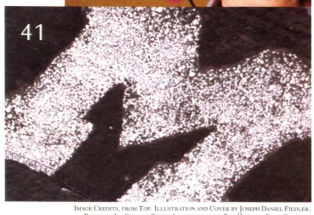

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FROM THE EDITOR

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MU ALUMNI ASSOCIATION
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THE SCIENCE OF LIFE

MIZZOU IS branching out: Life sciences is the new buzz phrase. It boils down to research that improves food, health and the environment. Although researchers at MIZZOU have been working in these areas for decades, what's new is the level of collaboration. A new Life Sciences Center, currently under construction, will foster research across disciplines on campus, and new relationships with centers across the state open even more possibilities. As Silicon Valley is to California and as the Research Triangle is to North Carolina, so is the Interstate 70 Biotech Corridor to Missouri. It stretches from St. Louis (with the Donald Danforth Plant Science Center) to Kansas City (with the Stowers Institute for Medical Research) — through Columbia, of course. The plan, supported by public and private funds, will involve multiple interdisciplinary research endeavors. The hope is that the people of Missouri and beyond will reap great benefits from the investments, be it more nutritious food, cures for diseases or a cleaner environment.

PHOTO BY ROB HILL

Trees are a symbol of life and growth. A growth area for Mizzou is life sciences research to improve food, health and the environment. This majestic bur oak grows in southwestern Boone County, Mo., on the property of John Sam Williamson, BS Ag, MS '71.

In this issue of MIZZOU, we feature some current projects. For example, research on replacing knee cartilage could help both animals and humans. Other research may increase the supply of organs for transplant. New varieties of soybeans make for better products and profits. As modern science moves at light speed, fields such as genomics, proteomics, nanotechnology and bioinformatics emerge. One of our stories provides down-to-earth definitions. And, as the boundaries of science continue to stretch, staying grounded in what's ethical is imperative. MU provides the opportunity for full and impartial debate.

So, whether it be science about food, or health, or the environment, it's all science for a better life.

— Karen Worley, BJ '73 ❋

MIZZOU MAIL

Parents, Be Alert

I read with great interest "Hucksters Hook Captive Youngsters" [Summer 2002] by Roy Fox. Having two grandsons, I find the things they are exposed to frightening. What's more frightening is that so few adults and parents know what kids are exposed to these days, and far too few seem to care. Fox's essay will heighten awareness and should be required reading for every parent, teacher and student.

PAUL HOBBS, BS ME '91, COLUMBIA

Unmasking Media Violence

"Hucksters Hook Captive Youngsters" [Summer 2002] is well-written and insightful. I particularly like the point that today people's everyday reality is largely based on experience with representations of reality. What a grand illusion the media create for us, and how willing we are to swallow it.

My work is in the area of media violence, specifically, the effects of violent video games on aggression and aggression-related constructs. I am currently working, with three colleagues, on a chapter for a volume on media violence and children to be published in the *Advances in Applied Developmental Psychology* series. The chapter's working title is "The Economics of Media Violence." Fox's essay will be a helpful resource.

KAREN DILL, AB '91, MA '94, PHD '97
HICKORY, N.C.

Propaganda Revealed

The article "Hucksters Hook Captive Youngsters" [Summer 2002] emphasizes the issues that I am attempting to cover in the Oral Communication class I teach at Moberly (Mo.) High School. When I began teaching the class, its focus was rather generic: the communication process, nonverbal communication, listening, the vocalization process, giving directions, interviewing and formal public speaking.

Last year I began revising my curriculum to focus more on propaganda and deception — techniques used in the news media, in advertising, in politics, on the Internet, etc. Even my most at-risk student took an active role in class discussions when we started talking about deception and distortion in these areas.

VICKI PURDY, COLUMBIA

Kick the Cable Habit

I read "Hucksters Hook Captive Youngsters" [Summer 2002] and felt somewhat appalled. It makes you wonder, what is a person to do? When we found this invasion starting to take root in our young girls, we gave up cable TV. This was tough at first, but the best move ever. The girls became immersed in sports, reading, school activities and building friendships. With the savings we have our own video collection and also rent what we desire to see.

ILLUSTRATION BY ROBERT WAIT

KEN GROSS, BS EE '80
FULTON, MO.

Puzzling Poetry

I wrote the following parody in response to "New Portals for Poetry" [Summer 2002] as a satirical demonstration that it takes little talent to be obscure and to misuse words.

Ode to Pathetic Prosetry

Am I so alone in dismal dismay
at verbal disjoints in prose — aka modern poetry?
From what does erupt the blue baloney hark?
'Tis but exalted twaddle profuse in vanity displayed
Seeking acclaim for a much magnified minor point — in desperation — to be shouted in silent print.

FORREST LOWELL MILLER, BS ED '49, MST '62
ROCKVILLE, MD.

Hoop Fan

I loved the photo and article on Brian Grawer ["Once a Tiger, Always a Tiger," Summer 2002]. His dad, Rich, and I were college hoop teammates at Rockhurst College (now University) in the mid-'60s. Your magazine is consistently excellent.

ED MCKEE, WASHINGTON, D.C.

Connecting Again

I take it back. I've read maybe 10 copies of MIZZOU since I graduated in 1959. "Irrelevant!" I said. But Mizzou Mail in the Summer 2002 issue was a flash through 50 years. I remember when Peter Hilty, instructor in my first English class, looked at my first-ever theme and said, "Have you heard of paragraphs?"

Earlier, a small, white-haired man had visited our Boy Scout campouts near Columbia. He gave mystical, magical recitations, stories of the Old West, which riveted 30 unruly teen-agers. Decades later — indeed, long after I read *Black Elk Speaks* — I was stunned to watch Dick Cavett introduce the poet laureate of Nebraska, John Neihardt.

Now, my world is turned over again. Peter Hilty knew John Neihardt! I must go back and look at my life — aerospace engineer, biology professor, remote sensing specialist, research coordinator, writer — and see how the thread runs through it all. In some past, mystical moment, is there an echo of John? That good, clean paragraph — did a memory of Peter sharpen it up?

I'd have denied it once, but John Neihardt has always been lurking in my heart. Thanks, John; thanks, Peter; and, well, thanks MIZZOU.

WILLIAM REID, BS ME '59
SALT FLAT, TEXAS

Ties to Geology

Your article about the Wyoming geology camp ["Taking a Crack at Geology," Spring 2002] struck a chord with a friend, Cora J. Lawrence, whom I met long ago at Stephens College. She attended the camp in 1942, and although she has degrees from the University of Chicago, Johns Hopkins University and the University of Washington, she says her happiest memories are still with your geology camp.

JOSCELYN C. DUNLOP, AB, BJ '45
OCALA, FLA.

Searching for *Showmes*

I served on the staff of *Missouri Showme*, the former Mizzou humor magazine, for two years from 1949 to 1951. I wrote much of the copy for these issues, and I was editor during the 1950 school year.

I am trying to locate copies of the September 1950 through January 1951 issues of *Missouri Showme*. I would be glad to trade 1947 issues of *Showme* edited by Mort Walker, plus 1967 and 1976 alumni magazines with covers by Mort Walker.

Thanks for your help.

Gerald T. "Jerry" Smith, BJ '52
112 Rathfarnum Drive
St. Charles, MO 63304

I Survived Econ 51

I just finished reading the frog issue of MIZZOU magazine [Summer 2002]. It was a great change of pace to have a magazine on the coffee table with something on the cover other than scandal and terror. Great job! I guess there are some benefits to having graduated from a university that's known for its journalism school.

I was saddened to read about the passing of economics Professor Walter Johnson. I came to Mizzou in 1979 with 30 hours of advanced college credit and an attitude. I enrolled in a sophomore level five-hour course called Econ 51. No problem. I subsequently found out that this course was the litmus test for prebusiness majors and was dreaded by all the other majors who also took Econ 51 as a prerequisite. But here I was, taking it in the first semester of my first year in Columbia. My fraternity pledge status didn't help matters either.

I ultimately survived, and thanks to mounds of practice exams I finessed my way to a B. I came to enjoy and appreciate Professor Johnson's antics in Middlebush Hall Auditorium. He was a larger-than-life character to me at that early stage of my college life, and his booming lectures made me realize that I was a lot further away from high school now than the 120 miles back to St. Louis.

I still employ one of Professor Johnson's favorite sayings. Whenever Wally taught economic principles that involved market equilibrium over the passage of time, he would wrap up the lecture by reminding all of us that, of course, "In the long run, we're all dead."

I guess Professor Johnson felt compelled to teach up until the very end.

Tim Mankus, BS BA '82, MBA '83
St. Albans, Mo.

Glorious Football Days

It was 52 years ago this winter when the late greats Don Faurot and Harry Ice offered me a football scholarship to attend MU. I was in awe when Coach Faurot said, "Son, how would you like to represent your state university?" This was a dream come true.

In the fall of 1948, my junior year at Richmond High School, Coach Charles Hamann took our team to Columbia to see Mizzou play Southern Methodist University. Bus Entsminger led the Tigers to victory over Doak Walker and company 20-14 in one of the greatest games ever played on Faurot Field. Walker was the ultimate football player. From that day on, Mizzou was on my mind first, last and always.

It was an honor to be a student-athlete at Mizzou. Playing football for Don Faurot was a very rewarding experience.

Harold "Hank" Burnine, BS Ed '56
Tyler, Texas

MIZZOU magazine welcomes your letters, which may be edited for length, clarity and style. Please include your daytime telephone number, address and degree/year. Address: 407 Donald W. Reynolds Alumni and Visitor Center, Columbia, MO 65211, phone (573) 882-7357, fax (573) 882-7290, e-mail: mizzou@missouri.edu.

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A Degree of Success

A DIPLOMA FROM MU IS AN EFFECTIVE tool for conquering the job market. Students who graduated in May and August 2001 were surveyed, with 55 percent responding. Of those who responded, 91 percent of undergraduates and 94 percent of graduate students found employment after graduation. The median starting salary for undergraduates was $29,400; the median salary for graduate students was $37,300.

Budget Woes Persist

RECENT DEEP CUTS IN STATE appropriations for higher education have Mizzou students, professors and administrators worried. And they argue that Missouri taxpayers should be just as troubled as they are.

Missourians should worry, they say, that increases in educational fees to help cover cuts will push the dream of higher education out of the reach of some. They should worry that a salary freeze will prompt MU's top professors to look for better jobs elsewhere and make it harder to replace them. They should worry that slashed budgets will leave too little money to pay for library services and classroom technology that set MU apart.

State Cuts to MU
$38 million fiscal 2002
$20 million fiscal 2003

For the fiscal year that ended June 30, the four-campus UM System was hit with $80 million (19 percent) in withholdings from the state; Mizzou's share was nearly $38 million. On top of that, state appropriations for this fiscal year were cut by 10 percent, or another $45 million, of which MU's share is $20 million. When school started this fall, in-state students were paying about 13.5 percent, or $622, more than they did a year ago. A national survey found that, on a per-student basis, Missouri was one of three states hardest hit by budget cuts.

In June, when Gov. Bob Holden signed appropriations bills, he said the legislature had put Missouri's budget in "a delicate balance." Educators are concerned that colleges and universities contributed more than their share of cuts in 2002. More than 37 percent of the state's budget shortfall was made up by withholdings to public higher education, which represents less than 12 percent of the state's total budget.

UM President Manuel Pacheco warns that if more state cuts occur, the University might be forced to cap enrollments, eliminate academic programs and perhaps even close a UM campus. Higher education leaders are urging legislators to prevent further withholdings and to restore core budgets in 2004. "The state of Missouri has unwittingly embarked on a course that threatens to dismantle our system of public higher education and permanently relegate Missouri to the status of a '40-something state' " in national rankings, Pacheco says.

Some fiscal analysts blame the problem on the nation's recent economic tailspin that has caused lagging state tax receipts. However, other economists warn that the ongoing fiscal crunch is also rooted in the state's tax and budget structure.

"The economy has exacerbated a situation that is going to be there anyway," says Jim Moody, MPA '76, who was budget director during Gov. John Ashcroft's administration. Moody, a consultant with James R. Moody and Associates, outlined some of the reasons for Missouri's grim financial picture dur-

The bell in Switzler Hall's tower is rung on commencement, Tap Day and to honor deceased members of the MU family. As MU's oldest classroom building, Switzler Hall on Francis Quadrangle has been a silent witness to good times and bad at Mizzou, including the 2003 fiscal year, which rang in with a 10 percent cut in MU's core budget. For budget news online, go to http://www.missouri.edu and click on budget update.

PHOTO BY CASEY WENDLETON

ing a presentation on July 19 to the University of Missouri System Board of Curators. Generous tax cuts in the 1990s, combined with ever growing spending requirements for such state-supported programs as Medicaid, prisons, and elementary and secondary education, are putting the state in the red.

Tax cuts passed from 1995 to 1999 add up to a $921 million annual loss in state revenue. At the same time, state aid to local school districts has grown from $900 million in 1993 to nearly $2 billion this year. The number of Missourians eligible for Medicaid ballooned from 541,000 in 1993 to 868,000 in 2001. The state's prison population grows at the rate of 1,664 inmates a year.

Political leaders have dealt with the imbalance in part by withholding appropriations from discretionary portions of the general revenue budget. Unfortunately, higher education makes up nearly half of discretionary funding, so it is particularly hard hit in tough economic times. The financial equation won't be solved until spending and revenues are in balance, Moody says.

"The analogy that I would come up with is that the state is borrowing from next month's paycheck to make ends meet," Moody says. "Clearly, I think the state is avoiding the full brunt of this. This is just the tip of the iceberg."

CURE IN SIGHT

WHEN EVERYthing's working right, our eyes are a vital part of an incredible biological system. They gather light and focus it, like a camera, at the retina that lines the

COLUMBIA MISSOURIAN PHOTO BY LISA MARIE MILLER

Veterinarian Kristina Narfstrom's gene therapy technique has helped improve the sight of Rex, who was born with a genetic blindness. The technique may someday help cure a similar form of blindness in humans.

BRIEFLY

Robert Hoffman, professor of internal medicine, and his research team won a $1.6 million grant from the National Institutes of Health to study how certain T cells in the human immune system may respond to specific proteins to cause lupus. The study could lead to **better treatments** for the 16,000 people a year who are diagnosed with lupus. Symptoms include skin rashes, joint pain and organ damage. • **Mizzou Connection** has averaged more than 1,000 contacts a month since it opened in July 2001 at 12766 Olive Blvd. in Creve Coeur, Mo. Operated by MU's University Bookstore, the St. Louis center provides information on admissions and campus events, Mizzou apparel and spirit items, athletic tickets, alumni events, and books by faculty and alumni authors. Partners in the center include the alumni association, admissions office and athletic department. • Lori Popejoy, a doctoral student and clinical nurse specialist at University Nurses Senior Care, is one of 20 nurses nationwide to win a **$100,000 scholarship** toward a doctorate in geriatric nursing. The John A. Hartford Foundation's Building Academic Geriatric Nursing Capacity Scholarship funds stipends, student fees and travel. Her research will explore how health-care decisions are made by or for elderly people.

inside of the eyeball. The retina has tens of millions of photoreceptor and nerve cells that translate that light into electrical impulses and send them to the brain.

But sometimes when things go wrong, it's our own genetic makeup that is at fault. A case in point is the eye disease known as Leber's congenital amaurosis (LCA) that causes nearly 20 percent of the blindness in children. This hereditary disease strikes at birth, because babies with LCA have a genetic defect that keeps them from producing a protein that their retinas need to function normally.

Some dogs carry the same defect. Nearly 15 years ago, veterinary ophthalmologist Kristina Narfstrom discovered a strain of the briard beagle in her native Sweden with the same defective gene.

When scientific advances such as gene replacement therapy showed promise, she steered her research in that direction. Narfstrom assembled a team of scientists from around the world that included microsurgeons, geneticists and cell biologists, and they focused their research on her strain of blind beagles. Early last year she joined the MU faculty as the Ruth M. Kraeuchi Endowed Professor to lead the College of Veterinary Medicine's comparative ophthalmology efforts.

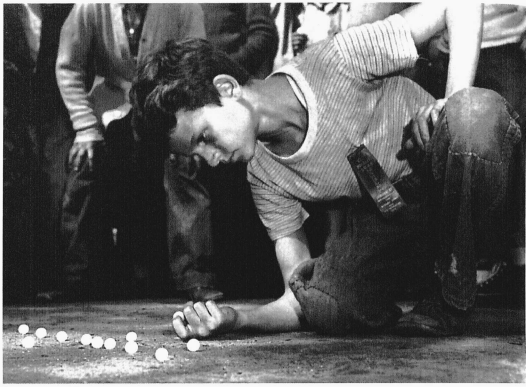
Researchers first had to pinpoint the defective gene from billions of others. One member of the research team isolated the missing protein. Another developed a harmless virus to carry the protein into retinal cells. Yet another pioneered microsurgery techniques to inject the protein into a dog's retina without damaging other eye structures.

The results: Just four weeks after trial surgeries, the dogs started responding to visual cues. Scientific measurements showed that a part of the retina had gained some visual function — up to 30 percent of normal sight in some dogs.

"The results of our work are important because this is the first time that we can scientifically verify that a hereditary retinal disease has been successfully treated," Narfstrom says.

The researchers are working on a theory that replacing the missing protein somehow kick-starts the visual machinery in the retina. Now, Narfstrom's team is exploring ways for the treated retina cells to replicate themselves or influence untreated cells nearby in the retina.

Perhaps most exciting is the potential for the pioneering technique to be used in other genetic diseases of the retina, such as retinitis pigmentosa.



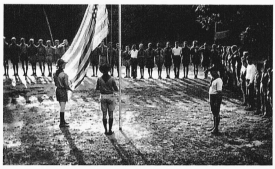
PHOTOS BY ANGUS MCDOUGALL

In this 1948 picture, top photo, Angus McDougall captured a city marbles champion showing off his skill, complete with a blue ribbon and knee patches from plenty of practice. Above, on Oct. 10, 1949, Milwaukee was hit with high winds, and McDougall was there to show people coping with the blustery weather.

THE GLORY DAYS OF PHOTOJOURNALISM

As head of the School of Journalism's photojournalism sequence and director of the Pictures of the Year competition from 1972-82, Angus McDougall, professor emeritus of photojournalism, taught a comprehensive approach to photography.

"He kept us on our toes," says David



When McDougall covered President Harry S Truman's 1948 whistle-stop campaign in Wisconsin, above, security was less stringent than it is today, and photographers had more freedom of movement and access to the candidate. McDougall developed an early interest in photography and dramatic lighting, as shown by this picture, left, taken as the sun set during a ceremony at a 1933 Boy Scout summer camp.

Rees, current head of the photojournalism sequence and a former student of McDougall's. "He taught us that, to survive and thrive in newsrooms, we would have to be able to hold our own in writing, editing and management."

In 2001, McDougall self-published *A Photo Journal: from the Glory Days of The Milwaukee Journal*, a visual chronicle of his career as a staff photographer for the newspaper in the 1940s and '50s. McDougall published 1,000 copies of the book and donated them to the photojournalism sequence. Rees, who wrote an afterword for the book, says it gives students a historical perspective on their profession, and the photojournalism sequence also offers it as a gift to donors.

A Photo Journal offers a variety of McDougall's news photographs (several shown here), showcasing his sensitivity toward his subjects, his creativity, and his eagerness to experiment with lighting and technique.

"Computers can do things today that were very difficult for us back then," McDougall says. During McDougall's time at *The Milwaukee Journal*, the newspaper pioneered the use of the portable strobe light to freeze motion in photographs, and it was one of the first newspapers to print color photos.

McDougall, who has written two previous books on visual communication, lives in Columbia and still visits the School of Journalism as a guest speaker.

Donor Support Rises

MIZZOU HAD A BANNER YEAR IN development in fiscal 2002, receiving its largest gifts ever for academics and for athletics, and realizing a substantial increase in donations overall. Gordon E. Crosby Jr., Bus '41, DHL '00, and his wife, Chessie, of Fort Myers, Fla., announced a $10 million gift to Mizzou's MBA program, now named in his honor. Columbians Bill and Nancy Laurie gave $25 million for a new basketball arena scheduled to open in 2004. (See "Design OK'd for Arena," Page 14.)

Mizzou saw gains in the two key measures of development progress: cash flow (expendable gifts) and total productivity, which includes cash gifts, pledges and deferred gifts such as bequests. Cash flow increased from $47.2 million to $98.1 million, providing resources for schools' and colleges' immediate priorities. Mizzou's total productivity in fiscal 2002 was $121.6 million, up from $50 million in fiscal 2001. Growth in total productivity helps Mizzou in the future due to the duration of pledges and deferred gifts.

MU's cost to raise this money was 7 cents on the dollar, near the bottom of the average range of 6 cents to 20 cents for similar institutions.

Because donors earmark more than 97 percent of expendable dollars for specific uses, the University does not rely on donations for operating expenses. Many donors choose to enhance students' educational experience. For example, Gary Tatlow, AB '62, JD '64, and his wife, Marilyn Tatlow, AB '62, of Columbia sponsor Mizzou on Broadway, which presents original work of MU student playwrights at the York Theatre in New York City. Like the Tatlows, 51 percent of MU donors are alumni. Forty percent of donors are friends of MU, including parents of current students, and the rest are corporations and organizations.

Equal Is as Equal Does

As a doctoral student in social work at the University of Illinois at Urbana-Champaign, Gardenia Harris worked in a crisis nursery, where she cared for at-risk children who had been admitted by the court or voluntarily brought in by parents. After a few months at the nursery, Harris noticed that the court-appointed children were almost all black.

"That experience made me really want to look at whether social services are helping all races equally, or whether there is a problem that needs to be fixed," Harris says.

Harris, an assistant professor of social work, joined the MU faculty in 2000, and she brings her concern for equality in social services to both her teaching and research efforts. Harris teaches undergraduate courses in social welfare policy and social justice, and graduate courses that deal with changing policies in the legislative and organizational arenas.

Gardenia Harris joined the School of Social Work in 2000 as assistant professor. She teaches courses in social welfare policy and social justice.

Harris says that research indicates that African-American children are more likely to be admitted to foster care, less likely to be adopted and more likely to be placed in special education programs.

Harris plans to build on the School of Social Work's recent two-year study of Missouri's drug court programs by researching the disproportionately low completion rates for blacks in these programs.

"We know there are disparities in these areas, and we need to figure out why," Harris says. "We might find that it's a combination of factors, such as family structure, socioeconomic status, attitudes of service providers or discriminatory policies. Whatever the reason, it's our responsibility to get to the bottom of it."

Although she says one-on-one counseling is important, Harris teaches her students to look at the big picture when it comes to social services.

"I'm most concerned with prevention and addressing the sources of social problems," she says. "If we look at our policies and frameworks of service, we can help more than one person at a time."

Photo Courtesy of the Husmann Family Collection

A new exhibit recaps the accomplishments of George Husmann, who is known as the father of the Missouri wine industry and as MU's first fruit scientist. Husmann lived in California twice — once as a miner during the gold rush of 1849 and later as a winegrower. He is shown here in a California vineyard.

A Toast to Freedom

When gold was discovered at Johann Sutter's mill in California in 1848, word soon reached his relatives and others in Hermann, Mo. Hermann Colony had been founded 12 years earlier to be "German in every particular," a place where settlers could be free of the religious and political persecution so common in Germany. Among the Hermannites was the young George Husmann, an immigrant from Meyenburg, Germany, who was in his second year of cultivating grapes on the fertile hills of Missouri's Rhineland. Husmann loved the vineyards, but being just 2-and-20 and a romantic, he went west with the gold rush to seek his fortune. Husmann didn't find a fortune and was soon called back to

Hermann to take care of his sister's property after her husband died. In time he became MU's first fruit scientist and forestry superintendent, and he also served in top leadership positions.

On the 100th anniversary of Husmann's death, his accomplishments are featured in an exhibit showing in September at the College of Agriculture, Food and Natural Resources, and from November through January at the Napa Valley Museum in Yountville, Calif. MU faculty members Adolf Schroeder and Oliver Schuchard, and writer Linda Walker-Stevens contributed to the exhibit, which features text and 151 photographs, including historic images of Hermann.

Husmann is often remembered for his role in rescuing European winemakers, whose vineyards suffered from phylloxera infestation in the 1870s. Husmann led the effort to send phylloxera-resistant Missouri grape stock to Europe, which saved the wine industry in France and Germany. Beyond Husmann's many viticultural feats, he also was a leading abolitionist who served in the Union army and later helped frame Missouri's ordinance abolishing slavery. He called that moment "the proudest day of my life, fulfilling the claims of my youth."

Open Planning

When the local chapter of Habitat for Humanity needed design expertise to plan its biggest subdivision ever, four students and a faculty member from the College of Human Environmental Sciences pitched in. Students say the experience was an eye-opener in more ways than one.

Habitat for Humanity plans to build 27 homes on seven acres in north Columbia near the Guitar Mansion, a grand Civil War-era home. Volunteers started with the organization's standard 1,066-square-foot house plans and brainstormed new exterior details and interior layouts that would lend variety and harmonize with the nearby mansion. Five design teams that included students, architects, neighbors, and current and future Habitat homeowners spent a long Saturday working up ideas.

"At first I wasn't sure I wanted to do it because it started so early in the morning," says senior environmental design student Rebecca Pucci. "But it was really a good experience." She says the constraints came from every direction. Current Habitat homeowners wished they had more storage and more privacy. Prospective owners had druthers on which rooms should be where. The Habitat board asked for designs that could be expanded gracefully. And there was the strong presence of the mansion, which everyone wanted to complement. Pucci liked working with real clients, and she says, "They were amazed at how we could hear what they said and make changes to the plans."

Senior Emily Crosby worked on a team with Columbia architect Jerry Thompson. "Jerry was really good at doing quick and accurate perspective drawings. They didn't have all the details, but we only had a few hours to work, so it was really time-efficient. I've been trying to do that in my own work ever since."

Sleep In and Win

Preschoolers may bound out of bed at sunrise, but by the time they are teen-agers, rousing them from slumber can be like trying to wake a bear from hibernation.

"They're just dragging," says psychology Professor Dave McDonald, who teaches a unit on sleep in his Psychology 1 class. He also reviews scientific articles and books on sleep research, and guest lectures at Columbia's Rock Bridge High School in psychology classes taught by one of his former students, Tim Drennan, AB '74, M Ed '77.

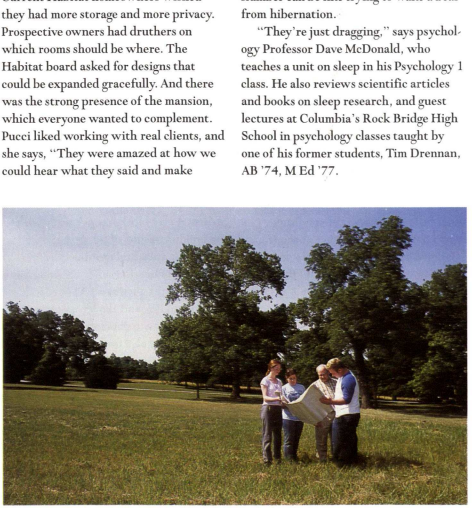


Photo by Rob Hill

How can a subdivision of Habitat for Humanity houses complement the Civil War-era mansion next door? The Department of Environmental Design helped solve the problem. Shown here from left are seniors Sarah Williams and Emily Crosby, faculty member Michael Goldschmidt and senior Josh Oliver.

If McDonald's students aren't always bright-eyed and alert, he is empathetic. "There is a significant problem of sleep deprivation in teens in the United States," he says. "They have the most trouble staying awake between 8 and 10 a.m., and between 2 and 4 p.m."

Adolescents are inclined to stay up late, even though many secondary schools start earlier than elementary schools. At the same time, part-time jobs and extracurricular activities limit opportunities to snooze.

"Saturday and Sunday are not enough to make up sleep lost during the week," McDonald says, especially if sports and religious worship require kids to be early risers on weekends, too.

Teens require about eight hours of shut-eye a night on average, but it's not unusual for some individuals to need more. Studies conducted on the hormone melatonin "hint that teens may uniquely need more sleep than any other post-infancy age group," McDonald says.

Prolonged sleep deprivation can result in a condition called delayed sleep phase syndrome. Those with the condition show an increased incidence of academic, emotional and behavioral problems. "They are not as able to handle stress as someone with a full reservoir, and stressed people are more likely to be depressed," McDonald says.

To counter the no-snooze blues, McDonald advises parents to be firm about bedtime and to select extracurricular activities carefully. School boards can help by rethinking start times for older students. When one high school in the East changed to a later start time, teen auto accidents in that county decreased, even though the county's overall accident rate increased.

"Lack of sleep is a problem for society that's underappreciated and overlooked," McDonald says. "People are just starting to get a glimmer."

Library's New Chapter

Melissa Carr, AB '74, MA '75, began working in circulation at Columbia's branch of the Daniel Boone Regional Library in 1972 while a student at MU. The library building at 100 W. Broadway was only two years old then, with enough space to contain a collection on the grow.

Thirty years later, Carr, who is now library director, says an expanding collection of nearly 300,000 items and the need for new technology pushed the building to its limits.

"Our building systems and circuitry had been maxed out, and our stacks were creeping in on reader space," Carr says.

In April 1999, Columbia voters approved a $22 million expansion and renovation for the library, and construction began in fall 2000.

The new facility stands in the same location as its predecessor, and at 102,000 square feet, it is almost twice the size with some major differences inside and out.

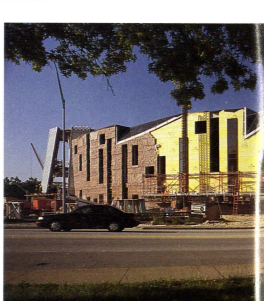
Visitors will enter through a glass atrium. A clay-block "spine" wall bisects the building inside, dividing the space into public areas and meeting or conference space. Fifty-five miles of wiring can accommodate twice as many computers as the old building and allow the future addition of new technology.

The library also features more public meeting space and a new children's programming room.

The top level, a saw-toothed, partial mezzanine, overlooks two main levels that house the library collection.

A reading room on this upper level offers a view of downtown Columbia and University landmarks, such as Jesse Hall and the Memorial Union tower. The outer library walls are made of Ozark sandstone and Missouri red granite.

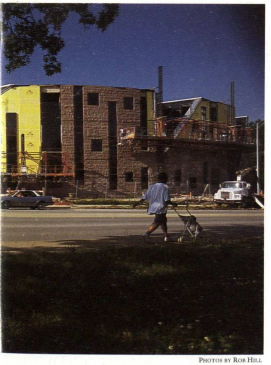
The new library is scheduled to open in time for the 2002-03 school year.



Supply and Demand

John Kuhlman, teacher of Econ 51 at MU from 1961 to 1985, wrote about his teaching career at Mizzou for his children and grandchildren, and shared his stories with MIZZOU magazine. Here's a first-person account of a classroom incident from the late 1970s:

"I was a strict disciplinarian in the classroom. The syllabus had a list of rules: no smoking, drinking, eating, reading newspapers or kissing. (The latter was added after a couple engaged in a long, passionate kiss and attracted the attention of 500 students plus the instructor.) For violating the rules, a student could be



PHOTOS BY ROB HILL

The new Columbia Public Library is headquarters of the Daniel Boone Regional Library system. The interior, left, will feature a ceramic mural depicting literature and inventions. Former Lee Elementary School pupils Melissa Green, left, Nick Patton and classmates worked on the mural with Greig Thompson, MFA '87, center, MU visiting artist and project coordinator. Other advisers were Robert Friedman, MFA '89, Stephens College art professor; Robert Bussabarger, professor emeritus of art; and Lee School teacher Ann Corn, M Ed '81, PhD '93.

and was kicked out of class.

"Once, when I was teaching an honors section, a student in the back row asked if he might leave early. I said, 'OK,' and he did. A few days later, without asking, he got up from his seat, crawled over other students to get to the aisle and walked out. The third time, I was ready. As he put his hand on the doorknob, I said, 'As soon as you go through the door, you have five hours of F.' There was a long pause, and he turned and went back to his seat. In my office that afternoon, another student observed, 'He looked like he was trying to compute his GPA with five hours of F in it.'

"Later that semester, the offending student told me that it was the first time anyone had ever told him 'no.' "

TENDING TO TIGERS

THERE'S NO SHORTAGE OF TIGERS on the MU campus. Around every corner, there's a tiger tail or a tiger stripe, a tiger paw or a tiger eye. But halfway across the world, the magnificent creature that is the inspiration for Mizzou's beloved mascot is disappearing.

"We can't ignore the irony of having everyone here so interested in tigers while populations of real tigers are dwindling," says Matt Gompper, assistant professor of fisheries and wildlife. "We should try to translate this interest into something that can produce meaningful results."

Gompper joined the MU faculty in December 2001, and he specializes in the ecology and conservation of large mammals, specifically carnivores. His research has focused on mostly medium-sized carnivores such as coyotes and raccoons, but now that he's made his home at Mizzou, he's ready to take on the tiger.

Gompper works closely with the Mizzou Tigers for Tigers (MT4T) mascot conservation program. So far, MT4T has contributed $10,000 to tiger conservation efforts in Nepal and along the Nepal-India border.

Gompper envisions expanding the program to include basic research on tigers.

"My goal is to root the program in sound science and conservation ecology," Gompper says. "Eventually, we'll involve students so they can see how real field biology is done."

Conducting field research on an endangered species isn't easy. Tigers are hard to find, and scientists must avoid causing undue stress to the animals. Gompper and his research team are designing a project using technology that creates a DNA profile of individual tigers from a fecal sample, eliminating the need to capture elusive tigers in the wild.

"Eventually, we'll be able to survey the health and size of a tiger population with this data, and we can also use hormones left in feces to answer questions about social status, stress levels, reproductive success and more," Gompper says. "Once this gets going, we'll be able to bring real benefits to Tigers here at Mizzou and to those in the wild."

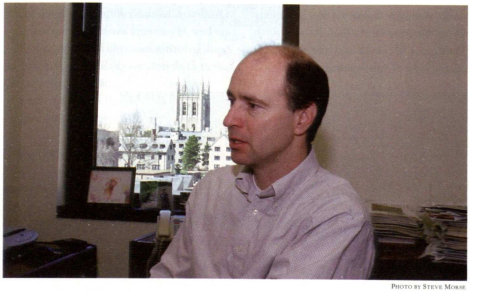


PHOTO BY STEVE MOBLEY

MU mammalogist Matt Gompper plans to bring sound science to the conservation goals of the Mizzou Tigers for Tigers program, which is the first mascot conservation program in the country.

Design OK'd for Arena

The University of Missouri System Board of Curators recently approved the schematic design of MU's new basketball arena, putting the athletic department into a full-court press to ensure completion of the facility by October 2004. "Getting the curators' approval was an important milestone. We are anxious to move forward because we have a pretty tight construction schedule," says Gene McArtor, senior associate athletic director, who is overseeing the $75 million project.

Although construction on the full project won't begin until January 2003, work has begun on an "early foundation package" that will enable MU to get a jumpstart on excavation and laying underground utilities.

One area of concern is the loss of some parking for Mizzou students and fans. MU has eliminated about 1,000 parking spots south of the Hearnes Center due to construction. Fans attending events are encouraged to use nearby parking garages, and new commuter lots will be designated for students.

But overall, McArtor sees plenty of positives. The new facility will have a traditional appearance with a brick exterior on the west and east sides, and with glass lining the north and south sides of the building. Capacity will exceed 15,000, compared with the 13,500 seats in the Hearnes Center, which will remain in use for other sports and events. McArtor points out that the quality of seating takes priority over quantity. He notes that although the new facility will have more seats, fans sitting farthest away still will have a better view than those in the rafters of Hearnes.

"This really is our most significant improvement project, and it will tremendously enhance what we can offer," McArtor says.

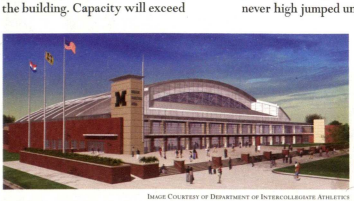


Image Courtesy of Department of Intercollegiate Athletics

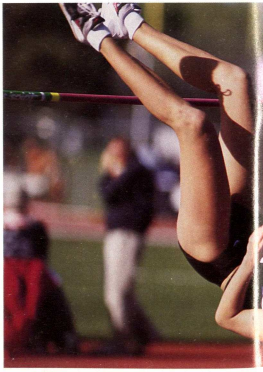
Bill and Nancy Laurie of Columbia gave the lead gift of $25 million for MU's new basketball arena to be completed in October 2004. Other funds will come from $35 million in bonds sold by the state of Missouri and $15 million from the athletic department and its supporters.

To Spike or to Flop?

High jumper Christi Myers reached an astounding height in May, qualifying for the 2002 NCAA Outdoor Championships after clearing 6 feet in the high jump. The feat is even more impressive considering she moonlights for the track team — her scholarship sport is volleyball. This spring, Myers, who stands 6 feet 1 inch tall, competed in both sports, averaging just two days a week practicing the high jump. She was away from the track for three weeks when the volleyball team hosted a team from China.

Myers placed 14th at the NCAA Outdoor Championships, jumping 5 feet 7 inches. Myers says she hasn't reached her peak in either sport. In fact, she had never high jumped until her senior year at Raytown South High School in Kansas City, Mo. With little training, she jumped 5 feet 10 inches and qualified for the USA Junior National Championships. "I really had no clue of what I had done," Myers says.

In high school, Myers excelled in volleyball, setting a school record for kills in a season and serving as team captain for three years. She plays middle hitter for MU and has earned second-team all-conference honors for two consecutive seasons.



When she's not spiking on the volleyball court, senior Christi Myers spikes to great heights in track and field. In May, Myers qualified for the NCAA Outdoor Championships, even though her scholarship sport is volleyball.

For now, volleyball takes precedence over track and field. Although Myers qualified for the 2001 NCAA Outdoor Championships, she skipped the meet to travel with the volleyball team to China.

"We work well with the track and field coaches," says Wayne Kreklow, MU associate head volleyball coach. "It comes down to everyone giving up a little bit to allow her to pursue both areas. We've done that because that is what she really wants to do."

If Myers is able to develop enough upper body strength, Kreklow says she might be able to compete professionally.

PHOTO BY ROB HILL

Part of that will depend on how she fares in the fall 2002 season, which will be her senior year in volleyball. Myers will be considered a junior in track after redshirting her freshman year, and she doesn't rule out a future in track, either.

"It will be nice to be able to focus an entire season on just one sport," Myers says. "I think that will help me make up my mind about what to do in the future."

RUSH TO LOS ANGELES

FORMER MIZZOU GUARD KAREEM Rush was selected as the 20th pick in the 2002 NBA draft by the Toronto Raptors, who then traded him to the Los Angeles Lakers. Rush is Coach Quin Snyder's second Tiger in three years to be a first-round pick and also the second currently based in the City of Angels. Rush's former Mizzou teammate Keyon Dooling, who plays for the L.A. Clippers, was the 10th pick in 2000.

Rush, an honorable mention All-American, won Big 12 Conference Freshman of the Year honors in 1999-2000, led the league in scoring as a sophomore and helped lead MU to the Elite Eight in the NCAA Tournament as a junior. The Kansas City, Mo., native bypassed his final year of collegiate eligibility to enter the NBA.

Rush wasn't the only Missouri rookie at the 2002 draft. Snyder made his debut as part of the *Inside the NBA* team, which provided analysis for TNT's live broadcast of the event.

ARTIFICIAL TURF IS ALWAYS GREENER

BY EARLY 2003, THE FOOTBALL Tigers' home turf at Faurot Field may well be of the artificial variety. Although purists may insist that football should be played on grass, Gene McArtor, senior associate athletic director, sees advantages to artificial turf.

McArtor says that improved turf products now provide a more consistent surface than before. Some even closely resemble grass, which should help allay concerns about playability and injuries. If Faurot Field were clad in artificial turf, it could serve as an all-weather, lighted field for practices as well as for concerts and other events.

Artificial turf is in the offing for the 2003 season.

PHOTO BY ROB HILL

The turf would cost about $1 million to install, a figure the athletic department is balancing against the approximately $100,000 it spends annually to maintain Faurot Field's grass. The department installed the current surface in 1995 with specially designed soils, gravels and drainage pipes. Yet weather remains a challenge, because few turf grasses thrive in Missouri's extreme temperature variations.

McArtor assures fans that the new turf will be nothing like the much-maligned Omniturf, which was in Memorial Stadium from 1985 to 1994. "Obviously our last experience with an artificial surface wasn't a positive one," McArtor says. "But quite frankly, the products out there today are much different than the ones five or 10 years ago." Players and coaches said the Omniturf was slippery and sandy — one player called it Omnibeach.

MU is evaluating artificial turf fields nationwide, including some close to home at Nebraska, Oklahoma State and Kansas State. McArtor says it's possible that the turf could be ready by the end of spring practices in 2003.

ACCESSIBLE GOLF

GERALD L. HITZHUSEN'S OFFICE IS filled with golf trophies and pictures of his friends and golf partners, some of whom use wheelchairs. Hitzhusen, an able-bodied golfer, represents MU on the National Alliance for Accessible Golf, which advocates inclusion of golfers with disabilities. He is an associate professor of parks, recreation and tourism who has worked for more than 20 years to introduce golf to those who are wheelchair users, have limited mobility or cognitive disabilities. "Golf can be a great sport that also can be a great socializer for people," Hitzhusen says.

He is a consultant in places such as Australia, Japan, Scotland, Israel, and Trinidad and Tobago. His efforts closer to home have included participating on a wheelchair sports committee involving state Rep. Chuck Graham, who uses a wheelchair, and officials from the MU athletic department. His committee work resulted in obtaining accessible clubs for children and adults at MU's A.L. Gustin Golf Course. Accessible carts will be available this fall.

Technological Revolution

STORY BY JOHN BEAHLER

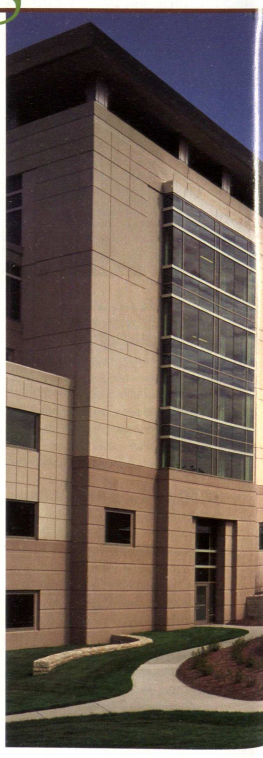
COOPERATIVE RESEARCH ACROSS THE STATE'S INTERSTATE 70 BIOTECH CORRIDOR PROMISES ADVANCES IN FOOD, HEALTH AND THE ENVIRONMENT. IT'S ALSO GOOD FOR THE ECONOMY.

JIM STOWERS HAS ALWAYS SET HIGH goals for himself. As a student at Mizzou in the late 1940s, Stowers earned a bachelor's degree in chemistry, then turned right around and plugged away until he finished what was then the two-year medical degree program at MU.

As a businessman, Stowers pioneered the use of computers to manage mutual funds. In the process, the Kansas City, Mo., native built an investment of a few thousand dollars into the financial powerhouse that today is called American Century Investments.

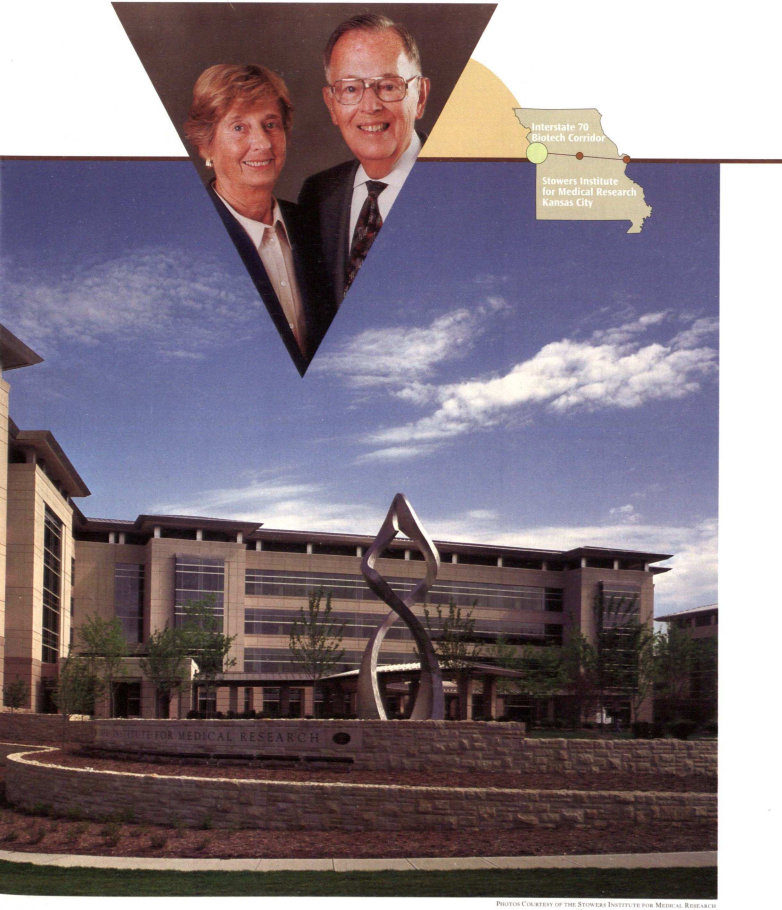
In his second career as a philanthropist, Stowers and his wife, Virginia, who are both cancer survivors, have dedicated their personal fortune to an even more formidable objective. The couple established the Stowers Institute for Medical Research with an endowment that currently stands at $1.6 billion. Their goal is to gather some of the world's most outstanding scientists at the Kansas City research center and give them the tools to tackle the toughest basic questions in medical research.

Stowers foresees a "biomed valley" that would turn Missouri into a major player in life sciences research and innovation, much like California's Silicon Valley is known for computer technology. The Stowers Institute is playing a significant role in anchoring the western end of the biotech corridor, which stretches through Columbia and the heart of the Mizzou campus. Its eastern limits would be in the St. Louis area, where another



MU alumnus and mutual fund pioneer Jim Stowers and his wife, Virginia, inset photo, have dedicated their personal fortune to a medical research center that offers hope to people with illnesses considered incurable today.

The Stowers Institute for Medical Research is part of a scientific renaissance in the heart of Kansas City, Mo. The 10-acre campus near the Country Club Plaza is at the western terminus of Missouri's Interstate 70 Biotech Corridor, which includes Mizzou. Scientists at the Stowers Institute are exploring some of the basic questions about how genes function.



Photos Courtesy of the Stowers Institute for Medical Research
Hope for Life Sculpture by Larry Young

world-class life sciences research facility — the Donald Danforth Plant Science Center — is attracting top scientists to its ambitious research agenda.

"If we do this right, the benefit to society will be fantastic," Stowers says. He points to potential cures for the most intractable diseases, from cancer and diabetes to arthritis, and heart and kidney disease. The institute's scientists are conducting basic biomedical research on the ways that genes control disease processes.

"The economic benefits of this research can be almost as fantastic," Stowers says. Successful research along this burgeoning biotech corridor could mean an economic boost in business spin-offs from the research and in more high-paying jobs for Missourians.

Stowers' ideas are shared by some of Missouri's top political leaders. Gov. Bob Holden, in a speech to MU supporters earlier this year, called investments in life sciences research a key to Missouri's economic future.

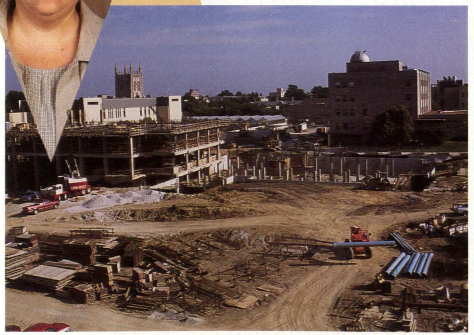
"I don't want Missouri just to be one of 50 states in this global economy; I want us to be a leader," he said. "You don't do that without a commitment to education, and I don't believe you do that in Missouri without a commitment to life sciences.

"When people talk about the economy of the 21st century and what the keys are going to be, they talk about food and they talk about medicine, and both of them are based in the life sciences."

Last fall, Holden helped make a reality of Mizzou's longtime dream for a life sciences research initiative. The governor approved the first state appropriation to build a new Life Sciences Center on the MU campus. The state is matching nearly $30 million in federal funding for the new center. U.S. Sen. Kit Bond championed the federal investment in the research center, now under construction at the intersection of Rollins Street and College Avenue on the southeast side of campus. The building, to be completed by fall 2004, will become Mizzou's showplace for interdisciplinary research in life sciences.

Collaboration could be a key to solving the scientific riddle that MU biologist Cathy Krull, inset, is unraveling: How do molecular signals guide cell migration during embryo development? Finding the answer could be the first step in creating new treatments for diseases.

Mizzou's new Life Sciences Center, below, scheduled for completion in 2004, will help forge new partnership possibilities between MU researchers and scientists at research centers around Missouri.



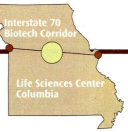
Construction Photo by Rob Hill; Portrait by Steve Morse

A conference on campus this past March underscored MU's central importance to this statewide initiative. Life science leaders from around Missouri gathered at Mizzou to address the potential for an Interstate 70 Biotech Corridor that stretches across the Show-Me State.

"Biotechnology is the next technological revolution," Sen. Bond told those attending the conference. "Here in Missouri, we have the leaders in the field. The biotech corridor will be the place people look to for advances in the 21st century.

"We see scientists leaving European countries and coming to Missouri. The hostile environment there is driving them out. Well, their loss is our gain. Missouri can be a real leader in providing this technology." To acknowledge Bond's long-standing support for life sciences, the new research center will be named in his honor after he retires from political office.

Mizzou's long track record of promising work in medical research prompted U.S. Sen. Jean Carnahan to pledge her support for a $30 million infusion of federal funding to finance a new health sciences research center at MU. Although the proposed health sciences facility is still years down the road, the center, estimated to cost $136 million, would be the first new research space built for the



School of Medicine in four decades. It would help boost research funding from the National Institutes of Health, and could be key to MU's push to be designated as a Comprehensive Cancer Center by the National Cancer Institute.

During a campus visit in May, Carnahan praised MU's efforts to treat and solve chronic health problems, and acknowledged that her announcement was only a first step in a long and complicated federal appropriations process. She also noted that Missouri ranks above the national average in the incidence of some types of cancer, diabetes and heart disease.

"The speed and extent of innovation can outstrip the imagination. We are sometimes unable to bridge the gap between discovery and delivery," Carnahan said. "This new center will help link cutting-edge research and hospital and clinic applications. The pace of research makes it possible that we will see cures in our lifetime."

THE NEW LIFE SCIENCES CENTER might be the most visible aspect of Mizzou's campuswide initiative, but scientists here have been making groundbreaking discoveries in the plant sciences for more than a century. In recent years, MU researchers have become national leaders in the exciting scientific developments that will fuel future discoveries.

Geneticists are unraveling the genomic maps of important food and fiber crops. What they learn could help feed a hungry world. With the unique resources of the University of Missouri Research Reactor Center, scientists are making breakthroughs in radiopharmaceutical drugs to diagnose and treat cancer. Medical researchers are joining with MU engineering faculty to harness high-speed computers and put them to work to find disease cures.

The list of life sciences research at Mizzou goes on and on. Now, with the burgeoning connections between campus and other research enterprises, the potential has never been greater.

For MU biologist Cathy Krull, the ability to collaborate with top scientists at the Stowers Institute opens up exciting research possibilities. Krull studies how molecular signals control cell migration during embryonic development.

THE NEW LIFE SCIENCES CENTER MIGHT BE THE MOST VISIBLE ASPECT OF MIZZOU'S CAMPUSWIDE INITIATIVE, BUT SCIENTISTS HERE HAVE BEEN MAKING GROUNDBREAKING DISCOVERIES IN THE PLANT SCIENCES FOR MORE THAN A CENTURY.

"Just as highway traffic is controlled by signs and signals, cell migration also is guided by molecular signals that tell cells where to go and how to grow," says Krull, assistant professor of biological sciences.

"If we can learn how cells are guided and how they respond, we might be able to use that information to find new treatments for a number of diseases." One day, scientists might be able to create cancer treatments by using a molecular "stop sign" that inhibits tumor growth. Or perhaps researchers could learn how to reconnect damaged spinal cords.

Krull has forged a collaboration with Robb Krumlauf, the Stowers Institute scientific director and, like Krull, a developmental biologist. The two scientists have published a joint paper and are cooperating on several research projects.

"These kind of collaborations are hard because you can't force them by picking names out of a hat," she says. "It doesn't work that way. These type of collaborative relationships happen naturally when scientists have a lot of exposure to each other."

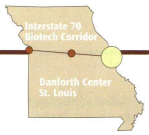
Krumlauf says that he welcomes the broad expertise in basic sciences that MU can bring to the table. "In all areas of research it is impossible for any one person or team to have all the knowledge, technology and expertise needed to solve complex research problems," he says.

"Researchers routinely need to utilize whatever approach or experimental system best addresses the problem under investigation. For example, scientists are no longer focusing all their attention on a single gene or protein in isolation. They want to know how these molecules normally function in integrated networks and how they go wrong in disease."

The result is that researchers are changing the way they approach their science, Krumlauf says. "Cutting-edge technology is expensive, and all institutions find it difficult to strike a balance between meeting mainstream needs and setting up special technologies that might only support a few researchers.

"Collaboration and the sharing of expertise between scientists and between institutions is an essential and efficient way of driving research. Besides, it's fun to interact with other scientists like Cathy Krull and share ideas on complex biological questions."

In addition to tapping into the intellectual capital that such collaborations offer, MU nutrition scientist David Eide will be able to call on the newest scientific infrastructure at the Danforth Plant Science Center in St. Louis. Eide studies how



yeast cells absorb the essential nutrients of zinc and iron. His lab has identified genes in baker's yeast that produce proteins to regulate the process. When zinc or iron are relatively scarce in the environment, certain proteins in the yeast cell enhance the uptake process. If there's too much of these metals available, other proteins reduce the uptake so they don't reach toxic levels.

"These are critical questions for plant biologists, because iron is one of the major plant nutrition problems in the world," says Eide, an associate professor of nutritional sciences in the College of Human Environmental Sciences. "As it turns out, the mechanisms that plants use are very similar to mechanisms that humans use, so we all learn from each other."

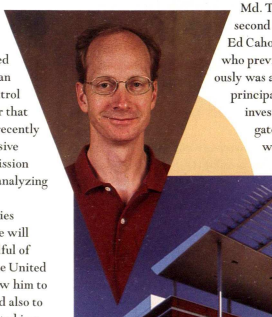
Soon, he'll have the opportunity to learn even more. For several years, Eide has been working with plant scientist Dan Schachtman, who recently joined the Danforth Center. Schachtman is working on the genes that control zinc uptake in wheat. To further that research, the Danforth Center recently acquired a vital and very expensive piece of equipment — a transmission electron microscope capable of analyzing metal ions.

Thanks to the collaborative ties between the two scientists, Eide will have access to one of just a handful of such microscopes available in the United States. The microscope will allow him to measure metal levels in a cell and also to pinpoint where they're distributed in a cell. "This is work that we really have needed to do," he says. "I'm looking for great things from our collaborations with the Danforth Center."

More cooperative research ventures are taking root between MU and partners around the state. The federal Agricultural Research Service's (ARS) plant genetics unit headquartered at Mizzou has hired two outstanding scientists who will be based at the Danforth Center. That will put MU on an equal footing with "soybean research powerhouses" such as Illinois, Iowa and North Carolina universities, says Larry Darrah, a plant geneticist who heads the ARS Plant Genetics Research Unit located at Mizzou. The ARS is a unit of the U.S. Department of Agriculture.

One of those two new soybean scientists is Eliot Herman, a former top researcher at the ARS unit in Beltsville, Md. The second is Ed Cahoon, who previously was a principal investigator with DuPont Crop Genetics. Cahoon plans to work with seed quality improvements in such areas as producing industrial oils from soybeans. Especially promising will be work on developing a better drying soy oil, so that soy ink sets faster with less smearing.

"There is every likelihood that with the Danforth Center, we can get more visiting scientists from around the world," Darrah says. "There will be great opportunities for collaboration."



Cooperative agreements between Mizzou and the Danforth Plant Science Center in St. Louis, right, will give nutrition scientist David Eide, inset, access to vital research equipment there. Eide studies how genes regulate the uptake of essential nutrients like iron and zinc in yeast cells. His findings could be significant for plant nutrition and for human health.

Building Photo Courtesy of the Danforth Plant Science Center; Portrait by Steve Morse

ALTHOUGH LIFE SCIENCES SHOW incredible promise for medical and agricultural advances, not everyone agrees they are the wave of the future. Some critics raise concerns that genes added to bioengineered plants could escape and crossbreed with other plants in the wild. Bt corn, for instance, contains a gene from a bacteria that produces a toxin that targets the European corn borer, a major agricultural pest. One early laboratory study suggested that pollen from genetically altered corn containing the same toxin could contaminate nearby

plants that monarch butterflies feed on as caterpillars. Later field studies discounted that possibility.

Still other critics see a bumper crop of economic evils sprouting from the new technology. Relying on a few strains of corn or cotton or soybeans reduces the global gene pool, they say, and lets a handful of corporate Goliaths call the shots and set the prices. That kind of consolidation, they argue, could bring small producers and family farmers to their knees.

"All these arguments are being made. I'm not really sure that biotechnology is posing or even necessarily fueling any of this, but it's certainly part of the equation," says agricultural economist Nick Kalaitzandonakes. "Consolidation of the family farm would have happened even in the absence of biotechnology."

Kalaitzandonakes is director of the Economics and Management Agrobiotechnology Center at MU, a policy think tank and research center that studies the impact of biotechnology on agriculture.

Some observers argue that biotechnology is triggering a wholesale consolidation in the agribusiness sector, but Kalaitzandonakes poses a counterargument: Consolidation isn't just targeting agriculture, he says. It's a trend that's sweeping through our economy for a number of reasons. Take food retailing, for example. America's mom-and-pop grocery stores are giving way to superstores and multibillion-dollar supermarket chains that leverage advances in information technology and management techniques to create cost savings, part of which are passed on to consumers.

"They basically force other retailers to consolidate," he says. "Large retailers tend to want to deal with large suppliers because it simplifies the way they connect with one another. So that has forced manufacturers and distributors to consolidate. It's a chain reaction."

That chain reaction goes all the way back to the agricultural sector that competes to sell its products to the giant food processors and supermarket chains.

The biotechnology industry is no stranger to consolidation itself. In the five years since biotech took off, there has been a rash of buyouts with big players snapping up smaller companies. Kalaitzandonakes argues that this consolidation comes not from the new technology these companies invented, but is part of the standard life cycle of innovation and adheres to basic economic principles that were operating long before farmers harvested their first bioengineered crop. It's much the same phenomenon that's taking place in e-commerce and telecommunications, he says, and for the same reasons.

AFTER YOU'VE DEVELOPED THE TECHNOLOGY, WHETHER YOU PUT IT IN ONE BAG OF SEED OR 80,000 BAGS, THE COST IS NO DIFFERENT.

"All of these businesses have the same basic cost structure, which is that you have to spend a lot of the money up front and make the investments to develop the technology or build the infrastructure," he says.

"But after you've developed the technology, whether you put it in one bag of seed or 80,000 bags, the cost is no different. It's the same thing with telecommunications. After you put a satellite up there, you can use it for five customers or 5 million."

And, if biotech firms have poorly protected or overlapping patents — which many did — a price war quickly develops as they try to sell that technology to customers. "Competitive bidding drives down the cost of that technology to zero or close to it," Kalaitzandonakes says.

That's what sparked a second wave of consolidation in the industry. Giant corporations such as Monsanto and DuPont rushed to buy biotech and seed companies so they could protect and market their technologies.

"Biotechnology probably has had very little effect on consolidation in the agricultural sector," Kalaitzandonakes says, "because it's what economists call 'scale neutral.' That means that if you have a 200-acre farm and I have a 5,000-acre farm, I don't have an inherent advantage over you by planting bioengineered crops.

"Biotech has probably increased yields by a little bit, but not by much. Because the new crops that ultimately have come to the market — Bt corn, Bt cotton or Roundup Ready soybeans — are mostly input reducing, not yield increasing. The majority of the impact has been on reducing costs."

That means farmers have to apply far less of an expensive pesticide to kill crop-damaging insects. Or, by using Roundup Ready beans, it's more feasible to switch to no-till cultivation and save money on tractor fuel and planting costs at the same time farmers reduce soil erosion and pollution. (See "Boon to Beans," Page 23.)

"There are substantial profitability gains, both in the United States and elsewhere," he says. "Otherwise you would not see the kinds of adoption rates that you are seeing. Argentina went from 0 percent to 90 percent of their soybeans being Roundup Ready in four years; our beans in the United States are 70 percent Roundup Ready in five years. You can't do that with unprofitable technologies."

But perhaps the greatest potential impact of bioengineered crops is for small farmers in developing countries, Kalaitzandonakes says.

One study in China found that in some

locations chemical insecticide use on cotton went from 30 applications in a season down to two. Another study in Mexico showed that it was economically viable to plant Bt cotton in areas where the cotton crop had been abandoned because of the need for expensive chemical pesticides.

Whether they're grown on the plains of China or the Great Plains of the United States, an added benefit of bioengineered crops is environmental, Kalaitzandonakes says. They rely less on chemical pesticides, and the herbicides they do need are less toxic to humans and animals.

He points out that genetically altered food plants are some of the first agricultural products to come from the explosion of knowledge in the life sciences. "What you are looking at are first-generation products that are typically clunky and can afford a lot of improvement. That's true for any major innovation," he says.

"So you have a set of products that are performing — not everywhere and not for everybody, but for a large number of agriculture producers — very productively and very profitably. Perhaps more significantly, these products are also yielding significant environmental benefits, and that could be of interest to all."

As MU builds on past successes to expand its life sciences initiative, the campus is committed to nurturing the research that will translate into critical benefits for the state and for people around the world. The biomed valley that Stowers envisions is becoming a reality in Missouri.

"Our first goal in nurturing a life sciences corridor is to become a powerhouse in the discovery of new knowledge. That provides the foundation for all to follow," says MU Chancellor Richard Wallace. "We must encourage entrepreneurship, and at the same time we must preserve the freedom of inquiry. One of our missions is to provide the types of education that we need to develop our state's potential in the life sciences." ❋

Photo by Rob Hill
Soybean Photo by James Fashing, BJ '93, Courtesy MFA Incorporated

Boon to Beans

FROM IMPROVING FAT CONTENT TO FINE-TUNING SCHEDULES FOR SPRAYING HERBICIDES, MU SCIENTISTS HAVE SPENT YEARS DEVELOPING SOYBEANS ESPECIALLY FOR MISSOURI FARMERS.

MOST MISSOURI SOYBEAN FARMERS will tell you that if they aren't growing Roundup Ready plants, they're producing hasbeans. Scientists have improved yields of Missouri's top cash crop and made it easier and cheaper to grow by implanting hardy soybean varieties with the Roundup Ready gene. The gene immunizes beans against herbicides that kill other plants just inches away — weeds like common water hemp that reduce bean yields by competing for water, sun and soil nutrients. These genetically modified plants became available in 1995, and already 80 percent of Missouri's farm acres in soybeans grow Roundup Ready varieties.

Scott Morse, BS Ag '80, of Harrisonville, Mo., says he wouldn't farm any other way. He plants 55 acres of soybeans on his family farm after harvesting wheat in the same field. With conventional beans, he'd have to till the soil two or three times to prepare it for planting. "I don't have that time," says Morse, who also is an investment broker at Edward Jones. "With Roundup Ready, it's fairly simple. We don't even have to work the soil. We just go plant right behind the combine."

The Roundup Ready gene is a boon, but there's a lot more breeding that goes into the beans that Morse grows. Decades before the herbicide-resistant beans became available, plant geneticists, including MU's Dave Sleper, began testing as many as 1,000 experimental varieties of soybeans a year to develop lines that thrive in Missouri's particular combination of heat, humidity, rainfall, soils and pests. "Now, we handle an awful lot of junk," Sleper says. "But we must look at them all before eliminating any." In any given year, about 70 of those initial thousand or so varieties show enough promise to grow again. By the third generation, fewer than 10 remain, of which one or two eventually become available to farmers after further years of testing.

With the help of molecular mapping of soybeans, geneticists in Sleper's lab can streamline breeding by looking into individual plants' DNA for desirable traits. For instance, they can identify varieties that resist pests, such as soybean cyst nematodes, which devastate roots. Geneticists also can modify beans to yield healthier fats, more protein and more isoflavones, the compounds in soybeans believed to have cancer-fighting properties. These changes make the crop more healthful for consumers and valuable to farmers.

Good breeding goes a long way, but farmers must spray herbicides at the right time to get the biggest bang from their herbicide-resistant beans. MU's Bill Johnson researches the best application schedules. "There are better times than others to spray weeds," Johnson says. "Many farmers like to see clean fields in late July and early August, so they will spray later than they should. The reality is that they should spray earlier because the late weeds cause less yield penalty than if they have more weeds earlier." Johnson says his protocols are especially important in northern Missouri, where the shorter growing season allows soybeans less time to recover from weed competition.

— *Dale Smith*

In addition to his job as an investment broker, Scott Morse of Harrisonville, Mo., farms 55 acres of soybeans. He is shown here in his recently harvested field of wheat, which he has already planted with soybeans. Morse finds the new genetically modified bean varieties easy to use.

Staying Grounded

Essay by Philip G. Peters Jr.,
the Ruth L. Hulston Professor of Law

Photo by Rob Hill

MU SCHOLARS WILL THOUGHTFULLY AND INDEPENDENTLY EXAMINE THE IMPLICATIONS OF NEW DISCOVERIES. DISCUSSIONS SUCH AS THESE CAN HELP CITIZENS AND POLICYMAKERS MAKE UP THEIR OWN MINDS.

AROUND THE WORLD, BIOTECHNOLOGY is as controversial as it is miraculous. On one hand, it has the potential to unlock the secrets of life itself, to provide the cure for cancer, to clean up toxic wastes and to reduce malnutrition across the globe. On the other hand, critics warn that without better safeguards, biotechnology could cause an environmental crisis, poison our food and, through human genetic enhancement of the wealthy, serve as an instrument of grave social injustice.

What are we to do in the face of these vivid and conflicting predictions? As with any promising new technology, some applications surely will prove to be social blessings, but some will not. How are we to know which applications to welcome and which to avoid? Which safeguards must we insist upon, and which are unwarranted?

Scientists, legislators and the public need help sorting out these claims. To that end, MU is launching a new interdisciplinary program to examine the ethical, legal and socioeconomic issues raised by human and agricultural biotechnology. The creation of MU's Biotechnology and Society Program reflects our belief that recent advances in the life sciences must be accompanied by a thoughtful, independent and balanced examination of their social implications. It also reflects our belief that a genuinely interdisciplinary exploration of these issues will improve the understanding of both the scientists who shape the direction of the research and those who critique their work.

MU is uniquely positioned to undertake this inquiry. We are located in the middle of the Interstate 70 Biotech Corridor running between St. Louis, home of the Danforth Plant Science Center, and Kansas City, site of the Stowers Institute for Medical Research. Here at MU, scientists do state-of-the-art biotechnology research every day.

As a public institution, we have the obligation to choose our research agenda responsibly. Two years ago, a working group of faculty from across campus fashioned a plan to make MU a pre-eminent center for the study of the social implications of biotechnology, particularly agricultural biotechnology. The goal is to hire new faculty members in the fields of philosophy, economics, law, journalism and public policy. These new faculty will complement our existing faculty in those fields and in others, such as rural sociology, political science, molecular biology and biology, who are already teaching or writing about biotechnology.

Regrettably, the state's financial crisis has meant that most of the hiring of new faculty has had to be delayed. We hope the delay will be short, because the discoveries in the life sciences continue. Once our new colleagues are hired, we will have an unmatched capacity to teach and research the complex policy issues raised by biotechnology.

This past year, the law school offered one of the few classes in the country addressing the legal issues raised by human genetics. Topics included the patenting of human genes, cloning, stem cells, privacy, genetic discrimination and genetic engineering. This fall, the Biotechnology and Society Program is offering an innovative team-taught course that searches for the truth behind the rhetoric regarding genetically modified crops like Bt corn and Roundup Ready soybeans. The class, called the Social and Legal Implications of Genetically Modified Food, is being taught by faculty from law, philosophy, agricultural economics, biochemistry, rural sociology, journalism and political science. Topics include food safety, food labeling, environmental risk, the patenting of living organisms and globalization. MU faculty are writing textbooks for both of these courses, and we hope that in a few years schools around the country will be using our materials.

It is important to emphasize that the mission of this initiative is neither to promote biotechnology nor to condemn it. Instead, our assignment is to keep open minds, to search for the facts beneath the rhetoric and to identify the value choices that ultimately must be made. In that way, educated citizens and policymakers can make up their own minds.

Social scientists tell us that Americans place great confidence in the information that they receive from their universities. Our neighbors trust us to be honest and evenhanded. I cannot overstate how much we are honored by that confidence and humbled by the responsibility that it entails. Rest assured that we will work very, very hard to preserve it. ❋

About the author: Philip G. Peters Jr. specializes in the regulation of reproductive biotechnology on behalf of the children who would be born using it. His scholarship includes writing a book tentatively titled How Safe is Safe Enough: Obligations to the Children of Reproductive Technology, *and co-writing a* Genetics and the Law *textbook.*

Photo by Jim Cheatham

STORY BY SONA PAI

Have a Heart

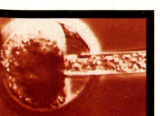
RESEARCHER RANDALL PRATHER'S WORK WITH PIGS MAY INCREASE THE SUPPLY OF ORGANS AVAILABLE FOR TRANSPLANT.

EVER SINCE 1997, WHEN SCIENTISTS at Scotland's Roslin Institute introduced the world to the cloned sheep named Dolly, the possibilities created by cloning animals and potentially humans have captured imaginations, raised ethical questions and incited international debate. To some, cloning represents a step forward and holds unlimited opportunities to improve health, food and quality of life. To others, it's a step over the edge; a claim to an unnatural power to change things that are better left alone. One person's promise is another's peril.

Randall Prather, distinguished professor of reproductive biotechnology, says cloning is a technology, plain and simple.

Randall Prather, distinguished professor of reproductive biotechnology, uses the science of genetic modification, nuclear transfer and cloning technology to create pigs that one day may supply organs for human transplant.

In the process of nuclear transfer, Prather and his team use pipettes thinner than human hairs to extract the chromosomes from egg cells and then insert new genetic information. The actual size of the egg cell shown here is smaller than the period at the end of this sentence.



REPRINTED, BY PERMISSION, FROM R.S. PRATHER, "CLONING MAMMALS BY NUCLEAR TRANSFER" IN *ENCYCLOPEDIA OF REPRODUCTION*, VOL. 1. © 1999 ACADEMIC PRESS.

It's a means to an end; a process that has the potential to help people in dire need.

"Most new technologies are resisted at first because people don't understand them," Prather says. "At the base of things, though, technology itself is neither good nor evil. Guns can be used to murder or to defend. Computers can be used for pornography or for education. In the technology of cloning, I see the possibility for tremendous good."

Earlier this year, Prather and a team of MU researchers announced a breakthrough made possible by cloning technology. Prather and his team, working in conjunction with Immerge BioTherapeutics Inc. of Charlestown, Mass., created four female pigs with a gene "knocked out" to prevent the human body's rejection of transplanted organs. The result of Prather's work, which was funded by a $345,686 grant from the National Institutes of Health, is the first specific genetic modification ever made in pigs and a major advance toward the goal of successful xenotransplantation — the transplantation of organs from one species to another. "Some people just hear the word cloning and emotionally reject the idea immediately," Prather says. "But when you consider that every hour or so someone dies waiting for an organ transplant, the discussion changes."

According to the United Network of Organ Sharing (UNOS), a nonprofit organization that maintains the national organ waiting list, nearly 80,000 people in the United States are waiting for organ transplants. Most are in line for kidneys or livers, but patients are also waiting for pancreases, intestines, hearts and lungs, and the demand for these organs far exceeds the supply. UNOS data from 2001 show that 24,076 organ transplants were performed during that year, and 6,124 people died while waiting for organs.

"By making genetic modifications, we can create pigs with organs that may be acceptable to the human body," Prather says. "There's still plenty of work to be done, but if it's successful, it could lead to an unlimited supply for people in need of transplants."

ONE WALL IN PRATHER'S OFFICE IS a photographic timeline of milestones in animal genetics. There are photos of the first cows ever cloned, which Prather helped create as a doctoral student at the University of Wisconsin-Madison. Other photos show the first pigs ever cloned, a feat Prather accomplished in 1998 while a postdoctoral fellow at the University of Wisconsin. Next, there are photos of the first transgenic

pigs produced by nuclear transfer — cloned pigs with a genetic addition. Prather added a jellyfish gene to pig DNA, which proved that genetic modification is possible. Finally, there is a photo of Prather's four "knock-out" pigs, and room for more photos to come.

When Prather began his work in animal genetics in the 1980s, his interest was in finding ways to improve production agriculture. He says his recent success with genetic modifications in pigs could have dramatic implications for farmers.

"The possibilities are limited only by our imaginations," Prather says. "We can create cows that produce milk that's more easy to digest, pigs that are more environmentally friendly, and generally more robust and efficient animals."

Although improving agriculture is still Prather's primary goal, he says he finds the biomedical potential of his work deeply satisfying. Pointing at a poster on his office wall displaying pictures of pig cells, he says, "Some people look at that and see a gray blob. I see a pig. I see nourishing food. I'm starting to see transplant organs for sick people. The possibilities are truly amazing."

Pigs are scientists' top choice for xenotransplants because they are close to the same size as humans; their internal anatomy is similar to ours; and they give birth to litters, offering the potential for a large, readily available supply of organs. "Primates are more similar to humans, but we don't use them because they are endangered, they only have one offspring at a time, and we don't eat primates," Prather says. Since pigs are used for food, "There shouldn't be a separate ethical issue with using their organs."

The main obstacle to successful pig-to-human transplantation is rejection. Even in human-to-human transplants, the human body sometimes rejects the donated organ, even when the recipient takes powerful anti-rejection drugs. When a pig organ is introduced into the body of a primate, a process called hyperacute rejection occurs, in which a standing army of antibodies mobilizes and destroys the organ tissues almost immediately. In the past, scientists have tried to add human genetic information to pig cells in order to produce pigs whose organs would be recognized by human bodies as human. Prather's research focuses on modifying the pigs' genetic blueprint, rather than adding to it.

Pig cells contain an enzyme that produces an alpha-1, 3-galactose sugar linkage, a sugar that coats the outer membranes of the cells. This sugar alerts human antibodies to the presence of a foreign invader, causing them to attack the unfamiliar cells. By disabling a gene called GGTA1, which creates the enzyme that puts the sugar linkage on the cell surface, Prather and his colleagues hope to produce a line of pigs without the telltale sugar on their cells. "We basically put a stop code on the gene so that the enzyme would be deactivated," Prather says.

"Some people look at [a pig cell] and see a blob. I see a pig. I see nourishing food. I'm starting to see transplant organs for sick people. The possibilities are truly amazing."

Photo Courtesy of Randall Prather

This image shows a potential litter of cloned pigs.

The process began at Immerge BioTherapeutics, where scientists genetically altered adult pig cells, disrupting GGTA1 and preventing the production of the sugar linkage. The scientists then froze the cells and shipped them to Prather at MU, where a team of postdoctoral fellows cloned pig embryos using a process called nuclear transfer, in which genetic information from fetal cells provided the basis for new organisms.

"Imagine a row of dominoes that splits into two rows, and then those two split into four rows and so on," Prather says. "When those are knocked over, each domino plays a part in the final result. Nuclear transfer is like taking a domino from the end of the line and trying to start from the beginning. It's like reprogramming the process to set the dominoes back up again."

Using pipettes thinner than human hairs, Prather's team removed the chromosomes from an unfertilized pig egg smaller than the period at the end of this sentence. Researchers then inserted the modified genetic information from Immerge BioTherapeutics into the empty egg cell and stimulated the egg with an electric shock to mimic fertilization. Once the egg began to divide and develop, it was transferred to a surrogate sow for gestation. "Out of more than 3,000 genetically modified embryos in 28 different surrogates, we had seven successful deliveries, and three of them died after birth," Prather says. "The year before we transferred about 3,000 such embryos and didn't get anything."

Each pig has two copies of the GGTA1 gene. Prather's four surviving pigs are all female with one of the two copies of GGTA1 disabled. Once Prather clones male pigs with disrupted copies of GGTA1, he'll produce more pigs through conventional breeding. Statistically, one

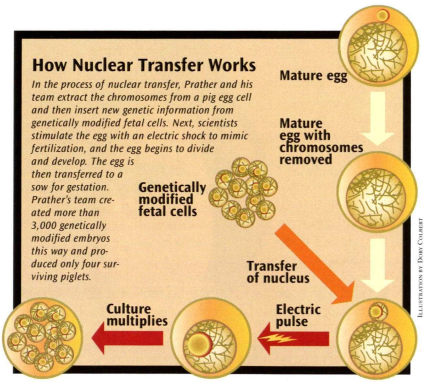
out of four of these piglets should be missing both copies of the gene. The University holds a patent on the technology that allowed Prather to generate embryos from unfertilized eggs.

PRATHER PUBLISHED HIS RESULTS IN the Jan. 3 issue of *Science*. At about the same time, PPL Therapeutics, the company that collaborated on cloning Dolly the sheep in 1997, announced similar, unpublished results.

PPL cloned domestic pigs, but Prather's pigs came from a line of miniature swine specifically developed for transplantation research because their organs are closer in size to human organs. Once his results were published, Prather and his "knock-out" piglets became instant media darlings. "I was on the phone for three days solid talking to reporters from all over the world," Prather says.

News stories published predictions that xenotransplantation could become a reality in as few as four years, and analysts have estimated the potential market demand for pig transplant organs could reach $6 billion. Prather says it's still too soon to speculate. "I'm just the reproductive technologist," he says. "These pigs still have to be looked at by immunologists and transplant surgeons. It's likely that we'll find that another modification is necessary for human acceptance, and maybe even another one after that. We've found a way to circumvent hyperacute rejection, but now we may find that there's another tier of rejection."

The media attention to Prather's research also raised concerns among medical professionals, scientists, animal rights activists and others. In May, Patent Watch, a subsidiary of the International Center for Technology Assessment, claimed that MU's patent on Prather's cloning technology leaves the door open for controversial human cloning. In response, MU stated that although the language in the patent (No. 6,211,429) does not preclude human cloning, it does give the University control over the technology and the power to ensure it is not licensed for unacceptable uses.



Many opponents of xenotransplantation object to the technology because of the possibility that transplanting organs from one species to another could also transfer disease. "We want xenotransplantation banned," says Alix Fano, director of the Campaign for Responsible Transplantation, a nonprofit, international coalition. "We find it unacceptably dangerous, particularly because of the threat to public health."

All pig cells contain the genetically inherited porcine endogenous retrovirus (PERV). PERV does not harm pigs, but there is a possibility it could be dangerous to humans. Critics of xenotransplantation worry that a virus such as PERV could infect transplant recipients and then be passed on to others in a public health nightmare similar to the HIV/AIDS epidemic, which many scientists believe began when the virus was transmitted from monkeys to humans. Another concern is that pig DNA from transplanted organs could recombine with elements of human DNA to create new viruses. "Instead of turning to the complex and dangerous realm of animal transplants, we should be trying to perfect the existing technology of human transplants and working to raise organ donation rates," Fano says.

The U.S. Department of Health and Human Services established the Secretary's Advisory Committee on Xenotransplantation in 1999 to recommend policies and procedures for oversight of xenotransplantation and to address public health issues that may emerge as a result of the new technology.

Studies have indicated that Prather's miniature swine do not transfer PERV to human cells the way normal pigs do. Still, he is quick to acknowledge that while his team has made a significant breakthrough, xenotransplantation research is still in its early stages.

"Xenotransplantation is not something to be rushed into," Prather says. "But if we have the technology that may take us closer to the goal of saving human lives and alleviating human suffering, I believe we have a responsibility to try." ❋

Scientific Symphonies

Comparing amino acids is normally a job for number-crunching computers. Using melodies based on the acids, researchers have added human perception to the analysis.

Story by Janine Latus, BS Ag '83, MS '88
Photo By Rob Hill
Photo Illustration by Dory Colbert

THE AMINO ACIDS WOULD BE A great name for a garage band, though not one you'd ever find at center stage. Amino acids are just the building blocks; they're not the stars. But they do make music. You can hear them any time in Room 202 of the Dalton Cardiovascular Research Center. Or, hey, maybe soon you could download a few strands from the Web for your listening pleasure.

Granted, it isn't Mozart or even the Backstreet Boys. It's not even "Chopsticks." It sounds instead like a child practicing piano, but without hesitation. A series of clear, single quarter notes, chords that harmonize, and chords that clash as though a chubby hand has pressed several keys. The melody is eerie and endless and made, yes, by amino acids.

Specifically, it's made by a computer that is programmed to attach a musical note to each amino acid in a protein strand. The scientific justification for this feat of programming is that perhaps, by playing two strands together, researchers can tell whether they are similar, and from that they can divine the meaning of the role and purpose of an individual strand.

Michael Lawrence, a 22-year-old computer science and biochemistry major from St. Louis, wrote the program at the suggestion of his mentor, physiology Professor Mark Milanick. He built it on existing software that generates tables of numbers that researchers scan to compare amino acid pairs, which is a fine way to do the job. It's just that Lawrence and Milanick were searching for a new approach to the problem, a method that would allow a role for serendipity, for simple human perception.

"When my son was in kindergarten, recognizing patterns both visually and audibly was important," Milanick says. That got Milanick thinking. If the goal was to recognize similar patterns between amino acid strands, could the ear discover something the eye had missed?

Besides, computers only compare what they're told to compare. Humans, however, might listen to a melody and then recognize something similar, even days or weeks later. From that, they might be able to draw a connection between two proteins that they never would have thought to compare.

Lawrence was intrigued by what Milanick wanted to do. He has been programming computers since second grade, when the computer in his home was so primitive that it actually came with a programming manual. His parents refused to buy him any games, so, without other options, he taught himself to program the thing. He's been doing it ever since. Lawrence is so good that creating the whole program for his musical amino acids took him only 25 or 30 hours. It is the sort of thing he'd like to do eventually, after moving on to graduate school in 2003 and a career in biotechnology.

IF THE GOAL WAS TO RECOGNIZE SIMILAR PATTERNS BETWEEN AMINO ACID STRANDS, COULD THE EAR DISCOVER SOMETHING THE EYE HAD MISSED?

At the output end, it's simple. When a pair of melodies is played simultaneously, notes that sound in unison are matching amino acids. Notes in harmony are similar. Notes that clash are dissimilar. The more similar two strands are, the more likely they are to have similar functions. And that is the point.

"We know the human genome pretty well, so now we're trying to figure out what the genes actually do," Lawrence says. "That's the main problem in biology at the moment."

So they take an amino acid strand whose purpose is known and compare it to one whose purpose is unknown. If they're similar, they conduct further studies to figure out whether they do the same thing.

For example, there is a protein in humans that primarily transports sodium iodide, which is important in thyroid function. But in the salivary glands, the same protein transports sodium nitrate, which is important in killing bacteria.

"So when it first evolved, was its initial function sodium nitrate transport or sodium iodide transport?" Milanick asks.

Enter the fruit fly, which carries the same family of proteins but has no thyroid. If the musical amino acid test showed that the fly has the same protein as humans, it would give researchers enough evidence to do further experiments. And if those further experiments confirmed the presence of that protein, it would seem — since flies are evolutionarily more primitive than humans — that the first function of the protein strand was sodium nitrate transport, and that the sodium iodide function evolved later.

There may be ways to apply such knowledge to improve human health, too. If, for example, scientists find differences between human genes and those of disease-causing organisms, they may be able to exploit the differences to create new and effective drugs.

So no, an amino-acid tune is not Mozart. It is more than that. It is the melody of life itself. ❋

About the author: Janine Latus is a free-lance writer living in Columbia. Her work has appeared in Parents, Woman's Day, More *and many other publications. She is a commentator for Public Radio International's Marketplace. Her last story for* MIZZOU *magazine was "Candid Camerawork" [Summer 2002].*

Michael Lawrence, a computer science and biochemistry major from St. Louis, has written a program that attaches musical notes to amino acids. With these amino melodies, researchers can compare acids by sound, in addition to the usual method of analyzing tables of numbers.

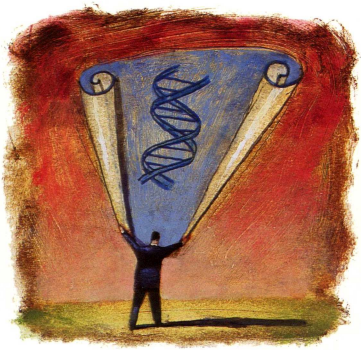
Speed of L

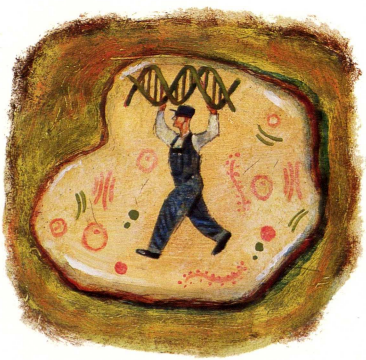
IN THE SCIENCE OF LIFE, RELATIONSHIPS ARE FUNDAMENTAL. Human health is only a few degrees of separation from the soil that nurtures our crops, the air we breathe, and the rivers that provide our water. An abnormality at the invisible level of cellular DNA can express itself as a terminal disease; a computer can unlock the mystery of genetic code. In the science of life, interconnectedness is the rule, and so should it be in life sciences research. As science and science-fiction writer Isaac Asimov said, "There is a single light of science, and to brighten it anywhere is to brighten it everywhere."

At MU, collaboration and cooperation among disciplines is beginning to set life sciences research ablaze. Researchers in a variety of schools and colleges — agriculture, food and natural resources; arts and science; engineering; health professions; human environmental sciences; medicine; nursing; and veterinary medicine — have come together to illuminate new ways to improve the quality of our food, health and environment.

"To achieve maximum benefit, none of these areas can exist in a vacuum," says Michael Chippendale, interim director of MU's new Life Sciences Center, now under construction. "What we are creating at MU is a convergence of disciplines, an opportunity for cross-fertilization of ideas, expertise and research methods. It's a new era of science, and we are right there at the forefront."

At the heart of this new era of science is the convergence of biology, technology and information science. Technological advances in the past decade have made scientific research more efficient, more precise and more





ight

Science is changing fast. Collaborative research in the fields of genomics, proteomics, nanotechnology and bioinformatics could change, or even extend, your life.

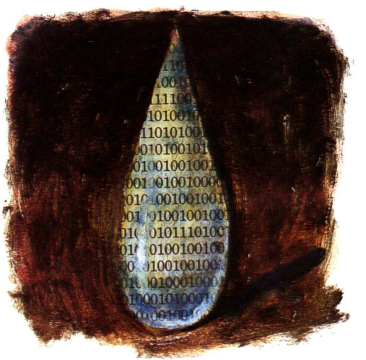
Story by Sona Pai
Illustrations by Joseph Daniel Fiedler

thorough than ever, speeding up the experimentation process, eliminating human error and making huge amounts of data immediately accessible. Modern science has changed more in the past 10 to 20 years than it had in 100 years before that, and it continues to move forward at a phenomenal rate.

MU's Life Sciences Center, to be completed in 2004, will provide a home for the meeting of minds required for further progress in enhancing food quality, improving health care and sustaining the environment. But this work has already begun on campus, in centers and programs that transcend departmental boundaries.

In MU's Food for the 21st Century and Molecular Biology programs, extensive interdisciplinary collaborations allow faculty members to conduct research across the broad spectrum of biomedicine, plant, animal and microbial sciences. In the Center for Phytonutrient and Phytochemical Studies, scientists work with botanical compounds to learn which plants may help cure diseases, which botanical supplements on the market today may be helpful or harmful, and why. At the Dalton Cardiovascular Research Center, investigators from across campus study, among other things, the effects of exercise and inactivity on heart disease, kidney function and diabetes.

With these and other existing interdisciplinary research strengths and an increasing emphasis on bioinformatics, state-of-the-art research equipment and alliances with other institutions, MU scientists are already fanning the flames of life sciences research and blazing the trail into the 21st century.



GENOMICS:
READING LIFE'S BLUEPRINT

AT THE MOST BASIC LEVEL OF life, the strands of DNA that form genes combine and recombine to create the instruction manual for an organism's development. Genes decide whether a person's hair will be black or blond, whether an animal will be large or small, whether a plant will flower or not, and much more.

An organism's entire catalog of genes is contained within its chromosomes and known as its genome, the fundamental blueprint that makes the organism what it is. Scientists have long sought to understand the genome — to "read" it in search of clues so that they might learn more about life in its essential form. Achieving this understanding involves sorting through vast stores of information and conducting precise, exhaustive experimentation. "Without the technology available today, this kind of work would take many more years," says Jack Gardiner, research assistant professor of agronomy.

Gardiner is the project manager for the Maize Mapping Project, a collaboration among researchers in MU's agronomy and biological sciences departments, Clemson University and the University of Georgia. Ed Coe, professor of agronomy and researcher with the U.S. Department of Agriculture's Agricultural Research Service, is the principal investigator for the project, which involves creating an integrated genetic and physical map of the 30,000 to 50,000 genes in the maize genome.

Scientists working on the maize map use robotic equipment to eliminate human error and process many samples at a time, a DNA sequencing machine to convert the genetic information into readable data, and computers to analyze and organize that data.

Once the maize genome is comprehensively mapped (completion is set for the end of 2003), scientists at Mizzou and beyond will be able to observe a physical trait in the corn field and consult the map to determine which genes might be responsible for that trait. Researchers can then look to the same genes in other strains of maize to either capitalize on good traits or eliminate bad ones. For example, if a domestic strain of maize is particularly good for food, but vulnerable to drought, scientists can bring in genes for drought resistance from exotic relatives and breed stronger plants. "This integrated map will give us the tools to rapidly improve the quality of maize for food, feed or alternative fuels," Gardiner says.

PROTEOMICS:
UNDERSTANDING LIFE'S LABOR FORCE

GENES PROVIDE THE BLUEPRINT for life, but technically, they provide the blueprint for proteins, which do the real work in an organism's cells. Although each cell in a particular organism contains the same genome, each cell differs in which genes are active and which are not. Therefore, each cell also differs in the kinds of proteins that make it work.

An organism's proteome is its entire catalog of proteins, which distinguish various cells from one another and work together in networks to do the intracellular heavy lifting that makes life possible. Proteomics is the study of these proteins and an emerging frontier in molecular biology.

"Cells use their genetic codes to do different things," says Stephen Alexander, professor of biological sciences. "It's like a cook who has 500 spices. In one recipe, you might use five, in another one you might use a different five, in another you might use 10, and so on. Proteomics is the study of all those elements, and how they are combined."

Alexander says scientists can look at cell proteins for fundamental information about what makes a lung different from a liver; what makes a cancerous lung different from a healthy lung; and what makes a drug-resistant tumor cell different from a treatable tumor cell.

MU has established a proteomics center, which will secure the University's position at the crest of this new wave in scientific discovery. The center will be housed in the new Life Sciences Center, and it will facilitate collaborative efforts between University schools and colleges. A $5 million, five-year grant from Monsanto Corp. helped provide some of the necessary instrumentation for proteomics research, including robotic equipment for handling samples and mass spectrometry technology, which identifies specific proteins according to the atomic masses of their components. "People have been working with proteins for decades," says John Walker, director of the new proteomics center and a professor of biological sciences. "But now that we have access to gene sequences and advanced technology, we can investigate whole networks of proteins."

Understanding proteins and their combinations can give scientists insight into how plants respond at the molecular level to variables such as sun, water, drought and herbicides. Proteomics could also lead to better designed and less invasive cancer treatments, and the possibility of more precise, earlier diagnoses.

"The goal is to be able to use proteomics to look at a drop of blood or a urine sample and make a diagnosis of cancer without having to do a biopsy," Alexander says. "Today, we only have a glimmer of understanding of where this science could lead us."

NANOTECHNOLOGY:
STARTING SMALL FOR BIG RESULTS

A MAJOR CHARACTERISTIC OF modern life sciences research is the emphasis on the tiny building blocks of life — molecules, genes, proteins and cells — to shed light on the bigger picture. As physical sciences such as engineering, physics, chemistry and mathematics are incorporated into life sciences research, the possibilities for making a difference at this fundamental level begin to take shape.

"Nanotechnology involves developing devices on a scale smaller than one micrometer, which is less than one-tenth the size of a typical cell," says Kevin Gillis, an assistant professor with joint appointments in biological engineering and physiology. "Devices and processes on this scale can obtain basic information and achieve the kind of targeted results that you can't get on a larger scale."

Using nanotechnology, engineers could develop diagnostic devices for human health that use less power and are less invasive to the human body. They could create needles that are so small they don't hurt, and devices small enough to be inserted into the bloodstream to keep tabs on a person's health. Sensors developed on the nano-scale could detect the presence of hazardous chemicals in the air or water before concentrations get dangerously high.

Gillis, who works in the Dalton Cardiovascular Research Center, has been studying the secretion of adrenaline from cow adrenal cells as a model to understand secretion of hormones and neurotransmitters in humans. He uses devices the size of microns, made from layers of nano-scale materials, to electrochemically measure hormone secretion from adrenal cells.

This type of small-scale research on the transport of signalling molecules across cell membranes could lead to a better understanding of short-term memory formation, lead poisoning and genetic diseases such as cystic fibrosis.

"When you can conduct basic research at this scale and look at thousands of genes or cells at once, you can begin to ask questions that you wouldn't have dared to ask before," Gillis says. "The understanding of fundamental mechanisms that comes from answering these questions is invaluable."

BIOINFORMATICS:
BRIDGING SCIENCE AND TECHNOLOGY

IRONICALLY, AS THE FOCUS OF LIFE sciences research narrows to the smallest molecular sources of biological information, the amount of data scientists can collect becomes more copious. "Today's tools provide the means to generate torrents of data from specimens smaller than a drop of water," says Gary Allen, associate professor of veterinary pathology. "It's more than a human can handle."

To make use of the data that new technology provides, scientists look to bioinformatics, a field in which biology and computational science are bound together, providing advanced and efficient means of data analysis, storage and access. Allen heads the University of Missouri's Bioinformatics Consortium, a systemwide computing infrastructure that serves all four University campuses.

"Nobody owns all of what they need to conduct their research in this day and age, especially when it comes to managing the information," Allen says. "The technology and equipment is not cheap, and the expertise in how to use it is rare."

The Bioinformatics Consortium provides scientists with the computer resources to organize and compare huge sets of data from "high throughput" equipment such as DNA sequencing machines; the secure space in which to store that data; and the networking capabilities needed to share that data with other researchers.

One key aspect of the consortium is the use and development of Internet2, a collaboration of almost 200 institutions of higher education to develop networking protocols specifically for education and research. With Internet2, scientists can share high-resolution images, consult massive databases of information stored at partner institutions and work together over a high band-width system without competition from commercial and private Internet users.

The consortium also creates Web interfaces to bioinformatics resources, making it easy for research scientists to crunch the numbers obtained from reams of data and produce quick, accurate results.

"The more great minds you can get together, the greater your chances for progress," Allen says. "If we can remove institutional and departmental walls and combine strengths from one group with the strengths from another, we can come up with something greater than the sum of its parts. That's what the life sciences are all about." ❋

Finding a Jo

Is that bum knee holding you back? What about Rover's sore joints? Research on replacing cartilage could help both people and pets.

Canine Models Courtesy of Ann Gayle

Story by John Beahler
Photos by Rob Hill
Photo Illustration by Dory Colbert

int Solution

Jimi Cook has had his share of unusual patients over the years. For instance there was Pasha, a snow leopard from the Kansas City Zoo. Cook, an orthopedic surgeon at MU's College of Veterinary Medicine, replaced both of the ailing leopard's hips with artificial joints — after being extra sure the big cat was really knocked out. He once performed emergency surgery on a trumpeter swan that was shot near St. Louis, and Cook has repaired the damaged wings of hawks and other birds of prey that had run-ins with hunters or cars.

His most recent research focuses on a much larger group of patients with a much lower profile — the nearly 1 million Americans each year who need surgery to repair damaged knee cartilage.

Cook, DVM '94, has teamed up with doctors who treat two-legged patients and

with researchers and engineers from across campus to tackle orthopedic problems that are shared by humans and animals. Their knee research is just one example of how these scientists are blurring the therapeutic lines between species.

This new initiative, launched nearly three years ago, is called the MU Comparative Orthopaedic Laboratory. Its philosophical underpinning is the "one medicine concept" — the notion that basic research can solve both human and animal disease problems.

For example, Cook and other team members are learning how to use bioengineered tissue from pig intestines to regenerate damaged knee cartilage. For now, Cook is stitching those pig tissue implants into the damaged knee joints of dogs. In a few years the team hopes to be conducting clinical trials on humans.

His colleague, Keith Kenter, is using the pig implants in innovative surgeries on people to repair damaged rotator cuffs that can't be fixed any other way. Until this past summer, when he left MU for the University of Cincinnati, Kenter was an assistant professor of surgery at the School of Medicine. He continues as an active collaborator and the lab's associate director.

The rotator cuff is a group of muscles that holds the upper arm bone into the shoulder joint. Many people only know about rotator cuff tears as the million-dollar injuries that put an end to baseball pitchers' careers. But they also occur in nonathletes, and they become more frequent as people age.

With his years of experience in the surgical suite, Kenter is able to point the team of scientists toward practical avenues for their research. "I think that's what makes our lab unique," he says. "We're able to bridge that gap between basic science and clinical relevance almost immediately."

That practical approach makes all the difference, Cook says. "What happens a lot of times is that people can be brilliant scientists and do great research, but the individual pieces of research are never connected. What limits that connection is that you don't have people like we do in our lab saying, 'Well, here's what I'm seeing day after day.' "

"Instead of taking microsteps in individual disciplines, we're trying to take bigger steps to get to that clinical problem of arthritis."

In the case of their knee research, the problem is a type of cartilage called the meniscus — Greek for "little moon." That's because these tough little pads of gristle-like material are shaped like quarter moons. There are two of them, one on either side of each knee, and they act like shims to help leg bones fit together perfectly at the knee joint.

The meniscus has other important functions, too. Meniscus cartilage helps stabilize and lubricate the knee joint. And, because it's somewhat spongy, the material also acts as a shock absorber.

But tough as it is, it's fairly easy to injure the meniscus. Twist the knee just right, overextend your leg, and you can tear the cartilage, crush it or shear off a chunk. When that happens, surgeons can remove the damaged portions to relieve pain, but it's only a quick fix.

"When you take this damaged meniscus out, it does relieve the pain pretty quickly; it does get you back functioning. The real problem is that function is short-lived," Cook says.

Because of all the pressure generated in a knee joint, a damaged meniscus can cause the knee to continue to degenerate over time until none of the cartilage is left. And, with bone rubbing on bone, severe arthritis and a knee replacement probably aren't far down the road.

"You start to see the signs within about a year or two, and usually between five and 10 years it's really becoming problematic," Cook says about the onset of arthritis, a major health problem.

Some of the best examples, he says, can be found among pro football players and other athletes. Marshall Faulk, a player with the St. Louis Rams, has probably had knee surgery performed three or four times, Cook says. "He can be back playing in three weeks, and that's great. But you know five years from now his knees may be a mess unless we come up with something to help him out."

But it's not just highly paid athletes whom Cook and his colleagues are trying to help. Their research shows that these pig tissue implants actually help the human meniscus grow back. That restores natural padding in the knee and averts further damage and disease.

Team members also are trying to figure out why this pig tissue is able to trigger the regeneration. Veterinary surgery resident Derek Fox studies that question on a cellular level, breaking down the components of the implant tissue to see how it works.

There are plenty of questions to answer. "Does it call cells to it?" Cook asks. "When we put this material in a knee, does it call a neighboring cell and say, 'Come on over here and make meniscus.'

"Or is it what we call 'mitogenic'? Does it make cells proliferate once they get there? Are there growth factors at work that say 'We need to make this tissue right here?' Those are the things that we're figuring out now. So far, what we've found is that when meniscal cells get there, something in that pig tissue tells them to kick into gear and make more of themselves."

Once researchers figure out how the process works, the next step will be learning how to make it work even better. But why use pig tissue in the first place?

"We've used pig parts for years," Kenter explains. "We've used them for valve replacements in human hearts. We've used them for skin coverage for

burn victims."

And it isn't just any pig tissue. These implants come from what is called the pig's intestinal submucosa — the thin, tough middle layer that gives the pig intestine its strength. It's manufactured by DePuy Orthopaedics Inc. through a process that chemically strips and sterilizes the tissue. The material already is used in people to reinforce weakened soft tissue, such as the rotator cuff tissue around the shoulder.

Another company, Cook Biotech, is using the material in people to repair hernia and bladder problems, to reinforce muscles, as human skin replacement, even to treat incontinence.

The pig tissue is so thin, Cook has to use individual implants anywhere from 20 to 40 layers thick in order to perfectly match the tear or defect in a patient's knee.

But in today's high-tech, high-pressure operating rooms, a busy surgeon wouldn't have the time to patiently mold layers of an implant into just the right contour that perfectly fits different patients' knee joints. "For it to be practical, it's got to be a one-size-fits-all type of thing," Cook says.

"That's where we are. We know this implant helps to produce meniscal regeneration. What we're trying to figure out right now are the logistics of doing this so it works every time, so that in the future a surgeon can just grab this product off the shelf and put it in.

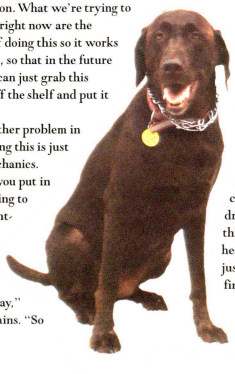
"The other problem in regenerating this is just the biomechanics. Anything you put in there is going to have weight-bearing forces, grinding forces, on it right away," Cook explains. "So it's got to be strong from the start. For that basic reason, other methods that attempt to get the meniscus to regenerate have not been very successful."

Research going on at the Comparative

Their research shows that these pig tissue implants actually help the human meniscus grow back. That restores natural padding in the knee and averts further damage and disease.

Orthopaedic Lab ranges far beyond arthritis and its complications. For example, nearly 6 million Americans each year fracture a bone; all too often the fracture becomes infected or doesn't heal properly.

Jeff Anglen, associate professor of orthopedic surgery, has seen all too many examples while treating trauma patients at University Hospital. Working with colleagues at the lab, Anglen and Tim Burd, an orthopedic surgery resident, are studying the impact nutrition has on fracture healing.



Using a rat model in their lab, the pair is exploring whether doubling the protein in a rat's diet improves fracture healing. They're also supplementing the diet with a precise mixture of protein precursors called essential amino acids.

"One of the common questions I get from people with fractures is, 'Should I take a calcium supplement or should I drink more milk? Is there something I can take that will help me heal better and faster?' And we just don't know, so we want to find out," Anglen says.

"Our hypothesis is that optimizing their nutrition will help them heal better. That is fairly well-established in most people's minds, but there are some effects of specific essential amino acids that we investigate."

The researchers are using X-rays to study how quickly fractures heal with different diets. They're also trying to determine how strong the fracture is as it's healing and how muscles heal around the broken bone.

Working with other scientists at the Comparative Orthopaedic Lab has been a catalyst for Anglen's research. "We could do the same project on our own, but we wouldn't have access to collaboration with other specialists," he says.

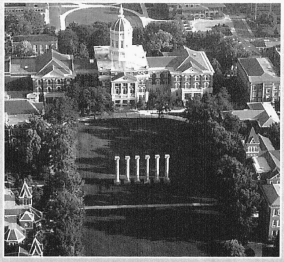
"There are a lot of research resources around the University — specialized machines and equipment and expertise — that you never know about because you're in your own little cubbyhole," he says.

What began as a core research team of Cook, Kenter and James Tomlinson, associate professor of veterinary medicine and surgery, has quickly grown to more than two dozen researchers who collaborate with laboratories across campus. The team is made up of veterinarians, medical doctors, engineers, biochemists and pathologists, all working together to find solutions to the problems of joint disease. That interdisciplinary approach is a key to success, Kenter says. "Instead of taking microsteps in individual disciplines, we're trying to take bigger steps to get to that clinical problem of arthritis."

The discoveries that these scientists make can have an equally broad impact on the patients they treat.

"The greatest thing for me as a veterinarian," Cook says, "is that I can take off my lab coat, walk away from my microscope and come over here to the clinic and put this to use.

"I can tell a patient, 'You know what, Ms. Smith? We've figured this out. Here's something that will help your little Puff-Puff's knees. And you know what else, Ms. Smith? When you go see the doctors over at the human hospital they are going to tell you the same thing for your knees."



"It's Just Tradition"

Downtown Columbia Favorites

A DISTINCT IMPRESSION

HOMECOMING 2002

A program of the MU Alumni Association

Redshirt freshman Brad Smith passed other contenders for the No. 1 quarterback slot during spring training.

What Will It Take for a Tiger Turnaround?

STORY BY JENNIFER WILFORD, BJ '93
PHOTO BY STEVE MORSE

MU FOOTBALL FANS MAY YEARN for a Tiger turnaround anyway possible, but don't expect Coach Gary Pinkel to don a cape and say, "Abracadabra!" anytime soon. "There is no magic wand you can wave and things instantly change," says Pinkel, who is entering his second year at the helm.

Pinkel isn't daunted in his attempts to reverse the fortunes of a program that has posted just two winning seasons in the past 18 years. He previously spent 10 seasons at the University of Toledo and left as the Rockets' all-time winningest coach, posting a record of 73-37-3. Success was not immediate though, as Toledo finished four games above .500 in Pinkel's first four seasons.

Despite the challenges, Pinkel's assessment of MU is enthusiastic, determined and realistic. The dose of reality is ever present when asked if the MU job was more difficult than expected. "No, no, no, no, no, no," Pinkel says, shaking his head for emphasis. "I knew rebuilding would be one of the most difficult things of my life, no question."

That belief was reinforced last year when the Tigers ended their season with a thud, losing to Michigan State 55-7 to finish 4-7. Although Pinkel describes the game as "the worst three hours of my life," ultimately, that loss helped shape MU's future.

Afterward, Pinkel reflected on the advice of his longtime mentor, Coach Don James.

Pinkel played under James at Kent State University and later served as one of his assistants at the University of Washington. "Don James told me there is nothing wrong with having problems," Pinkel says, "but to have the same problem two years in a row is not very good."

The most pervasive problems Pinkel observed last year were building blocks of any program — speed, strength and quickness. In his estimation, Pinkel ranked MU in the bottom quarter of the Big 12 in those three critical areas. So the Tigers went through a regimented six-week program dubbed the "Winning Edge" before spring football began. This consisted of vigorous 6 a.m. conditioning drills to give players the physical and mental fortitude to be competitive. He won't divulge specific figures, but Pinkel's records show that his players have made significant improvements in the weight room and that they have speedier 40-yard dash times.

"I am running distances now that if I tried them before, I would have felt like I would almost pass out or couldn't make it," says senior defensive end Antwaun Bynum. "But Coach Pinkel instills in you that not achieving is just a mind thing. It's got to be mind over matter."

That mentality reflects what Pinkel demands. After seeing the Tigers wilt in the fourth quarter on a regular basis — opponents outscored them 102-47 — Pinkel saw ample opportunities for improvement. "Players have to get their work ethic and attitudes at a high level to compete in the Big 12," Pinkel says.

Pinkel has declared that seniority does not determine who starts. By the end of spring, 10 redshirt freshmen were listed in the two-deep depth chart. Perhaps the most recognizable is quarterback Brad Smith, who was listed ahead of senior Kirk Farmer at press time.

Another area to watch is the offensive line, where just two starters return. Help could come from some junior college recruits. At tailback, junior Zack Abron looks strong, and freshman Mario Whitney from Jackson, Mo., showed his speed at the Missouri State High School Track Championships. He was officially clocked in the 100-meter dash at 10.40 seconds — just a tenth of a second slower than the state high school record. All-Big 12 receiver Justin Gage is focusing solely on football after three seasons of double duty on the basketball team. Last year, he tallied 920 yards and five touchdowns on 74 receptions, just one short of MU's single-season record.

The defense was impressive during the spring, with an improved line led by Bynum and senior tackle Keith Wright. Senior Sean Doyle and sophomore James Kinney will pack a powerful punch at linebacker. The secondary will be upgraded with greater speed from returning players and the arrival of true freshman Dedrick Harrington. Harrington, who is projected as a safety, hails from Mexico, Mo., and picked MU over Notre Dame.

MU's special teams have struggled as the Tigers had the lowest net punting average in the conference last year.

Place kicker Brad Hammerich completed his eligibility, but scholarship freshman Alex Pettersen could provide immediate help.

The Tigers' schedule is unforgiving this season; they play eight teams that were bowl bound last year.

"I won't just say let's win five games or six games," Pinkel says. "I won't devalue our goals in the program. We're going to go for it. The Big 12 is difficult, and while we're not there yet, we're working on becoming one of the good teams in the Big 12."

About the author: Jennifer (Kuester) Wilford, BJ '93, was a sports reporter for the Kansas City Star *and the* Columbia Daily Tribune. *She is now assistant director for career services and undergraduate recruitment at the School of Journalism.*

A DISTINCT IMPRESSION

MU scored 69 points against KU in 1969, the most ever for either team in an MU-KU game. KU's coach, Pepper Rodgers, accused MU Coach Dan Devine of running up the score because of an impending Orange Bowl bid. Rodgers was quoted as saying that when he tried to give Devine the peace sign from the sidelines, Devine only returned "half of it."

A DISTINCT IMPRESSION

Fistfights between the players broke out at many of the early match-ups between MU and KU.

Tiger Tidbits

- 2001 — MU finished 4-7 overall, 3-5 in conference play
- Returning starters — 15 total: six offensive, eight defensive, punter
- Quotable — "As soon as you are where you think you need to be, [Coach Pinkel] raises the bar higher," says Justin Gage, a senior All-Big 12 wide receiver. "We are in a continuous improvement phase, and everyone is treated the same, from the first guy to the last guy."

2002 Football Schedule

Aug. 31	Illinois (in St. Louis)
Sept. 7	Ball State
Sept. 14	at Bowling Green
Sept. 28	Troy State
Oct. 5	Oklahoma
Oct. 12	at Nebraska
Oct. 19	at Texas Tech
Oct. 26	Kansas (Homecoming)
Nov. 2	at Iowa State
Nov. 9	Colorado
Nov. 16	at Texas A&M
Nov. 23	Kansas State

Big M Rocks On

IT'S MARVELOUS. IT'S MAJESTIC. IT'S meaningful. It's 75 years old. The big white M, a product of the Roaring '20s and great school spirit, has occupied the hill at Faurot Field since 1927. In that era, every freshman automatically was a member of the Thundering Thousand, a pep club led by legendary Professor Jesse Wrench. Before each home game, the group assembled at the Columns and marched to the stadium in lock step. In 1927, the freshmen literally built a new tradition, the block M, using stones left over from the blasting that hollowed out space for the stadium. Sophomore members of ROTC also helped out, in lieu of a military drill.

The rock hoisters included Kyle Graham, AB '29. When Graham died in 2001 at age 98, his son, John D. Graham, BJ '59, created the Kyle T. Graham Big M Endowed Scholarship for student-athletes. John Graham, chairman and CEO of Fleishman-Hillard in St. Louis, was the lead donor. Family friends and Fleishman-Hillard associates also contributed to the memorial.

Until World War II, members of the freshman class repaired and whitewashed the M each fall. According to the Oct. 11, 1927, issue of the *Missouri Student*, original plans were to paint the M black and gold. But apparently, that color scheme was never adopted.

The freshman whitewashing tradition ended with the influx of student veterans, who were too mature to be badgered into the work. So, fraternities took over the task. The M survived another stumbling block in the 1950s, when pranksters changed the M to an N the night before the Mizzou-Nebraska game. With the promise of free football tickets, groundskeeper Olen Thornton rounded up a crew of young boys who worked feverishly Saturday morning to restore the M before game time.

During the anti-establishment Vietnam years, many students lost interest in traditions, so the job fell to University crews and paid student workers. The whitewashing ritual almost faded permanently in 1976, when the University System Board of Curators voted to replace the M with bleachers. Alumni and student reaction was swift and overwhelmingly opposed to the project. The curators huddled and then announced a reverse, adding seats in the stadium's south end instead.

The M prevailed, and eventually so did the freshman tradition of maintaining the symbol. For the past several years, about 100 to 150 students and staff repair and whitewash the M in August as part of freshman orientation. The grounds crew brings in a load of rocks, and freshmen fill in bare spots in the 90-by-95-foot M. "We have found that fans will occasionally take rocks from the M as souvenirs," says Bob Stanley, director of facilities maintenance for athletics. Then the freshmen use mops to whitewash the M to make it bright for the upcoming season. They also paint the word MIZZOU in the south grandstands, which spared the M from being demolished 26 years ago. "It gets a bit messy, but everyone seems to have a good time, and it does make for a good tale to tell your kids," Stanley says.

PHOTO BY BRIAN W. KRATZER

Barbara Locher of Springfield, Ill., carries on the freshman tradition of sprucing up the block M at the north end of Memorial Stadium in this 1998 photo. The M is 75 years old this fall.

A DISTINCT IMPRESSION

Mizzou holds several game records in the MU-KU series, including most passing yards (444 in 1989), most passes completed (29 in 1989) and most total offensive yards (665 in 1949).

A DISTINCT IMPRESSION

The tradition of Homecoming began at Mizzou in 1911, when the MU-KU game was played on a college campus for the first time. Previously, the teams met in Kansas City, Mo., or St. Joseph, Mo. In 1911, Chester Brewer, athletic director and coach, invited alumni to "come home" for the big game at MU's Rollins Field.

Anderson Scores Grand Marshal Post

During his 12 years as a sports reporter, photographer and anchor in local television markets, bad weather meant bad news for John Anderson, BJ '87. "If it snowed, I lost time to the weather guy," he recalls. Now with ESPN, the entertainment and sports network based in Connecticut, Anderson never gets bumped for a weather update or traffic report. "That's one of my favorite things," he says.

Anderson, the 2002 Homecoming grand marshal, is co-anchor of the network's SportsCenter show. "It's fun; it's entertainment; but it's still journalism," he says of his work. "You have to be fair and accurate, but there's more room to breathe and to put some personality into stories."

A huge sports fan, Anderson prefers covering golf.

"If they let me do nothing but follow the PGA Tour, they could take away my desk tomorrow," he proclaims.

When he was a Mizzou student, Anderson spent time at the A.L. Gustin Golf Course every day, but he wore running shoes instead of spikes. He and fellow members of the track team trained on the green hills south of the original alumni center.

"I had a fairly undistinguished career in track, but Coach [Bob] Teel was kind enough to let me walk on," says Anderson, who was a high jumper. He competed in every meet but didn't earn enough points to win a letter until his senior year, when he was team captain.

A native of Green Bay, Wis., Anderson was attracted to Mizzou because of its journalism school.

"The fact that you work in an actual NBC station gives you the practical experience to walk into any newsroom as prepared as anyone else," he says.

Anderson's job often takes him to homecomings at other universities, so he's thrilled to be attending Mizzou's this fall. "When I come back, the smallest things remind me that I'm home, like getting a white cheese hamburger at Booche's or going to Shakespeare's for pizza. I always go back to the last house I lived in. It was a dive, a real pit, and I'm always surprised it's still standing. Surely God will smite it," he says, laughing.

But most of Anderson's memories are fond.

"I love to come back because Columbia is a beautiful place," he says. "The Columns and Jesse Hall look like academia should look."

Cheering the Tigers at Faurot Field is another favorite memory to relive. The sports journalist is cautiously optimistic about the team's upcoming season.

"I think Coach [Gary] Pinkel can bring discipline and that he has a good plan. It's tough to win in the Big 12 Conference, but I think they can be a quality team."

ESPN Photo by Rich Arden

Tune in to ESPN to catch Homecoming Grand Marshal John Anderson in action. He lives in Connecticut with wife Tamara and son Collin.

A Distinct Impression

Don Faurot went 13-4-2 against KU. In Faurot's final game as Missouri coach in 1956, MU and KU were tied 13-13 with less than two minutes to play. MU won when Chuck Mehrer tackled a KU player in the end zone for a two-point safety.

Fit for a King

Don Downing was understandably skeptical when, in 1977, some sorority friends told him he was nominated for Homecoming king. "I didn't think there *was* a Homecoming king," he says. But Downing soon learned that the equal rights movement wasn't just a topic for classroom discussion, and it wasn't just bringing changes for women. He and more than a dozen other young men made history as Mizzou's first Homecoming king candidates.

In 2002, the Homecoming court celebrates the 25th anniversary of elections for both a king and a queen.

"I realized they wanted someone who could represent the University well and create a positive image along with the queen," says Downing, BS BA '79, JD '82. So, he got in the spirit of the contest, fortified by a student résumé fit for a king. He was a member of four honor societies, including Mortar Board and QEBH; campaign manager for the MSA president; member of the MSA Senate, Alumni Association Student Board, Intercollegiate Athletics Committee and Beta Theta Pi fraternity; and head of the Young Democrats and Students for Litton in 1976. Downing aced the candidate interviews and landed in the top five.

The king and queen finalists then went on press tours to Kansas City, Mo., and St. Louis, where they received keys to the cities. On the day of the big game, by a vote of the student body, Downing was selected as Homecoming king. "I've still got the crown," he says. "It's got rhinestones, but it's not really fancy."

He left the crown at home when he fulfilled his official duties of attending alumni events statewide and recruiting National Merit Scholars at Missouri high schools. Today, Downing continues to support Mizzou as a member of the Jefferson Club and the Law School Foundation board of trustees. He is managing partner of the St. Louis office of Stinson Morrison Hecker LLP, a law firm with 330 attorneys based in nine offices from Phoenix, Ariz., to Washington, D.C. Downing also serves on the firm's policy board and its executive committee.

He'll have a chance to reprise his kingly wave at the Oct. 26 Homecoming game against Kansas, when members of the Homecoming courts from the past 25 years will be recognized.

A Distinct Impression

Mizzou leads the MU-KU series 51-49-9. Of the previous 109 games, 49 have been decided by a touchdown or less.

Photo Courtesy of Don Downing

Mizzou's first Homecoming king, Don Downing, is now an attorney in St. Louis.

A Distinct Impression

Coach Gary Pinkel defeated Kansas in 2001, his first season at Mizzou, 38-34. Eight MU coaches have beaten KU in their first year on the job.

Brains Count

Any contest worth its crown includes an interview segment. Here are examples of questions from recent years that had Homecoming royalty candidates thinking fast on their feet.

- If you had a million dollars to donate to the University, how would you spend it and why?
- What is one of the worst perceptions MU faces, and what are some ways for the University to combat it?
- How have you made a difference on this campus or in the community?
- What is something you are currently excited about?
- While at MU, what has been the most useful criticism that you have received, and how did you react to it?
- What are the first things you would do after being crowned king or queen?
- What is something that you would love to do before you graduate?
- At what cost should America seek justice for the actions of Sept. 11?
- What effect has recent leadership of our federal government had on our country's morality?
- If you were to identify one aspect of your personality that masks your insecurities, what would it be?
- What is the worst character flaw a person can have?
- How has the opportunity of higher education most changed your perspective of society's duties to those less fortunate?
- What should be an American citizen's philanthropic duty to his or her community?

Making an Impression

EACH FALL, FRESHMEN GATHER AT the Columns for Tiger Walk, which symbolizes their entry into the Mizzou family. As a group, they walk between the Columns toward Jesse Hall. At graduation, they reverse their path at an event called Tiger Prowl, walking north from Jesse Hall toward the Columns to symbolize their entry into the world as alumni.

"Traditions make a distinct impression on students, who in turn leave their own impression on Mizzou," says Abbie Turner of Chillicothe, Mo., a junior majoring in early childhood and elementary education. She is one of three student directors leading the 28-member Homecoming Steering Committee, which chose "A Distinct Impression" as the theme of Mizzou's 91st Homecoming.

Other directors are Brad Finnegan of Eden Prairie, Minn., a senior majoring in history and political science; and Jordan Johnson of Nevada, Mo., a senior majoring in agricultural education. They were selected through applications and interviews in November 2001 to plan one of the nation's largest Homecoming celebrations.

"Traditions and pride distinguish Mizzou from other universities," Johnson says. Finnegan notes that Mizzou's 1911 Homecoming, the first in the nation, made a distinct impression on colleges nationwide, which adopted the tradition. In 1911, the MU-KU game was played on a college campus for the first time. Previously, the game site was in Kansas City, Mo., or St. Joseph, Mo. Chester Brewer, who was coach and director of athletics, urged Mizzou alumni to "come home" for the big game, played on Rollins Field. A record crowd of 9,000 cheered the Tigers to a 3-3 tie, and Homecoming was born. This fall, KU will be Mizzou's Homecoming opponent for the 27th time on Oct. 26.

Although the football game anchors Homecoming, Mizzou's combination of activities sets it apart from others. In March, a panel of Mizzou's Homecoming experts — including Finnegan, Johnson, Turner and Dale Wright, assistant director of alumni programs — presented a seminar on Mizzou's event at a conference sponsored by the Council for Advancement and Support of Education (CASE). "People were in awe of how much we do," Turner says. MU's Homecoming program has won the CASE Circle of Excellence Award twice.

Service projects are mainstays, with activities benefiting past, present and future Tigers. Students will entertain Columbia senior citizens at a Tiger Tango dance. The service project for present-day Tigers will benefit Campfire USA, a youth organization. Future Tigers will enjoy A Day of Reading, in which Mizzou students read to schoolchildren and donate books to schools. For a complete list of Homecoming activities, visit http://www.mizzou.com or see the calendar on Page 49.

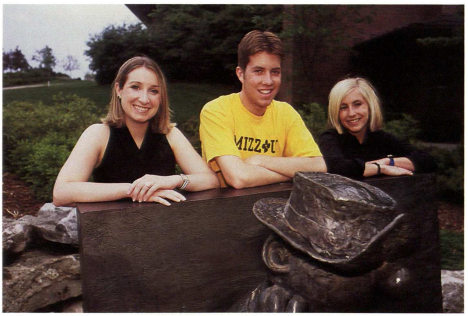


PHOTO BY ROB HILL

Homecoming directors, from left, Jordan Johnson, Brad Finnegan and Abbie Turner hang out at the Beetle Bailey sculpture in front of Reynolds Alumni and Visitor Center.

A DISTINCT IMPRESSION

Gwinn Henry coached in both camps. He led Mizzou from 1923-31, and coached KU from 1939-42.

Homecoming Calendar

Tuesday-Wednesday, Oct. 15-16

Homecoming Blood Drive, 10 a.m. to 8 p.m., Hearnes Fieldhouse

Friday, Oct. 18

Residence Hall Barbecue, 4 to 7 p.m.

Saturday, Oct. 19

5K Run/Walk benefiting Big Brothers/Big Sisters, 8 a.m. check-in, 9 a.m. start, Stankowski Field

Monday-Tuesday, Oct. 21-22

Talent Competition Preliminaries, 6:30 p.m., Jesse Hall Auditorium

Thursday, Oct. 24

Talent Finals, 6:30 p.m., Jesse Hall Auditorium

Friday, Oct. 25

Tiger Plaza Dedication, 3:30 p.m.

Campus Decorations, 6 to 10 p.m., Greektown

Homecoming Spirit Rally, 10 p.m., Greektown

Saturday, Oct. 26

Brewer Breakfast, 8 a.m., Brewer Fieldhouse

Homecoming Parade, 8:30 a.m., campus and downtown Columbia

Tiger Town Tailgate and Spirit Rally, begins three hours before kickoff, south of Faurot Field. For more information, visit the Homecoming Web site at www.homecoming.mizzou.com or call 1-888-292-MUHC (6842).

Homecoming Game vs. Kansas, time to be announced, Faurot Field.

Call 1-800-CAT-PAWS for tickets.

(All times are subject to change.)

A DISTINCT IMPRESSION

The MU-KU rivalry dates to 1891 and is the second oldest among all NCAA Division I schools behind Minnesota-Wisconsin.

PHOTO BY BLAKE DINSDALE

Sculptor Forest Hart of Monroe, Maine, exhibits a work in progress, the bronze tiger statue he is creating for Tiger Plaza. A small version of the statue is at right. The landmark, to be located on the south edge of the South Quadrangle, will be dedicated at 3:30 p.m. Oct. 25. Plaques on Tiger Plaza will display the names of endowed life members of the MU Alumni Association as of June 30, 2002.

A Distinct Impression

Each year, the winner of the MU-KU game receives a war drum as a symbolic trophy. The original drum, bought in a pawn shop in the 1930s, eventually deteriorated and was replaced in 1986.

Information

For more information, tickets or to order merchandise, call toll free 1-888-292-MUHC (6842). Order merchandise online at http://www.homecoming.mizzou.com.

To see the parade route and other Homecoming information, visit http://www.homecoming.mizzou.com.

Homecoming E-mail
homecoming@mizzou.com

Homecoming Local Phone Number
(573) 882-6645

Homecoming Hotline
1-888-292-MUHC (6842)

MUAA Hotline
1-800-372-MUAA (6822)

Columbia Visitors and Convention Bureau
1-800-652-0987

MU Parking and Transportation Services (573) 882-4568. After 5 p.m. and on weekends, park free during Homecoming in the core of campus: Turner Avenue, Conley Avenue, University Avenue and Hitt Street garages. There is a $5 fee for parking in the Maryland Avenue garage on game day.

Credits

Writers Carol Hunter and Jennifer Wilford; Designer Blake Dinsdale;
Advertising director Scott Reeter, 407 Reynolds Alumni Center, Columbia, MO 65211, (573) 882-7358. Advertising deadline for the Winter issue is Sept. 17.

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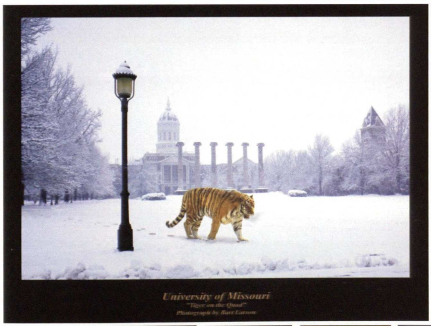

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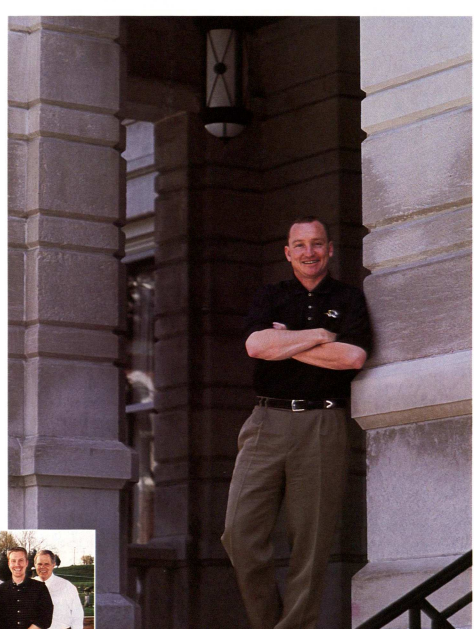
Double Duty, Double Devotion

Talk about blending vocation and avocation. Steve Vincent is associate vice president for alumni relations at Saint Louis University. On nights and weekends, he works alongside Mizzou's alumni relations leader, Todd Coleman, as the volunteer president of the MU Alumni Association.

If anyone is right for both jobs, it's Vincent. He's got enough energy and enthusiasm to cover two great universities. Before joining SLU, Vincent worked for 10 years for the Pi Kappa Alpha Fraternity Headquarters, and specifically as executive alumni officer/editor from 1996 to 2002. That position gave him the opportunity to stay in touch with his Pike chapter brothers from Mizzou. He graduated in 1987 with a bachelor of science degree in agriculture.

Vincent credits his mom, Kelli, for his positive attitude and his dad, Wayne, for his logical approach. But, logic flies out the window when the name Molly comes up. Vincent's almost 2-year-old daughter laughs, runs, dances and hugs pretty much nonstop. He and his wife, Suzanne, a Louisiana State University Tiger who's also a Mizzou Tiger fan, will bring Molly to her first Tiger football game this fall.

Vincent anticipates another landmark event this fall: the Oct. 25 dedication of Tiger Plaza during Homecoming Week. Located on the South Quadrangle, Mizzou's newest landmark will sport the names of 2,025 endowed life members of the MU Alumni Association.



Several years ago, Steve Vincent worked with the MU Alumni Association's Long-Range Planning Committee to map out the organization's five-year plan. The new association president encourages volunteerism in chapters across the country. Other officers include, from left: Vincent, Debbie Snellen, BS Ed '79, MA '80; Dale Ludwig, BS Ag, BS Ag '78; Jay Dade, BJ '85, JD '93; and Doug Crews, BJ '73.

During Vincent's term as president, he will work to increase the number of annual members in the association; that figure stands at 31,800. He encourages all members of the MU family — from students to senior Tigers — to follow his

example and think of the association as a fun and rewarding place to give their volunteer time and energy. "I believe in what Mizzou is all about. I want to do anything I can do to further that mission," he says.

From Vincent's perspective, volunteerism naturally starts at the chapter level, either in Missouri or anywhere in the world. Several years ago, he worked with a 14-member Long-Range Planning Committee, convened by past President Mark Miller, BS RPA '78, MS '82, to map out the MU Alumni Association's five-year plan. "It's a working document; every president since has embraced it." The goals include:

- attracting and retaining alumni and student members;
- strengthening the volunteer base and increasing participation;
- enhancing all dimensions of diversity through programs, services and benefits;
- establishing a strong focus on lifelong relationships;
- enhancing legislative advocacy to improve the University's political influence;
- fortifying and securing the financial position of the association; and
- positioning the association as the primary link between alumni and the University.

The group also embraced these values: discovery, diversity, pride, respect, responsibility and tradition.

Participating on the committee was one of Vincent's best volunteer experiences.

So, with the enthusiasm of his mom and the logic of his dad, Vincent has a proposal for not-yet-involved alumni: Get active in a chapter, or, better yet, start one. "A lot of cities with Tiger alumni don't yet have chapters," he says. When he lived in Memphis, Tenn., leading a chapter was easy and fun: "Basically, the president before me handed me a box and a chapter kit, we organized some events, and the alumni showed up." And in Missouri, he says, "Chapters throughout the state — Boone County, Kansas City and St. Louis — have events, so come on out and lend a hand!"

Chapter News

For information on local chapters of the MU Alumni Association, school and college alumni organizations, and affinity organizations, visit http://www.mizzou.com, and click on Alumni Groups.

Memphis' Spicy Scholarships

The Memphis/Mid-South Chapter in Tennessee held its annual barbecue and scholarship fund-raiser on June 12 at Charlie Vergos Rendezvous restaurant. The event drew more than 25 Mizzou alumni and friends who heard from Rob Edwards, last year's recipient of the chapter's scholarship. Edwards, a sophomore at MU, spoke about his experiences at Mizzou and his work with the Alumni Association Student Board. Edwards honored his mentors, Germantown High School teachers Ted Horrell, BJ '96, and Jeff Capps, BJ '98, and credited them with his decision to attend Mizzou.

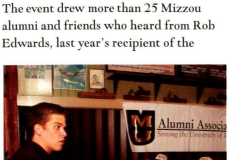


Photo by Michael Spikes

Alumni Scholar Rob Edwards speaks at the Memphis/Mid-South Chapter Barbecue and scholarship fund-raiser.

Also in attendance was Lauren Looney, the chapter's 2002 scholarship recipient, who expressed her appreciation and her excitement about attending Mizzou.

Thanks to chapter leaders Jill Palucci, BJ '97, and Matt Williams, BHS '97, for organizing the event. For information on upcoming chapter activities, e-mail Palucci at JMPalucci@aol.com.

Relaxing in the Rockies

An enthusiastic group of women from the Rocky Mountain Tigers Chapter enjoyed a luncheon on May 4 at the Fourth Story Restaurant in the Tattered Cover Book Store in Cherry Creek, Colo.

The chapter sponsored the luncheon with diversity event funding from the MU Alumni Association. Guest speaker Jennifer Walker, executive director of the Women's Crisis Center in Castle Rock, Colo., discussed strategies for handling the stress that many women face.

During the program, husbands and children of some of the attendees met at a nearby indoor playground, where the chapter provided coffee for the dads and balloons for the kids.

Bayou City Fetes Freshmen

A dozen incoming freshmen and their parents were guests at the Bayou City Tigers Chapter's Off to Mizzou party June 9. The 45 attendees enjoyed homemade lasagna, salads and desserts. Thanks to Pat Treat, AB '70, MA '76, for organizing the event, and to Owen Anglum, BS PA '63, and his wife, Carolyn Anglum, BS BA '61, for hosting the party in their Houston home.

Mission Statement

The MU Alumni Association proudly supports the best interests and traditions of Missouri's flagship university and its alumni worldwide. Lifelong relationships are the foundation of our support. These relationships are enhanced through advocacy, communication and volunteerism

ALUMNI CONNECTION

SEPTEMBER

6 Ag Alumni Organization Tiger Ag Classic and Steak Fry

7 Varsity M women's sports reunion

11 Tourin' Tigers: Alumni College Abroad, Greece

13 True Tigers fall kickoff celebration

16 Tourin' Tigers: Alumni College Abroad, Kenya Wildlife Safari

23 Tourin' Tigers: Alumni College Abroad, Sorrento

26 True Tigers networking dinner

27 Leaders Banquet and Awards Program, 6 p.m., Reynolds Alumni Center

29 Rocky Mountain Tigers Chapter tailgate

OCTOBER

1 Rocky Mountain Tigers Chapter blood drive

Tourin' Tigers: Cote du Rhone/Soane

4 Faculty-Alumni Awards banquet, Reynolds Alumni Center

Tourin' Tigers: Tiger Tops Around the World

5 True Tigers tailgate

6 Tourin' Tigers: Classic Danube Passage

Engineering Alumni Organization golf tournament, 10:30 a.m., A.L. Gustin Golf Course, contact Larry Frevert at (816) 513-2618

8 Greater Ozarks Chapter Mizzou reception at Springfield college fair

25 Physicians Alumni Weekend

26 Homecoming parade and MU vs. KU football game

Ag Alumni Organization Homecoming tailgate

NOVEMBER

2 True Tigers road trip to Mizzou vs. Iowa State football game

3 Valley of the Sun Chapter Big 12 picnic, noon to 5 p.m., Kiwanis Park, Tempe, Ariz.

18 Arts and Science Alumni Organization Mizzou on Tour event, St. Louis

TIGERS FOR LIFE

THE MU ALUMNI ASSOCIATION RECEIVED top honors for its Tiger Plaza endowed life membership campaign from the Council for Advancement and Support of Education. MUAA won a 2002 Seal of Excellence Award in the category of model alumni membership dues programs. The award was presented during the CASE International Assembly in Chicago on July 8.

The alumni association is funding construction of Tiger Plaza, which will feature a bronze tiger sculpture and a waterfall, on the South Quadrangle. As part of its membership campaign, the association will permanently inscribe on Tiger Plaza the names of endowed life members who joined by June 30, 2002. The campaign launched in the Fall 2001 issue of MIZZOU.

The campaign attracted 1,800 new endowed life members in addition to 225 prior life members who increased their commitment by each donating $500 to the plaza.

NEW MIZZOU ALUMNI PROWL INTO THE FUTURE

WHEN TIM HODITS WAS A FRESHMAN, HE gamely took part in an unusual version of Tiger Walk. Because the Columns were being restored, the event was moved to the South Quadrangle east of Reynolds Alumni Center. Instead of walking through the Columns toward Jesse Hall, the freshmen walked through imitation pillars.

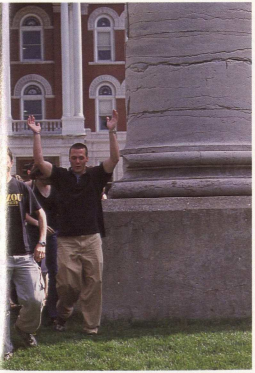
In May 2002, Hodits and other seniors gathered for Tiger Prowl, in which they walked north from Jesse Hall through the Columns to signify their entrance into the world as alumni. "It meant so much to be on the actual Quadrangle and walking past the most historic buildings on campus and through the Columns, the most historic part of campus," says Hodits, who earned a bachelor's degree in psychology. Tiger Prowl, a program of the MU Alumni Association, capped a memorable college career for Hodits.

Truman the Tiger escorts Tim Hodits, center, and Chris Stewart, BJ '02, through the Columns during Tiger Prowl, a tradition for graduating seniors.

He was tapped as a member of two honor societies, QEBH and Mortar Board, and was Homecoming king in 2001. Hodits also was a Summer Welcome leader, chief justice of the Missouri Students Association Student Court, president of the campus chapter of Habitat for Humanity, and a volunteer at a nutrition center in Honduras.

In August, Hodits moved to the South Pacific to be a full-time volunteer with the Jesuit Volunteer Corps, teaching high school in Chuuk, Micronesia.

"It's something I've always wanted to do," he says of volunteering. Hodits maintains that the experience will help him clarify his long-term goals, which include attending law school when he concludes his two-year teaching commitment.



Tiger Contacts

Keep in touch with Mizzou. New Tiger Contacts listed below would like to hear from area alumni.

California
San Francisco Bay area (2,445 alumni)
Angie Austin Dake, AB '97
(650) 701-1020 (home)
adake@relativitygroup.com or
Jayme Salinardi, AB '94, JD '99
(415) 440-8159 (home)
jsalinardi@hotmail.com

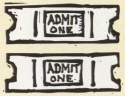
Illinois
Chicago area (3,500 alumni)
Jennifer Lee Wittman, BS BA '89
(312) 274-1416 (home)
jwittman@scient.com

Kansas
Wichita area (454 alumni)
Cathleen Conroy-Brokaw, BS Ed '93
(316) 744-2855 (home)
conroybrokaw@cox.net

For Members Only

Recent Grads Score Season Tickets

Members of the MU Alumni Association who have graduated since May 1999 may purchase Mizzou football season tickets at a special rate in a section reserved for young, energetic alumni. The cost is $126 per season ticket plus a $5 handling charge. Eligible MUAA members may purchase a maximum of two season tickets at this special rate. To take advantage of this offer, call 1-800-CAT-PAWS or locally 884-PAWS.



Alumni who order this season ticket package also become a Booster Level member of the Tiger Scholarship Fund at no additional cost. The fund supports student-athletes. For more information go to http://www.mizzou.com.

Click to Keep in Touch

A new look and easier navigation greet visitors to MUAA's Web site, http://www.mizzou.com. The Members Only section includes an expanded, easier-to-use online directory allowing alumni to find current information on friends and peers worldwide.

Great Gift for MU Fans

The start of the school year and football season brings out the Tiger fan in lots of folks. A great gift idea for the Tiger faithful who did not attend Mizzou is a membership in the MU Alumni Association. The association welcomes Tiger fans and friends of the University, who need not be graduates of MU. Nongraduates who belong to MUAA receive the annual MU campus calendar, MIZZOU magazine and all the other benefits of membership. For more information call 1-800-372-6822.

Save on Sportswear

Some of the most popular items in the association's membership discount program are sportswear and MU logo merchandise. Alumni who show their membership card save 10 percent at University Bookstore in Brady Commons and 15 percent at the Tiger Team Store in Memorial Stadium. Both stores also offer member discounts online. In the St. Louis area, MUAA members may save 10 percent at Mizzou Connection in Creve Coeur. For a complete listing of discounts, go to http://www.mizzou.com.

Track the Tail

Congratulations to these winners who found Truman's tail on Page 46 of the Summer issue: June Wuest Becht, BS Ed '51, of St. Louis; Charles Isely III, AB '53, of Waukegan, Ill.; Sara Acuff Smith, BS Ed '70, of Independence, Mo.; and Dana Wiswall, a student from Fayette, Mo.

When you find Truman's missing tail in this issue of MIZZOU, mail or e-mail us the message "I found Truman's tail on Page _" to Truman's Tail, 123 Reynolds Alumni Center, Columbia, MO 65211 or muaa@mizzou.com. Be sure to include your name, address and student ID number/class years. Please submit only one entry per issue. We will conduct a random drawing from all the entries that are received before Oct. 1 for a free tiger tail.

'I Have Bees for Brothers'

Using her own version of the Socratic method, poet and writer Margaret Leong, AB '42, has spent decades helping children create a lively brand of verse. She graduated from MU with degrees in English and history, married journalist David Leong, BJ '42, and lived for 14 years in Singapore, where she began teaching. She returned to the United States in 1965 and worked for 30 years in inner-city elementary schools as a guidance counselor and poet.

Leong discovered that she had developed her own method of instruction while typing up an account of one of her writing sessions with children. "Question marks! Question marks!" she says. "I was always banging the question mark. I realized that what I had been doing all along was using a variation of the Socratic method to stir the children's imaginations."

Here's a sample of a Socratic session she held with second-graders:

Leong: Pretend you're something crazy. What do you want to be?

Children: Dog, cat, bird, beetle.

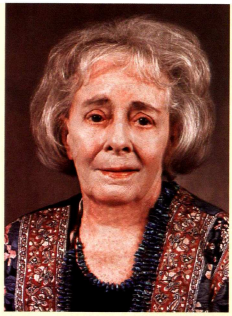
Leong: I like the beetle. Let's use that. What color are you?

Children: Brown, white, black, etc.

Leong: I never heard of a white beetle before. Let's use that.

"I am a white beetle"

Leong: What do you look like?



Margaret Leong, AB '42, wrote and taught poetry in Singapore and New York for more than 40 years. Now a resident of Columbia, she has endowed a poetry writing contest for MU students who write for or with children.

Children: I got a long tail.

I got whiskers.

Leong: OK, what color whiskers?

Children: White whiskers, red whiskers, blue whiskers.

Leong: Blue whiskers sound good. Let's say, "With blue whiskers"

Leong: What else are you?

Children: I am a coconut. I'm a cat.

Leong: What color coconut?

Children: Orange coconut.

Leong: Good. Let's put

"Or an orange coconut" . . .

The full session resulted in the following poem:

The White Beetle

I am a white beetle
With blue whiskers
Or an orange coconut
I live in a cave
With a bear fairy
Sometimes I live with astronauts of rocks
We're married!
I have bees for brothers
They fly all day
But I wish I were a brown apple
So I could live in a tree
I wish I were a bird
So I could eat snails and worms
I live in a crocodile house
In a funny zoo
But I wish I had an eagle called Flegal
With a wife named Wegal
I would also like to have a kangaroo
Made of pink cheese
If I had one I would stand on my head
All day long
I would bite bones and pout.

The poet has endowed the Margaret Leong Children's Poetry Prizes, a contest open to MU students who submit poems written for or with young children. The first winner, English graduate student Bern Mulvey, received the $250 first prize in April for his poem "Wealth." — *Dale Smith*

The Thirties

•Claude Hills, MA '35, of Flourtown, Pa., was voted into the U.S. Masters Track and Field Hall of Fame.

Frederick Robbins, AB '36, BS Med '38, DS '58, of Shaker Heights, Ohio, was honored with the establishment of the Frederick C. Robbins Professorship in Child and Adolescent Health at Case Western Reserve University.

The Forties

•Harry Ball, BS AgE '40, of Traverse City, Mich., is a fellow member of the National Society of Professional Engineers.

•H. Mildred Hunt Schuckenbrock, BS Ed '40, and husband **•R.J. Schuckenbrock,** BS Ag '41, of Chillicothe, Mo., celebrated their 60th wedding anniversary May 23.

•Billie Nelson Milne, BS Ed '41, and husband **•Dale Milne,** BS Ag '42, of Westminster, Colo., celebrated their 60th wedding anniversary Feb. 14.

•John Kailer, BJ '47, of Albuquerque, N.M., was inducted into the Albuquerque Sports Hall of Fame on Feb. 6. He is a free-lance sports writer for the *Albuquerque Journal*.

CLASS NOTES

Scouting Report

Although Bill Clark, BJ '58, is the international scouting supervisor for the San Diego Padres, he has only been to San Diego three times. "I've never even seen the Padres play!" says Clark. "I'm traveling all the time."

Why? Major-league baseball, he says, wised up some time ago and realized that the greatest untapped pool of raw baseball talent was overseas. The reasons? A better work ethic and no agents to deal with, Clark says.

Clark hasn't dealt with many agents in Columbia, his home base. He never played for MU ("I couldn't hit!"), much less professionally. But his umpire training and the steady eye he displayed for nearly 40 years behind the plate in Columbia convinced the Pittsburgh Pirates he'd make a great scout.

Clark has since scouted for so many teams, that some of them no longer exist (Seattle Pilots). He still keeps a close eye on the Columbia sports scene, but the real action these days, he says, is in the Caribbean. Center fielder Andruw Jones and shortstop Rafael Furcal of the Atlanta Braves, two of the 100-odd international players he has signed, are both from the Caribbean. "The Caribbean is the breadbasket of baseball," Clark says. "It's the No. 1 sport there."

So what does an international baseball scout look for when he's watching teams in New Zealand or Santo Domingo? "A player has to be able to win without the bat," says Clark. "I look for athletic ability first — the ability to run, throw, catch. Success is built on speed. If a young player can hit, that's great. But that's not what I look for first."

Clark has also written and self-published two books — *The Hundred Year History of the Audubon Society of Missouri* and *The Saga of the Joints*, on his recovery from total replacement of both knees and hips. His recovery was so complete, in fact, that he's won seven national weightlifting titles. "I can still do 50 reps of up to 1,000 pounds in the harness lift," he says proudly. "Not bad, considering I was once incapable of walking."

Clark still rides a stationary bike one hour a day.

"Scouting keeps me young, too," says the 69-year-old Clark. "It's all futuristic. No one can truly tell how these kids will work out. It's all projection."

— *Neal William Fandek*

Baseball scout Bill Clark's home base is Columbia, but he travels the world in search of young players who might be good enough for the big leagues.

•Kenneth Walkup, BS Ag '48, and wife **•E. Virginia Black Walkup,** AB '48, of Parkville, Mo., celebrated their 55th wedding anniversary June 3.

•John Warfield, AB, BS EE '48, MS '49, of Palm Harbor, Fla., wrote *Understanding Complexity: Thought and Behavior*, published by AJAR Publishing Co.

The Fifties

Wayne Waldo, LLD '50, and wife Doris Jean of Lee's Summit, Mo., celebrated their 50th wedding anniversary in February.

•Robert Binkley, BS BA '53, and wife Joanne of Phoenix celebrated their 25th wedding anniversary July 31, 2001.

•David Lipman, BJ '53, of Creve Coeur, Mo., was elected to the Missouri Writers Hall of Fame.

•Jack Revare, BS BA '54, of Shawnee Mission, Kan., wrote *Descendants of Jacques Reverd of France and Daniel Lake of North Carolina*, published by Gateway Press.

•John Campbell, BS Ag '55, MS '56, PhD '60, of Columbia and daughter **Karen Campbell,** BS Ag '77, DVM '79, of Urbana, Ill., wrote *Animal Sciences: The Biology, Care, and Production of Domestic Animals*, published by McGraw-Hill.

•Glen Huskey, BS Ag '56, MS '57, PhD '66, and wife **•Janet Castor Huskey,** BS Ed '66, of Valencia, Calif., returned from volunteering in Ukraine with the International Executive Service Corps. They helped four dairies develop business and marketing plans, and improve quality control.

Joyce Sehl Bishop, BS Ed '57, of Liberty, Mo., retired from teaching at Liberty Senior High in 1998. She taught business education for 14 years and social studies for 12 years in Liberty and Montgomery City, Mo.

•Hal LeMert Jr., AB '58, of Jefferson City, Mo., is interim associate pastor for campus ministry at First Presbyterian Church of Columbia.

The Sixties

•Norman Benedict, Arts '61, of

CLASS NOTES

Columbia is chief executive officer of Norman-Robert Communications, which received a Silver Award of Distinction in the 2002 Communicator Awards Print Media Competition.

C.P. Patrick Reid, BSF '61, of Tucson, Ariz., is president of the National Association of Professional Forestry Schools and Colleges.

•Joe Greene, JD '62, of Springfield, Mo., is a member of Husch & Eppenberger LLC.

•John Romjue, AB '62, MA '63, of Yorktown, Va., wrote *Out of the Riven Century* and *Witches of Devon*, published by Xlibris, under the pen name Nickell John Romjue.

•Gary Tatlow, AB '62, JD '64, and wife

•Marilyn Silvey Tatlow, AB '62, of Columbia received the 2002 Alumni of the Year Award from MU's College of Arts and Science.

•Theodore Baldwin, MD '63, of Liberty, Mo., retired from family practice in December.

•Warren Dennis, M Ed '63, of Tempe, Ariz., is director of music at the First United Methodist Church.

•Lillian Bingenheimer Bjorseth, BJ '64, of Lisle, Ill., wrote and published *52 Ways to Break the Ice and Target Your Market*.

•Myles Friedman, MA '64, of Fort Smith, Ark., retired from Southwest Engineering after 35 years of service. He operates soybean farms in Daviess, DeKalb and Gentry counties in Missouri.

•Thomas Jones, BS BA '64, of Arlington, Texas, retired as a pilot with Delta Airlines Inc. after 32 years of service.

•David Stalling, MS '64, PhD '67, of Lenexa, Kan., is chief operating officer of Primus Corp.

•Carolynne Chapman Casey, BSN '65, of Coronado, Calif., received her doctoral degree in nursing from the University of San Diego in May.

•Gary Long, BS ChE '65, of Columbia is vice president of Alliance Engineering in Houston. His wife, **•Eileen Blue Long,** BSW '92, MSW '97, is a medical social worker at St. Mary's Hospital in Jefferson City, Mo.

•Janice Smith Gaylord, BS Ed '66, of Atlanta is a nationally certified teacher of adolescence and young adulthood in mathematics. She is chair of mathematics at North Springs High School.

JOHN SLUSHER, BS BA '66, OF CEDAR RAPIDS, IOWA, SHARES SOME WISDOM ON LIVING LIFE TO THE FULLEST: BE ACTIVE, DON'T COMPLAIN AND MAKE THE BEST OF YOUR CIRCUMSTANCES.

Craig Tracy, BS '67, of Sacramento, Calif., received the 2002 George Pólya Prize from the Society for Industrial and Applied Mathematics for his work with Harold Widom on random matrix theory.

•Joy Trover Borgman, MS '68, of Kissimmee, Fla., is director of human resources for Kissimmee Animal Hospital Inc.

•James Lusby, BS EE '68, of Belton, Mo., is vice president of Black & Veatch.

•Larry Moore, MA '68, of Kansas City, Mo., received the John J. Sullivan Foundation Humanitarian Award from the Irish Museum and Cultural Center of Greater Kansas City and the 2002 Sonny Slater Award from the Kansas Association of Broadcasters.

•John Morris, AB '68, of Oxford, Mich., retired in 2000 and enjoys spending time with his family and golfing.

Lynne Thybony O'Shea, AB, BJ '68, MA '71, of Wilmette, Ill., is a member of the board of advisers for Clark/Bardes Consulting.

•Paul Welsh, BJ '68, of Leawood, Kan., was named 2001 Advertising Professional of the Year by the Advertising Club of Kansas City.

•James Bullis, AB '69, MA '71, PhD '94, of Farmington, Mo., retired as dean

of arts and sciences at Mineral Area College in June 2001.

Wayne Hunthausen, AB '69, DVM '79, of Shawnee Mission, Kan., received the Friskies Petcare Award from the American Animal Hospital Association for outstanding contributions to canine and feline behavior medicine.

•Betty James Knight, BS HE '69, of Platte City, Mo., is 2002 president of the Missouri Association of Counties.

Judy Jones Leaver, AB '69, of Washington, D.C., is a free-lance grant writer for nonprofit agencies.

•Leighton McCormick, BJ '69, of Webster Groves, Mo., wrote *Knock 3 Times*, published by Employment Systems Associates LLC.

Ruth Croswhite Witt, AB '69, MA '72, of Columbia created the pastel *Fishing at Sunset*, which the Missouri Governor's Conference on Aging chose for its poster.

The Seventies

•Roy Beck, BJ '70, of Arlington, Va., is executive director of NumbersUSA.com.

Bill Blizek, PhD '70, of Omaha, Neb., received the 2002 Outstanding Teaching and Instructional Creativity Award from the University of Nebraska.

•Robert Boston, BS Ed '70, and wife Deana of O'Fallon, Mo., announce the birth of Bryn Elisabeth on June 9, 2001.

•Col. Donald Elbert, BS Ag '70, M Ed '71, EdSp '95, of Washington, Mo., retired after 32 years of service in active and reserve component assignments.

Richard Hadfield, BS Ed '70, M Ed '71, of Columbia retired as band director of Rock Bridge High School after 30 years of service.

Richard Markoff, M Ed '70, of Indianapolis is executive director of the Simon Youth Foundation.

•Ann McCoole Rigby, BS Ed '70, of Paradise Valley, Ariz., wrote "Someone to Hold Onto" for *Chicken Soup for the Kid's Soul*, published by Health Communications Audio.

•Roger Birdsong, BS Ag '71, of Columbia is senior vice president at the Columbia Insurance Group.

Mike Metheny, BS Ed '71, of Independence, Mo., released *Close Enough for Love*, his sixth solo album.

•Gary Myers, BS Ag '71, of Jefferson, Wis., received the Dorothy Thomas Black Award from the Southeastern Wisconsin chapter of the Public Relations Society of America.

•Larry Pfautsch, BJ '71, of Harrisonville, Mo., is director of corporate communications for American Century.

•William Schoenhard Jr., BS PA '71, of St. Louis is a member of the American

Teaching Kids to See

In high school, Ben Wentworth had a permanently assigned seat in detention hall for two years. He graduated 61st in a class of 62. Four decades later, he was selected as the 2001 Disney American Teacher of the Year from 110,000 nominations.

"I teach the way I wish I had been taught," says Wentworth, BS Ed '73, the science and history teacher for visually impaired students in grades seven through 12 at the Colorado School for the Deaf and the Blind in Colorado Springs. It wasn't until he was an adult that Wentworth learned he has a reading disability and attention deficit disorder. He also says he has a wild imagination, which serves him well as a teacher.

Imagine trying to describe a shadow to a child who has been blind from birth. Wentworth lines the kids up against a wall, squirts them with water, and then asks them to step away from the wall. The dry portion of the wall, he explains, is a shadow. Because the water can't pass through the kids, their bodies create shadows. Wentworth then helps the students plot shadows outdoors using a device equipped with photoelectric cells. When the sun shines, the device vibrates loudly. The noise stops when something blocks the sun and casts a shadow.

"I have to teach lessons using four senses rather than five," Wentworth says. His innovations include the only self-standing tactile planetarium in North America, a walk-in model of a cell and a magnetic board on which different shapes stand for different elements in the periodic table. In history class, Wentworth's students re-enact World War battles by moving game pieces on textured maps. If they move their piece in the wrong direction, the class discusses how that would have changed history.

Because Wentworth's students have varying abilities, he prepares three or four lesson plans for each class period. "All of my blind kids can see," he says. "They just see differently as to how they get the information inside their minds. We see with our minds, not with our eyes." — *Carol Hunter*

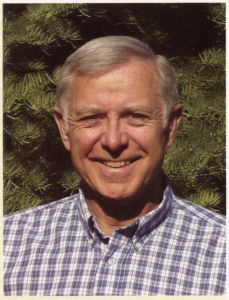


Photo Courtesy of Ben Wentworth

Ben Wentworth became a teacher after 22 years in the military. "I realized the way to effect the greatest change was to go into education," says the Disney American Teacher of the Year.

FROM THE FARM TO THE PENTAGON

IN THE PAST YEAR, AMERICANS HAVE received a crash course in the severity and variety of modern weapons of mass destruction. Whether they are as sophisticated as a potent, dispersible strain of anthrax or as mundane as a passenger airplane, these weapons are designed to devastate, and any defense against them requires precision and preparation. "The world is different now than it was before," Dale Klein says. "What we once thought *could* happen *has* happened."

As assistant to the secretary of defense for nuclear, chemical and biological defense programs, Klein, BS ME '70, MS '71, PhD '77, spends his days dealing with matters of nuclear weapons security, and chemical and biological defense programs, among other responsibilities. President George W. Bush appointed him to the position in 2001.

"When I was growing up, if anyone had told me I'd end up working at the Pentagon, it would have been beyond my comprehension," Klein says.

He grew up on a grain and dairy farm about five miles outside of Clarksburg, Mo. In high school, his mother and grandmother encouraged him to broaden his horizons. Klein listened. He became the first person in his family to attend college when he entered MU's mechanical engineering program.

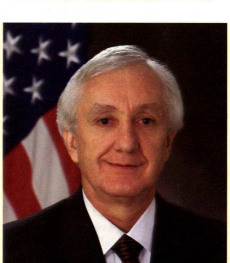


PHOTO COURTESY OF DALE KLEIN

Dale Klein, assistant to the secretary of defense for nuclear, chemical and biological defense programs, visited MU in May to speak to students in the engineering course, Science and Technology of Terrorism and Counterterrorism.

"I saw what electricity did for farm families," Klein says. "I wanted to take part in that and find an environmentally friendly way to provide it."

Klein went on to teach at the University of Texas at Austin, and he has been an active member on a number of Department of Energy national committees, and chairman and executive director of the Amarillo National Research Center.

Most of Klein's current work at the Pentagon involves national security, so he can't say much about it. What he can say is that it's been an eye-opening experience.

"I don't come from a military background, so I've been on a steep learning curve," Klein says. "I've been particularly impressed with the work ethic, competence and dedication of our military personnel and civilian employees at the Pentagon."

Klein's appointment will last throughout Bush's term in office, or as Klein says, "I serve at the pleasure of the president." — *Sona Pai*

College of Healthcare Executives Board of Governors.

•William Sisk, BS IE '71, of New York is director of Novare-Solutions.

•Stephen Turner, AB, MA, MA '71, PhD '75, of St. Pete Beach, Fla., wrote *Brains/Practice/Relativism: Social Theory after Cognitive Science*, published by University of Chicago Press.

Robert Dudney, BJ '72, of McLean, Va., is editor in chief of *Air Force Magazine*.

•Scott Henderson, BS EE '72, MS '73, of Carlisle, Mass., is vice president of engineering for Kronos Inc.

•Bob McCullough, MA '72, of San Antonio is director of corporate communications for City Public Service.

Janet Young Miranda, BS Ed '72, of Dallas was named the 2002 National High School Counselor of the Year by the National Association of Christian College Admission Counselors.

•Janet House Brooks, BHS '73, of Kansas City, Mo., is president and chief executive officer of Employer Health Services.

Debra Schuyler Finkel, BJ '73, of Creve Coeur, Mo., received a Crystal Award of Excellence and an Award of Distinction from the 2002 Communicator Awards Print Media Competition.

•Stephen Phillips, BS Ag '73, MS '75, MD '78, of Rochester, Minn., is senior consultant in breast imaging in the department of radiology at the Mayo Clinic.

•Marcida Dodson, BJ '74, of Irvine, Calif., is senior editor for marketing and public relations at the University of California-Irvine Medical Center.

John Harrington, BS CiE '74, of Irvine, Calif., is vice president and general manager of The Austin Co.'s western region office.

ALBERT DONALDSON, MS '76, OF OAKTON, VA., IS HELPING TO KEEP YOUR INBOX CLEAR. IN 2001 HE RECEIVED A PATENT FOR A PRODUCT THAT FILTERS SPAM, OR JUNK E-MAIL.

•Brian Holloway, AB '74, MA '75, of Beaver, W.Va., is associate vice president of academic affairs at Moun-

tain State University.
Maggie Jensen, BJ '74, of St. Paul, Minn., received accreditation from the Public Relations Society of America.
•Phillip Mateja, BS Ed '74, of Orono, Maine, is an athletic trainer for HealthSouth.
Eugenie Scott, PhD '74, of Berkeley, Calif., received the Public Service Award from the National Science Board.
Ben Upp, JD '74, of Springfield, Mo., joined Husch & Eppenberger LLC of counsel.
•Ellen Harbourt Eyberg, AB '75, MA '83, of El Paso, Texas, is manager of a Lower Valley Public Library branch.
Brig. Gen. Barbara Campbell Fast, BS Ed '75, of Stuttgart-Vaihingen, Germany, received an honorary doctor of laws degree from Central Missouri State University for her achievements as director of intelligence at U.S. European Command headquarters.
•John Thompson, BS BA '75, MBA '77, of Grover, Mo., is president of Lighthouse for the Blind in St. Louis.
•Michael Hengel, BJ '76, of Holland, Mich., is publisher of the *Holland Sentinel*.
•Col. H. Martin Jayne, JD '76, of Kirksville, Mo., teaches in the criminal justice department at Truman State University. He retired from the Air Force after 31 years of service.
•Gary Metzker, BJ '76, and wife Andrea of Long Beach, Calif., announce the birth of Graham Raymond on March 21, 2001.
Larry Meyer, BJ '76, of Miami is vice president of communications for the John S. and James L. Knight Foundation.
G. Ann Schultis, MA '76, of Kansas City, Mo., is associate professor of library science at Park University.
Timothy Wenzl, AB '76, of Dodge City, Kan., wrote *A Legacy of Faith: The History of the Diocese of Dodge City*, published by Mennonite Press.
William Croker, BS CiE '77, of Manchester, Mo., is 2002 president of the Missouri Chapter of the American Public Works Association.
•Raye Meyer Dawson, BS BA '77, of Creve Coeur, Mo., is a field engineering assistant for FM Global.
•Carter Dunkin, BJ '77, MBA '79, of Des Peres, Mo., is president of Value Builders.
•John Kruse, BS BA '77, MA '78, of Columbia is senior vice president of finance for MFA Oil Co.
•Linda Whelan Miller, BJ '77, of Monroe City, Mo., is owner and publisher of *The Lake Gazette*.
•John Pinzino, Bus '77, of St. Joseph, Mo., is senior vice president at Commerce Bank.
•Robert Wilkinson, AB '77, of Fenton, Mo., is a member of Husch & Eppenberger LLC.
•Mitch Berk, BJ '78, of Highland Park, Ill., is president and chief executive officer of Entertainment Marketing Inc., a full service entertainment, sports and lifestyle marketing company.
Robert Leger, BJ '78, of Springfield, Mo., is president of the Society of Professional Journalists. He is editorial page editor of the *Springfield* (Mo.) *News-Leader*.
•Lynn Bigelow O'Shaughnessy, BJ '78, of La Mesa, Calif., wrote *Retirement Bible* and *Investing Bible*, published by John Wiley and Sons.
•Walter Swanson, EdD '78, is superintendent of Stillwater (Okla.) Public Schools.
Robert Terry, BS BA '78, JD '81, of Leawood, Kan., is president and chief executive officer of Farmland Industries Inc.
•Steve Twitchell, AB '78, of Columbia owns an audio and video production studio, which won silver and bronze Telly awards for its work with the Missouri Hospital Association and the Missouri Baptist Foundation.
•Ron Brauer, BS BA '79, MBA '81, of Dallas is owner of Eagle Postal Centers.
•Rex Clevenger, BS BA '79, of Houston is senior vice president of finance for Reliant Resources Inc.
•Janice Heumann, BS '79, MA '93, of Columbia is program director for New Horizons Community Support Services.

The Eighties

Scott Clark, BJ '80, of Houston is vice president of HoustonChronicle.com and business editor for the *Houston Chronicle*.
•Susan Hedges Potter, BS HE '80, of St. Charles, Mo., is an interior designer for Spellman Brady & Co.
•Joanne Waldman, AB '80, M Ed '82, of Chesterfield, Mo., started New Perspective Coaching and is a career, life and retirement coach.
Susie Abram Zammar, BS Ed '80, of Lee's Summit, Mo., was named Lee's Summit R-7 School District Teacher of the Year.
Dan Blair, BJ '81, JD '84, of Washington, D.C., is deputy director of the U.S. Office of Personnel Management.
•Dana Schultz Carter, BS BA '81, and husband Will of Devine, Texas, announce the birth of twins Mattie and Jake Thomas on May 6.
•Mark Casteel, BS BA '81, and wife
•Mary McHaney Casteel, BJ '83, of Tallahassee, Fla., announce the birth of Mary Elizabeth on Feb. 10.
•Gregory Hamilton, AB, BJ '81, of New York is publisher of Aviation Week Strategic Media.
Alexander Robb, BS ChE '81, of Blue Springs, Mo., is partner in the litigation department of Stinson Morrison Hecker LLP.
•Scot Seabaugh, BS BA '81, of St. Louis is a member of Polsinelli, Shalton & Welte in the financial services practice group.
•Gregory Stratman, AB '81, MA '83, PhD '96, of Rolla, Mo., wrote *Speaking for Howells: Charting the Dean's Career Through the Language of His Characters*, published by University Press of America.
•Ann Marie Dalrymple Baker, BS BA '82, of Springfield, Mo., is community bank president for UMB Bank.
Tanya Barrientos, BJ '82, of Abington,

Pa., wrote *Frontera Street*, published by New American Library Trade. She is a columnist for the *Philadelphia Inquirer*.

•Jann Carl, BJ '82, of Pasadena, Calif., signed a multiyear contract with *Entertainment Tonight* as primary substitute anchor for Mary Hart. She is also weekend anchor and correspondent for the show.

•Carol McCutcheon Davis, BS Ed '82, of Canton, Ill., was accepted to MU's College of Education doctoral program. She facilitates at an at-risk alternative high school in Illinois.

Jon Kiser, BS Ed '82, JD '85, and wife **Pamela Howard Kiser,** BHS '83, of Piedmont, Mo., announce the birth of Jacy Erin on April 17.

•Allen Pollock, MPA '82, of Jefferson City, Mo., is executive director of the Jefferson City Housing Authority.

Kelly Ring, BJ '82, and husband Ed Bulleit of Tampa, Fla., announce the birth of Raleigh Edwin on April 26.

Elane Breedlove Rogers, BJ '82, of Brooksville, Fla., received a master's in elementary education from the University of South Florida on May 4. She is a first-grade teacher at Moton Elementary School.

•Steve Sutton, BS Acc '82, MA '84, PhD '87, of Vernon Rockville, Conn., is professor of accounting at the University of Connecticut and a professorial fellow of accounting and business information systems at the University of Melbourne, Australia.

•Randall Thoenen, BS Ag '82, of Chamois, Mo., is vice president of Linn State Bank.

•John Bassford, BJ '83, and wife **•Karen Bassford** of Platte City, Mo., announce the birth of Travis Joseph on Nov. 12.

Preecha Jarungidanan, PhD '83, of Bangkok, Thailand, is president of the National Institute of Development Administration.

•Jodi Krantz, BJ '83, of Jefferson City, Mo., was named Governmental Member of the Year by the Missouri Economic Development Council.

•Fred Moreadith Jr., BES '83, MA '84, of Reading, Pa., is an account executive for Paloma Blanca.

Robert Picard, PhD '83, of Turku, Finland, wrote *The Economics and Financing of Media Companies*, published by Fordham University Press.

•Julie Koonse Sturm, AB '83, of Shawnee Mission, Kan., is a member of the National Society of the Daughters of the American Revolution.

•José Gutiérrez, BS Acc '84, of Chesterfield, Mo., is senior vice president of SBC Communications.

•D. Adam Hall, BS BA '84, of Columbia is director of marketing and sales for the Missouri Lottery.

Kim Royston Hoffman, BHS '84, MA '93, PhD '00, of Columbia received the 2002 Division 1 Award for the Best Paper by a New Investigator from the American Educational Research Association.

Greg Kern, BJ '84, and wife Donna Cavallini of Fort Collins, Colo., announce the birth of Ceilidh Olivia on March 13. Greg wrote *Play The Game*, published by Writers Club Press.

Jeffrey Love, JD '84, of Springfield, Mo., joined Husch & Eppenberger LLC of counsel.

•Joseph Osman, BS '84, of Utica, N.Y., successfully defended his doctoral dissertation in Syracuse University's solid state science and technology program.

Carolyn Null Perry, AB '84, PhD '90, of Fulton, Mo., and **Mary Louise Weaks,** PhD '88, of Rockford, Ill., wrote *The History of Southern Women's Literature*, published by Louisiana State University Press.

Linda Salfrank, AB '84, JD '88, of Kansas City, Mo., is a partner with Blackwell Sanders Peper Martin LLP.

•Brad Schultz, BJ '84, of Oxford, Miss., is an assistant professor of journalism at the University of Mississippi in Oxford. He wrote *Sports Broadcasting*, published by Focal Press.

•Jean Viox, AB '84, of Columbia is an account executive for KMIZ-TV.

•Brett Anders, BJ '85, JD '88, and wife **•Maria Matava Anders,** BS HE '87, of Kansas City, Mo., announce the birth of Joseph Matthew on Feb. 1, 2001.

•Denny Douglas, BS ME '85, of Festus, Mo., is area manager and design engineer for Southwestern Bell-Ameritech.

•David Hill, BS Ag '85, of Alexandria, Va., is deputy general counsel for energy policy for the U.S. Department of Energy.

•R. Scott Richart, AB '85, and wife Susan of Kansas City, Mo., announce the birth of Brenna Candyce on March 11, 2001. Scott is a partner with Welch, Martin & Albano LLC.

•Linda Garber Willson, BJ '85, MBA '88, and husband **•Robert Willson,** AB, AB '88, of Prairie Village, Kan., announce the birth of twins Jacob and Madeline on Sept. 26, 2001.

•Earl Niemeyer, BS Ag '86, of Bowling Green, Mo., is president of the Bowling Green Rotary Club.

•Gregg Seibert, BS BA '86, MBA '87, of Scottsdale, Ariz., is senior vice president with GE Capital.

Tom Ciombor, BS HE '87, and wife **Jennifer Jeransky Ciombor,** BJ '88, of Wheaton, Ill., announce the birth of Nicholas Michael on Dec. 22.

Scott Cutter, AB '87, JD '90, and wife **Tammi Wilkerson Cutter,** BS Ag '89, of Kansas City, Mo., announce the birth of Matthew Slade on March 6. Scott is a partner with Jennings, Linscott & Cutter.

•Brian Handly, BS BA '87, and wife Robyn of Wake Forest, N.C., announce the birth of son Campbell on July 21, 2001.

Andrew Kirkendall, MA '87, of Bryan, Texas, wrote *Class Mates: Male Student Culture and the Making of a Political Class in Nineteenth-Century Brazil*, published by University of Nebraska Press.

Margot Roberson McMillen, MA '87, of Fulton, Mo., and **Heather Roberson,** Arts '97, of Columbia wrote *Called to Courage: Four Women in Missouri History*, published by University of Missouri Press.

CLASS NOTES

Paul Milonas, BS Ed '87, M Ed '94, and wife **Michele Torrence Milonas,** BJ '88, of Fenton, Mo., announce the birth of Zoe Michele on Jan. 23.

•Philip Ragusky, BS Ed '87, of O'Fallon, Mo., is associate principal at Hazelwood West High School.

Michele Mayes Rogers, BS Ed '87, and husband **Robb Rogers,** M Ed '88, of Murfreesboro, Tenn., announce the birth of Drake Davis on Feb. 5.

Julie Atteberry Ruhling, BM '87, and husband **Michael Ruhling,** MM '92, of Rochester, N.Y., announce the birth of Nicholas John on July 16, 2001.

•Thomas Westervelt, AB '87, of Kansas City, Mo., is an engineering executive for Cerner Corp.

•Maj. James Borders, AB '88, MD '92, of Avondale, Ariz., is flight commander of diagnostic imaging with Luke Air Force Base.

•Sara Cox, BS Ag '88, of Kansas City, Mo., is director of research and development for Williams Foods Inc.

•Jennifer Thompson Dulny, BS BA, BS BA '88, and husband Dave of Shawnee, Kan., announce the birth of Zachary David on Feb. 3.

•Todd Graves, BS Ag '88, and wife

•Tracy Bartels Graves, BS Ed '88, M Ed '93, Ed Sp '94, of Edgerton, Mo., announce the birth of Joseph Peterson on Oct. 15, 2000.

•James Kemp, BS BA '88, of St. Louis is director of development for John Burroughs School.

AS EXECUTIVE DIRECTOR OF THE MISS MISSOURI ORGANIZATION, MARY BYBEE, GRAD '89, OF MEXICO, MO., MEETS POTENTIAL MISS AMERICAS FROM ACROSS THE STATE.

John Shipman, PhD '88, of Jonesboro, Ark., wrote *The Penalty is Death,* published by University of Missouri Press.

•Mark St. Aubin, BS Ag '88, of St. Charles, Mo., is director of pediatric quality management for St. Louis Children's Hospital.

•Maj. Eric Bass, BS Ed '89, of Alexandria, Va., works at the Pentagon on Air Force human resource strategic planning issues.

•Ellen Sapp Beilsmith, BHS '89, of Kansas City, Mo., is an administrator for Carondelet Family Medical Care.

•Rachel Townsend Brown, AB '89, JD '92, and husband Michael of Kansas City, Mo., announce the birth of Diana Marfleet on Dec. 12.

Kevin Fritz, BS BA, BS BA '89, JD '93, of St. Louis is an attorney with Lashly & Baer PC.

•Paul Gassett, BJ '89, of St. Louis is director of marketing with Box Fire.

Stephanie Geeter, AB '89, of Chamblee, Ga., is president of Great Minds Creative Inc., a writing service for marketing and corporate communications.

Holly Sell Higginbotham, AB '89, and husband Roger of Columbia announce the birth of Emily Elizabeth on Dec. 16.

Brian Marquette, BS ME '89, of Houston is chief technology officer for SandCherry Inc.

•Brian Pearson, BS Acc '89, M Acc '90, and wife Angie of Kansas City, Mo., announce the birth of twins Allison Nicole and Andrew Michael on Nov. 21.

Kathy Walther Poole, BSN '89, and husband **Art Poole,** AB, AB '89, of Germantown, Wis., announce the birth of Jessica Leigh on Nov. 1.

Steven Soden, AB '89, JD '93, of Kansas City, Mo., is a partner with Shook, Hardy & Bacon LLP.

•Kerry Strubberg Wochinski, BS HES '89, of Alameda, Calif., is a financial adviser.

THE NINETIES AND 2000S

•Scott Black, BS Ed '90, and wife

THE RACE ISN'T OVER

THROUGHOUT THEIR 18-YEAR marriage, Zac March and Robin Hurst have been involved in animal rescue in some form or fashion. Hurst, BS Ed '86, M Ed '94, is a biology instructor at MU; and March, BS Ed '91, M Ed '96, is a clinical assistant and the director of information technology in the College of Veterinary Medicine. In 1995, they purchased a 120-acre farm, complete with a 100-year-old farmhouse, west of Columbia.

The couple converted the old cattle ranch into a home for retired thoroughbred horses. Now known as the Out 2 Pasture farm, it is the largest of 13 satellite farms affiliated with the Thoroughbred Retirement Foundation, which serves as a shelter and adoption agency for horses that no longer race. Some of the animals have been saved while on their way to slaughterhouses.

Many of the horses are lame or injured from their racing days. Some are winners that made their owners hundreds of thousands of dollars while in their prime. Others are simply looking for a good home. "It's exhilarating and sad at the same time," Hurst says. Some of the animals don't know what to do when turned out into a pasture with other horses. They are afraid to move because they've always lived alone in stalls and trailers.

In addition to their full-time jobs at MU, Zac March and Robin Hurst run Out 2 Pasture, a shelter and adoption agency for retired thoroughbred horses.

Out 2 Pasture works with the College of Veterinary Medicine's Equine Ambulatory Practice, to the benefit of students and horses alike. Led by faculty member Amy Rucker, students gain experience providing medical care to horses. At the same time, vets research causes and diagnoses of lameness in horses.

The farm currently has 24 resident thoroughbreds, some of whom will live out their days there. However, during the past year, March and Hurst have found homes for five horses.

—*Steve Morse*

•Laura Schwieterman Black, BS Ed '90, of Independence, Mo., announce the birth of Will Christopher on March 22.
Daniel Carpenter, BJ '90, JD '93, of St. Louis is a partner with Thompson Coburn LLP.
Larry Dorman, Arts '90, and wife **•Stephanie Keener Dorman,** BS Ed '94, of Columbia announce the birth of Stephan Lawrence on Feb. 13.
•Alex Fink, BS Ag '90, and wife **•Janet Heckman Fink,** BSN '91, of Des Moines, Iowa, announce the birth of Caroline Elizabeth on May 30, 2001.
Charles Greene, BS BA '90, of Springfield, Mo., is a member of Husch & Eppenberger LLC.
Joseph Greene, JD '90, of Springfield, Mo., is a member of Husch & Eppenberger LLC.
•Yale Hollander, AB '90, and wife Shari of Ballwin, Mo., announce the birth of Mia Carolyn on Jan. 23.
•Elizabeth Walter McKune, BS Ed '90, M Ed '91, and husband Joseph of Louisville, Ky., announce the birth of Katherine Grace on Jan. 3.
Amy Poje Robertson, BJ '90, and husband Joe of Kansas City, Mo., announce the birth of Ethan on Feb. 28, 2001.
•Kenneth Siemens, BS Acc, BS BA '90, JD '93, of St. Joseph, Mo., is a shareholder and director of Murphy, Taylor, Siemens & Elliott PC.
Margaret Baumel Stephens, BJ '90, and husband **Kevin Stephens,** BJ '90, of San Diego announce the birth of Olivia Clare on April 5.
•Melanie Basgall Watkins, BJ '90, and husband Dean of Denver announce the birth of Ryan Thomas on Aug. 14, 2001.
Lisa Roby Bruere, AB '91, and husband Charles of Ballwin, Mo., announce the birth of Ellie Beth on March 5.
•Kevin Crosby, BS Ag '91, of California, Mo., is farm manager for Ag Forté LLC.
•Eric Farris, AB '91, JD '94, is on the board of aldermen for the city of Branson, Mo.
Debbie Meyer Gabrenas, MA '91, is manager of the Sprague Branch Library in the Sugar House area of Salt Lake City.
•Tabitha Chipley Greis, BS HES '91, of Boonville, Mo., is owner and designer for Ricmar Decorating Gallery.
•Robert Lawler, BS IE '91, of Columbia is an investment representative for Edward Jones Co.
•Michelle McCaskill, AB '91, of Alexandria, Va., is a public affairs specialist for the U.S. Army Materiel Command.
•Tim Riley, BS Ag '91, of Harrisonville, Mo., is vice president of sales operations for MachineryLink.
Scott Simon, BS BA '91, of Tipton, Mo., is manager of benefit services for the Missouri State Employees' Retirement System.
Randall Thompson, BS BA '91, of St. Louis is chair of the labor and employment section of the Bar Association of Metropolitan St. Louis.
•Mark Branstetter, BS BA, BS BA '92,

MBA '93, of Crystal Lake Park, Mo., is senior vice president of McEagle Development.

•**Todd Cribb,** BS BA '92, of Kansas City, Mo., is senior interactive producer for American Century Investments.

•**Susan Johnson Hagerman,** BS HES '92, and husband Dan of Kansas City, Mo., announce the birth of Katherine Sue on April 2.

•**Craig Heisserer,** BS BA, BS BA '92, of St. Louis is a financial analyst for the May Department Store Co.

•**Beth Hudson,** BJ '92, of Whitehall, Pa., is sports writer for *The Morning Call*.

•**Paul Jackson,** MFA '92, of Columbia completed his latest watercolor, *Manhattan Memories*, which is available for viewing at http://pauljackson.com/ManhattanMemories.html.

Dave Koziatek, BS Ed '92, of Gaithersburg, Md., is chairman and founder of the Republican Research Council.

•**Christopher Lundberg,** AB '92, of Middleton, Conn., is a producer for ESPN Inc.

Julie Major, AB '92, of Miami is publications editor for the Office of the Dean of Enrollments at the University of Miami in Coral Gables, Fla.

•**Katie Collins Meyers,** BJ '92, and husband Bill of St. Louis announce the birth of daughter Madison Talbot on May 20.

•**Matthew Schelp,** BS BA, BS BA '92, JD '96, of Glendale, Mo., is an associate at Husch & Eppenberger LLC.

•**Sayla Wilford Sherard,** BS BA '92, and husband •**Vance Sherard,** BS BA '92, of Springfield, Mo., announce the birth of Katherine on Dec. 20.

David Dick, JD '93, of St. Louis is an associate with Thompson Coburn LLP.

•**Chris Diehls,** BS Acc '93, and wife •**Julie Bell Diehls,** BS Ed '93, M Ed '99, of Columbia announce the birth of Evan Walker on Nov. 20.

•**Scott Haymes,** BJ '93, of Springfield, Mo., is an advertising account executive for McLeod USA Publishing and has been a member of the company's President's Club for three consecutive years.

•**Jason Helton,** AB '93, of Gallatin, Mo., is community development manager for Premium Standard Farms.

•**Tom Macy,** MHA '93, of Omaha, Neb., is chief executive officer for Internal Medicine Associates.

•**Julia Becker Mayer,** BS '93, MD '97, and husband **Gregory Mayer,** BS HES '94, of St. Louis announce the birth of Elizabeth Christine on July 25, 2001.

•**Jill Layton Pfaff,** BS BA '93, and husband •**Justin Pfaff,** BS '94, of Kansas City, Mo., announce the birth of Charles James on Feb. 18.

Benjamin Tomkins, AB '93, of Emeryville, Calif., is managing editor of Tendo Communications.

•**Lori Gallagher Watson,** BS HES '93, and husband **Ryan Watson,** HES '94, of Ballwin, Mo., announce the birth of Justin Patrick on Feb. 1.

Jason Gorden, BS CoE '94, JD '00, of Lee's Summit, Mo., is an associate with Blackwell Sanders Peper Martin LLP.

Roni Turner Landow, AB '94, and husband Todd of Denver announce the birth of Spencer Eli on Sept. 24, 2001.

Melanie Epstein O'Donnell, BJ '94, and husband Mike of Peoria, Ill., announce the birth of Sydnee Andrea on Dec. 13.

Sarah Tipton Reimer, MD '94, and husband Jonathan of Mequon, Wis., announce the birth of Calvin Emanuel on Jan. 22.

•**Jenny Ressel,** BJ '94, of Overland Park, Kan., is senior manuscript editor for the American Academy of Family Physicians.

•**A. Renee Rucinsky,** DVM '94, of Chester, Md., is a certified feline specialist and medical director of the Cat Hospital Eastern Shore.

Jane Hoppe Schilmoeller, JD '94, of Shawnee Mission, Kan., is a partner with Shook, Hardy & Bacon LLP.

Chris Snider, BS '94, BS CiE '00, and wife **Jennifer Myers Snider,** BJ '95, JD '02, of Columbia announce the birth of Paige Helen on March 21.

A Time to Give Back

Youth who grow up in poor, inner-city communities have the intelligence, motivation and potential to succeed; but without resources, role models or job skills, many grow up perpetuating the cycle of unemployment and poverty.

"We need to give these kids a sense of ownership in their communities so that they understand that when they get a job, they have the opportunity to help themselves, their families and their neighbors," says LaTia King Westfall.

As executive director of the St. Louis Internship Program (SLIP), Westfall, BJ '90, equips low-income high school students with the tools they need to succeed. Westfall, the proud product of public schools in East St. Louis, Ill., says her motto in work and in life is, "Get in; move up; and give back."

SLIP accepts about 200 students each year and teaches them how to dress appropriately for work, perform well in interviews, put together effective résumés and handle leadership positions. Westfall then places the students in eight-week internships at law firms, nonprofit organizations, government offices and corporations all over St. Louis.

"Beyond basic job skills, I try to give them life skills," Westfall says. "I teach them to take pride in their work, to exceed the expectations of others, and most of all I try to develop a philanthropic mindset in each one of them. The goal is for this to have a long-term effect in their communities."

As director of the St. Louis Internship Program, LaTia King Westfall gives high school students the skills they need to succeed on the job and in life.

After students complete the internships, Westfall maintains her connection with them by offering seminars in money management and leadership, and by taking them to college and career fairs.

"Some of these students don't have anyone else to give them this kind of information," Westfall says. "If we just give them the attention they need now, we can develop potential leaders for the future." — *Sona Pai*

•John Westmoreland, BS Acc '94, JD, M Acc '97, of Burke, Va., is an attorney with Latham & Watkins.

•Bob Belote, MS '95, of Independence, Mo., is president-elect of the Missouri Park and Recreation Association.

Jennifer Meeker Bridges, AB '95, and husband Chris of Shawnee, Kan., announce the birth of Cooper Lane on Aug. 23, 2001.

Maneewan Chat-uthai, PhD '95, of Bangkok, Thailand, is dean of the School of Human Resource Development at the National Institute of Development Administration.

Kathi Funk-Christie, MA '95, and husband James of Omaha, Neb., announce the birth of Jacob James on Jan. 9.

•Tina Heins Fanning, AB '95, of Kansas City, Mo., is a senior manager at Procter & Gamble.

•Bennett Lieberman, BS HES '95, of Nashville, Tenn., is staffing manager for CareerStaff Unlimited.

Michael Potts, BS '95, MD '99, and wife **Janelle Johns Potts,** MD '99, of Winston-Salem, N.C., announce the birth of Ethan Michael on Jan. 28.

•Katrina Leimbach Voelker, BHS '95, and husband Hank of Columbia announce the birth of Olivia Diane on July 27, 2001.

•Daryl Hickman, M Ed '96, of Kent, Wash., received tenure as instructor of the musical instrument repair program at Renton State Technical College.

•Kristina Jenuleson, BJ '96, of Arlington, Va., is communications and marketing manager for the Society of Consumer Affairs Professionals in Business.

James Miller, JD '96, of St. Louis is an associate at Husch & Eppenberger LLC.

•Sandra Shepley Quigley, BS BA, BS BA '96, of Chesterfield, Mo., works in pharmaceutical sales for Abbott Laboratories.

•Karen Randolph, AB '96, of Austin, Texas, is an attorney with the Texas Association of School Boards.

Tim Thomas, BS ME '96, and wife **Kelli Alberts Thomas,** BS HES '97, of Columbia announce the birth of Hannah Danielle on Dec. 15.

•Shannon Heinrich Walters, BJ '96, of Raleigh, N.C., is communications director for the University of North Carolina Highway Safety Research Center.

Susan Wharton, JD '96, of Kansas City, Mo., is an associate with Stinson Morrison Hecker LLP.

•Heather Allen Bistyga, BJ '97, of Deerfield Beach, Fla., is electronic media editor for Adir Technologies Inc.

•Richard Chrismer, AB '97, of St. Louis is press secretary for Jim Talent's campaign for the U.S. Senate.

•Kelly Cope Faulkner, BSN '97, of Lake Ozark, Mo., is an emergency room nurse in the outpatient department of Lake Ozark General Hospital.

•Jim Smallwood, MBA '97, is branch manager of the Neosho, Mo., US Bank.

CLASS NOTES

•Jonathan Wasserkrug, AB '97, of Greenwood, Mo., is a retail performance analyst for Hallmark Cards Inc.

Matt Poling, AB '98, of St. Louis started Infinity Sports Management, which specializes in marketing and endorsements by professional athletes.

•Jake Quick, BJ '98, of Denver is new media director of Black Diamond Concepts.

•Pamela McDaniel Sells, EdD '98, of Rolla, Mo., is superintendent for Maries County R-1 School District.

Kaplan Yalcin, BS '98, of Dover, N.H., organized and outfitted an expedition in the arctic region of the Canadian Yukon to track human impact on the remote northwestern Arctic.

•Beth Naser, BJ '99, of Columbia is an academic adviser in MU's School of Journalism.

•Bradley Peters, BS '99, of Smyrna, Ga., is an associate with Hunton & Williams. His wife, **•Heather Eppard Peters,** BJ '99, started Peters Media Management LLC.

•Cori Welland, BJ '99, of St. Louis is an account executive for The Zipatoni Co.

•Dara Demi, BJ '00, of New Bern, N.C., is a weekend anchor and weekday reporter for WCTI-TV.

•Matthew Grant, JD '00, of St. Louis is an associate at Husch & Eppenberger LLC.

Catherine Hadfield, BS BA '01, of North Mankato, Minn., is a bank examiner for the Federal Deposit Insurance Corp.

Lauren Thomas, BJ '01, of Kansas City, Mo., is program coordinator for International Enrichment Inc. in London.

Adam Kaminsky, Bus '02, is branch manager of the Columbia office of Vector Marketing.

Faculty Deaths

H. Dwyer Dundon, AB '50, MA '55, former associate professor of occupational therapy, Dec. 4 at age 79 in Columbia.

Francis "Jim" Flood, associate professor emeritus of library science, May 11 at age 77 in Columbia. Contributions to the Professor Francis J. Flood Memorial Fund may be sent to Mike Cook, 104 Ellis Library, Columbia, MO 65201-5149.

Clarence Klingner, BS Ag '33, MA '49, professor emeritus of agricultural economics, Jan. 22 at age 91 in Washington, Mo.

Dean Metter, professor emeritus of biological sciences, June 23, 2001, at age 68 in Columbia.

Deaths

Don Martin, BFA '29, of Weatherford, Texas, Oct. 22 at age 96. A member of Delta Upsilon, he was a supervisor with the Texas Railroad Commission and a rancher.

Virginia Alexander Brayton, AB '30, GN '32, of West Burlington, Iowa, June 7 at age 93. She and her husband founded

Brayton Chemicals Inc.

Clarence Klingner, BS Ag '33, MA '49. See Faculty Deaths.

Martha North Pollitt, BS Ed '33, of Santa Barbara, Calif., March 2 at age 89. A member of Pi Beta Phi, she was a homemaker.

Marie Steinberg Chused, BS HE '34, of Creve Coeur, Mo., April 15 at age 89. She was active in civic organizations.

J.D. Harris, BS Ag '34, M Ed '49, of Poplar Bluff, Mo., Jan. 17 at age 92. He taught vocational agriculture in Kentucky and was district supervisor of vocational agriculture for the State Department of Education for 31 years.

Carl Noren, AB '37, MA, MA '41, of Columbia March 2 at age 88. He was director of the Missouri Department of Conservation for 13 years.

Phyllis Plowman Sneed, BS Ed '37, of Miami March 6 at age 86. She traveled around the world to collect seeds for tropical plant research.

Margaret Rutledge Shannon, BJ '39, of New Albany, Miss., May 14 at age 84. She retired as a writer from the *Atlanta Journal* after 41 years of service.

Ruth Johnson Fernwood, BJ '40, of San Anselmo, Calif., Dec. 22 at age 82.

Don Dale, BJ '41, of Guymon, Okla., Sept. 30, 2001, at age 83. He was an associate district judge in Oklahoma for 14 years.

Chester Evans, BS Ed '41, MA '47, of St. Petersburg, Fla., Dec. 6 at age 83.

Allan Sudholt, BS Ag '41, MS '61, of Hannibal, Mo., Oct. 16 at age 85. He was a county agent in Pike County for the University of Missouri's Cooperative Extension Service and worked for the United States Foreign Service.

Helen Folk Thomas, GN '41, M Ed '46, of Holts Summit, Mo., Jan. 16 at age 88. She retired as a registered nurse.

Kenneth Fienup, BS CiE '42, of McLean, Va., May 2 at age 80. He retired from the general engineering division of the U.S. Department of the Interior's Bureau of Reclamation after 31 years of service.

Harold Miller, AB '42, of Punta Gorda, Fla., Jan. 19 at age 84. He worked for Aetna Insurance Co.

Edward Lupberger, BS BA '42, of Denver July 17, 2001, at age 84. He retired as financial vice president of investments at the National Farmers Union after 32 years of service.

Ruth Harter Stowell, BS Ed '43, of Pacific Grove, Calif., Aug. 30, 2001, at age 79. She was an elementary schoolteacher.

Charles Walton, MA '43, PhD '53, of Emporia, Kan., Jan. 18 at age 81. He was a teacher and chair of the English department at Emporia State University.

Lois Heisinger Spano, BJ '47, of Bethesda, Md., March 2 at age 78. She was a free-lance writer.

CLASS NOTES

Willard Fardon, BJ '49, of Lee's Summit, Mo., Jan. 29 at age 75. A member of Phi Delta Theta, he was a real estate broker for 30 years.

Arnold Pryor, BS BA '49, of St. Louis Feb. 17 at age 82. A member of Alpha Kappa Psi, he worked in the field of purchasing.

Bill Clough, BS BA '50, of Lake Wales, Fla., Nov. 20 at age 74. He retired from Marsh and McLennan in 1989.

H. Dwyer Dundon, AB '50, MA '55. See Faculty Deaths.

Martha "Ann" Woodbury, BJ '50, of Kansas City, Mo., Oct. 25 at age 72. She was an avid traveler.

Paul Savage, BS BA '51, of St. Louis Jan. 11 at age 75. He was chief executive officer of Savage Foods and played football at MU.

Richard Stephens, BS BA '51, of Wheaton, Ill., Oct. 25 at age 72. He retired as an international buyer for Sears Roebuck Co. after 35 years of service.

Joseph Sullens, BJ '54, of Joplin, Mo., May 5 at age 72. He retired as executive editor of the *Newton Kansan* after 15 years of service.

John Hughes, AB '55, JD '60, of St. Louis May 2 at age 69. A member of Phi Kappa Psi, he practiced law.

Robert Hyde, BJ '55, of Glen Ellyn, Ill., Aug. 18, 2001, at age 68.

Donald Byers, BJ '56, of Hamden, Conn., Nov. 23 at age 76. He retired as public information director for the state of Connecticut Department of Motor Vehicles in Wethersfield.

William "Bob" Hitt, AB '58, of Falls Church, Va., March 5 at age 68. He retired as a colonel and chief of international law in the Office of Judge Advocate General with the U.S. Air Force after 24 years of service.

Cherry Moore Logan, M Ed '58, of Magnolia, Ark., March 20 at age 79. She was an English teacher and associate librarian at Arkansas Tech University.

John Nutt, BS Ag '60, of Sedalia, Mo., May 2 at age 63. A member of Alpha Gamma Rho, he retired from farming and the concession business.

Jim Ellis, BS Ag '61, MS '66, of Fort Collins, Colo., March 14 at age 63. He was an ecosystem scientist with the Natural Resource Ecology Laboratory at Colorado State University.

James Hughes, BS Ag '62, of Stockton, Mo., March 18 at age 69. He was a bus driver for 25 years.

Billie Richmond Taylor, M Ed '62, of Fulton, Mo., April 6 at age 72. She was a teacher and principal.

Frances Shields Johnson, MS '63, of Indianapolis March 4 at age 91. She was director of children and youth services at the Mid-Missouri Mental Health Center for 12 years.

Susan Miller Burnside, BJ '65, of Miami May 6 at age 58. She was an editor at *The Miami Herald.*

L. Bruce Conway, BS BA '68, of Tavares, Fla., Feb. 13 at age 56. A member of Delta Upsilon, he was procurement manager for the Lake County, Fla., Board of County Commissioners Division of Fiscal Administrative Services.

R.P. Dickey, AB '68, MA '69, of Ranchos de Taos, N.M., May 15 at age 69. He was a poet and author.

Ray Akin, BS Ag '72, of Bolivar, Mo.,

CLASSIFIEDS

BED AND BREAKFAST

VACATION RENTALS

ATHLETICS

CLASS NOTES

Jan. 26 at age 51. He was an account executive at Norwest Mortgage/Wells Fargo Home Mortgage Co. in Springfield, Mo. **Leonard Lanfranco,** PhD '76, of Lake Oswego, Ore., April 29 at age 61. He was chairman of the department of advertising and public relations at the University of South Carolina.

WEDDINGS

•Mary Maurer Dixon, BS BA '38, and **•John Martz,** AB '38, of St. Louis May 4.

Kathy Flood, BJ '70, and Ben Figas of St. Louis Nov. 11, 2000.

Tom Murphy, BS BA, BS BA '88, and Nancy Yurchak of Shawnee Mission, Kan., Sept. 14, 2001.

•Teresa White, BS Ag '90, and Ricky Dove of Newport, Va., Aug. 18, 2001.

•Anthony Campiti, AB '93, and Jennifer Miller of Dallas Aug. 24.

•Kimberly Adair, BS HES '94, and Kurt Schellenberger of Brick, N.J., June 23, 2001.

•Erin Althage, BS BA '94, and Michael Goldberg of Middleton, Conn., May 18.

Christine Davids, MA '95, and Michael Lynch of Omaha, Neb., Nov. 16.

•Kristy Freeman, AB '95, and Paul Clark of Waxahachie, Texas, July 21, 2001.

•Shelly Gillilan, BS BA '96, and **F. Dawson Rolwing,** AB '97, of Salt Lake City Aug. 25, 2001.

•Jennifer Burwell, AB '97, and Ryan Unruh of Kansas City, Mo., July 7, 2001.

•Leslie Hoffman, BSN '98, and Lance Robb of Lee's Summit, Mo., April 20.

•Elizabeth West, BS '98, and James McCune III of Monongahela, Pa., Oct. 20.

Kate Mundwiller, BS BA '99, and **Tony Katzer,** BS BA '99, of St. Charles, Mo., June 9, 2001.

•Amy Watkins, BSN '99, and Donald Eason Jr. of Houston Nov. 25, 2000.

Amy Roby, BS HES '00, and **•Dan Andrzejewski,** BS BA, BS BA '99, of St. Charles, Mo., June 1.

•Kate Good, BS HES '00, and **•Robert Weir,** AB, BJ '99, of Columbia Jan. 5.

Coming Next Issue

- The Maneater Ugly Man Contest winner of 1957 inspired fear and food fights on his way to victory.
- Most firefighters would rather run into a burning building than don a kilt and play the bagpipe. And then there's Ken Hines.
- Was Walt Disney a great artist or just a Mickey Mouse salesman peddling escapism?
- Kareem rushed to the NBA, but Quin Snyder has more Tiger talent.

MIZZOU ADVERTISER INDEX

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ALUMNI IN BUSINESS

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This 1953 Ford Golden Jubilee tractor belongs to Mike Hood, BS Ag '63, inset, who brought it to campus for a 2003 Classic Farm Tractors calendar photo shoot. The calendar will be available this fall from publisher John Harvey, BS Ag '57, by calling 1-800-888-8979 or visiting http://www.classictractors.com.

PHOTO BY MIKE HOOD

CLASSIC IRON ON THE QUAD

WHEN THE FORD MOTOR CO. COMMEMORATED its 50th anniversary, it didn't make a car for the occasion — it made a tractor. And that 1953 Ford Golden Jubilee helped Mike Hood, BS Ag '63, farm his way through MU in cornfields and hayfields in what is now part of northwest Columbia.

A twin to that tractor — which Hood photographed in front of the Columns last September — will star on its 50th birthday in the 2003 edition of the Classic Farm Tractors calendar published by fellow MU agricultural journalism alumnus John Harvey, BS Ag '57, of Wilmington, Del.

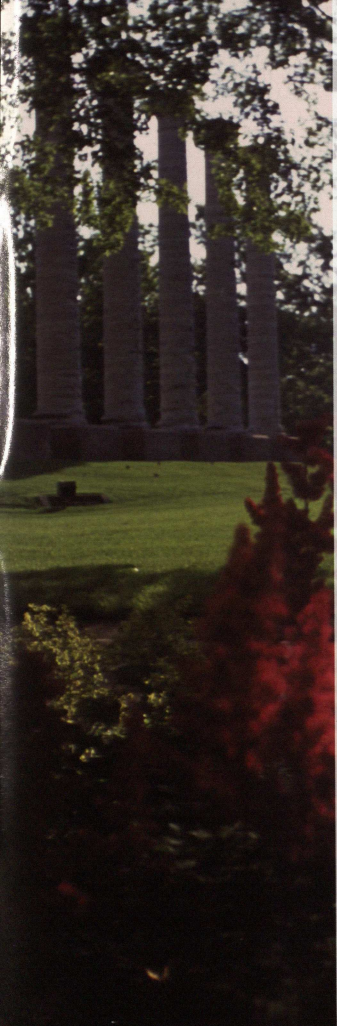
"I think I imprinted on a Farmall tractor when I was 4 years old," says Hood, who now owns four classic tractors. "Their job is to be my toys."

He takes his Jubilee on cross-country tractor rides and photographs hundreds more as a free-lancer based in West Des Moines, Iowa.

Hood is retired after 25 years at Meredith Corp., where he held senior editor positions on *Country America* and *Successful Farming* magazines.

Hood got the green light to park on Francis Quadrangle from tractor and steam-engine enthusiast Kee W. Groshong, BS '64, vice chancellor for administrative services. Groshong retired in August after 37 years at MU. "This way I can spend more time with my hobby," Groshong says.

"It was a great thrill" to photograph the tractor with its distinctive Red Tiger engine on campus, Hood says. "I have such a warm feeling for the University of Missouri and all the people who helped a farm guy like me learn the ways of journalism." — *Marilyn Cummins*



If Only We Had Known...

The University of Missouri-Columbia often receives surprise bequests from the estates of alumni and friends. Unfortunately, because these gifts were never revealed to us, we did not have an opportunity to show our appreciation or to say "thank you."

Last year MU was notified that another bequest had been directed to benefit the campus. Professor Emeritus Raymond Peck and his wife, Vaona, made provisions within their estate plan for a gift of more than $1 million to benefit cancer research at the MU School of Medicine. In addition, a $50,000 gift was directed to the College of Arts and Science to establish a fund in Dr. Peck's honor.

According to their nephew, William N. Peck, MU '48, the Pecks met at MU, and the University was a vital part of their lives. Dr. Peck spent more than 40 years with the University, serving in many different roles, including chair of the Department of Geology from 1950 to 1959.

Additionally, Dr. Peck was actively involved with the geology department's Camp Branson as well as graduate and research studies. Mrs. Peck, an accomplished artist, regularly accompanied Dr. Peck to Camp Branson, as she very much enjoyed the outdoors.

The gift came as a wonderful surprise to the University. Although the Pecks had been loyal supporters of MU, their bequest plans were unknown. We were never able to appropriately thank Dr. and Mrs. Peck for their generous gift, nor were they able to see the plans for the use of their gift.

If you have named the University of Missouri-Columbia in your will or estate plan, please let us know so that we might thank you and share with you how the gift will enhance the University's Strategic Plan. MU's Legacy Society has been established to recognize alumni and friends who have made provisions for MU in their estate plans, and we would like to include you in this recognition society.

TO RESPOND BY MAIL, PLEASE CLIP AND RETURN TO:

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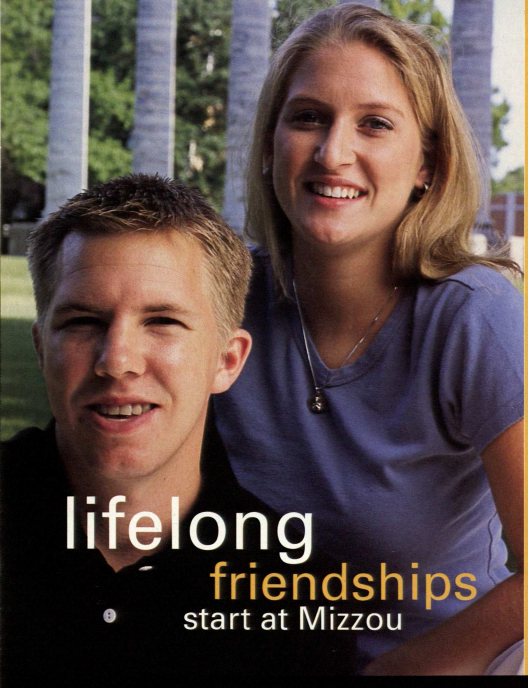

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